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The Builder.

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FOR THE

Architect, Engineer, Archæologist, Constructor, & Artist,

CONDUCTED BY

GEORGE GODWIN, F.R.S.

Fellow of the Royal Institute of Architects, and Honorary Member of several Societies.

"Every man's proper mansion-house, and home, being the theater of his hospitality, the seate of selfe-fruition, the comfortablest part of his own life, the noblest of his sonne's inheritance, a kinde of private princedome, nay, to the possessors thereof, an epitome of the whole world, may well deserve, by these attributes, according to the degree of the master, to be decently and delightfully adorned."

"Architecture can want no commendation, where there are noble men, or noble mindes."—SIR HENRY WOTTON.

"Our English word To BUILD is the Anglo-Saxon Bȳlðan, to confirm, to establish, to make firm and sure and fast, to consolidate, to strengthen; and is applicable to all other things as well as to dwelling-places."—DIVERSIONS OF PURLEY.

"Art shows us man as he can by no other means be made known. Art gives us 'nobler loves and nobler cares,'—furnishing objects by the contemplation of which we are taught and exalted,—and so are ultimately led to seek beauty in its highest form, which is GOODNESS."

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The Builder

NUMBER 465.] VOLUME FOR 1852. [SATURDAY, JAN. 3.

INSTEAD of fresh professions which we have heretofore thought it desirable to make at the commencement of each succeeding volume, we are disposed, rather, to rest on what was done last year, and to point to the present number of the journal as an evidence of our intention not to relax in endeavours to render THE BUILDER useful and interesting to every one, but to take all the means in our power to make it more so. A single number, it is true, does not afford space to show the whole scope of the work: to judge it fairly and estimate rightly its "infinite variety," one of the monthly parts should be taken: still we think we may venture on the reference we have made. In this number will be found, amongst other matters, an essay on sanitary necessities, one on architectural practice, and a third on an archæological point of interest; original news from all parts of England, Ireland, and Scotland; information from America and the Continent; many suggestions; reviews of several books and of new scenery and decorations; an engraving of The Fountain of the Cross, in Rouen, and a fine view of the new market at Billingsgate, recently completed.*

We would here say, in parenthesis, that we shall be glad to receive from architects and others increased facilities for laying before the public views and plans of new buildings, and details of new modes of construction. If architects looked at the matter rightly, they would see that we offer them a service, and would not force us, as is now and then the case, to *screw* out the information we need, at the cost of much time and great inconvenience. Some of our professional contemporaries owe more to friendly consideration than they fancy. They may perhaps be startled, one of these days, by a little plain speaking, and, though they show no appreciation of silence or even of applause, be moved to great indignation by utterance. We speak, however, of exceptions, and only in the hope that these may become fewer.

The new buildings at Billingsgate were erected from the designs of Mr. Bunning: Mr. Jay was the contractor, and the cost of the whole will be about 20,000*l*.

Let us go a little into particulars. The Corporation of London having decided on the enlargement of Billingsgate-market, in consequence of the great increase in the quantity of fish brought by railway to London, a plan was suggested by Mr. Bunning for inclosing the site of Billingsgate dock, thereby greatly enlarging the area of the market, and giving the means of forming a sub-market for shell-fish. This suggestion having been adopted, the plan was carried out by the erection of a river wall of Haytor granite, the foundation of which was (in consequence of the nature of the soil, and to ensure the sub-market being perfectly dry) carried to the depth of 14 feet below the soil of the river without the aid of a coffer-dam. The river front of the new market is also now just completed, and is of red brick and Portland stone, except the columns of the arcades and the ornamental panels above, which are of cast-iron. The Clock Tower will contain a clock by Messrs. Thwaites and Reed, showing four illuminated dials, 5 feet in diameter; and the belfry will contain a market and high-water bell and the clock bells. In the wing buildings are offices for the clerk of the market, oyster tasters, inspectors of fish, &c.

The roofing over the market is of galvanized corrugated iron, in a semicircular form, supported by light cast-iron columns and girders; with skylights towards the north, glazed with ground plate-glass. Mr. Walker was the contractor for the iron roofing. The portion of the market next Thames-street will contain a warehouse for storing dried fish.

The ventilation and cleansing are to be effected by mechanical means. For the former, a centrifugal exhausting machine, and for the second a centrifugal pump, have been fitted up by Mr. Bessemer. The exhausting machine consists of two discs of iron, 8 feet in diameter, and having a central opening of half that size, placed on a shaft, 2 feet apart from each other, and attached by eight radial partitions, forming a series of segmental chambers around the axis: a communication is established between the central openings of this disc and the place to be exhausted, by several underground channels branching off to different points, where openings are formed for the inlet of the air, while the external diameters of the discs communicate with an air-shaft leading upwards above the roof of the building, where the foul air is dispersed. "When a rapid rotary motion is communicated to the disc, the air contained in its segmental chambers immediately acquires centrifugal force, and escapes at the outer edge of the disc, while new portions of air rush to the centre of it from all the numerous inlets before referred to, and thus fill up the vacuum formed by the escape of it at the periphery; so that a continuous and powerful action is kept up, carrying out of the market at least 50,000 cubic feet of foul air per minute, the space previously occupied by which is immediately reoccupied with fresh air from the open court next the river."* By the pump, two tons of water per minute, it is said, will be lifted 35 feet high from filters in the bed of the Thames, and then to a fountain in the upper market; while a large quantity of unfiltered water will be lifted from the river, and circulate through a series of covered gutters in both markets, to carry off the drainage from the stalls.

Billingsgate, at one time rivalled by Queenhithe, has been a fish-market for centuries. In 1558 it was declared "an open place for the landing and bringing in of any fish, corn, salt stores, victuals, and fruit (grocery wares excepted), and to be a place of carrying forth of the same, or the like, and for no other merchandizes."* Stow says, "Geffrey Monmouth writes, that Belin, a king of the Britons, about four hundred years before Christ's nativity, built this gate, and named it Belin's gate,"—but he suggests that it more probably had its name from some *later* owner. The market begins at five o'clock in the morning, when the scene is worth a visit. Of salmon alone, the quantity annually brought to Billingsgate is said to be more than 2,500 tons.

The frequenters of the place have, or rather had, a language of their own, which made "Billingsgate" and "coarse words" synonymous. Improvement in this respect is observable, and the new buildings, suggesting notions of respectability, decency, and order, will, it may be expected, complete the cure.

The present year promises to be a busy one, and we will try to play in it a useful part. As we said on a similar occasion five years ago, the spread of architectural knowledge; the improvement of dwelling-places; the science of heat, of sound, of ventilation; legislative enactments affecting constructions, and the due administrations of them; facilities of communication; the dissemination of a knowledge and love of art; and the score of other objects which specially occupy our pages, are but means to an end,—and that end is, the accommodation, health, well-being, happiness, GOODNESS, of the community at large.

THE PRACTICE OF SANITATION.

SANITATION, to use the term in its widest sense, has now passed a trying stage of its existence. Learned men have made clear the unerring principles on which depend the proper carrying on of the functions of life: philanthropists have with patient and laborious investigation, collected a numerous array of striking facts in connection with the subject; and men with clear heads and ready pens have, through the medium of the all-powerful press, diffused these through nearly all the ramifications of society;—and thus by dint of the perseverance which ensures success, sanitation may be said to be clear of the danger of being forgotten or overlooked; that it has, in truth, taken the position of a comprehensive science, involving much that is of paramount importance to all civilised communities. And yet, although few are found who have the hardihood to deny the truth of its principles, or the im-

* See pp. 8 and 9.

* Weale's "London."

* Quoted in "Handbook for London."

portance of attending to their dictates; how scantily diffused is its daily practice, let the evidence of daily experience testify. Estimates of loss of life—occasioned by neglect of the laws which God has beneficently provided for our comfort and happiness—have been made, the coldest statement of which is the most appalling; pictures—drawn, alas! from the very life—have been presented, the details of which have been harrowing in the extreme, and these so often and so repeatedly, that it seems as if the warnings which were thus thundered in the public ear, had only the effect of deadening its apprehension of the danger, and inducing the apathy and indifference which they were only meant to arouse and to dispel. Year after year stern disease and the pale pestilence, are allowed to run riot in our crowded cities, decimating their populations unopposed and altogether unheeded. Hundreds of our fellow-men are allowed to drag out, from day to day, weary existences in dens into which some would be ashamed to thrust their very dogs; and more than this, and perhaps more closely interesting to those who have it in their power to remove the causes, disease is engendered, fostered, and encouraged in quarters in which, from their position and situation, it might be well exempt; and yet, with this state of matters staring us in the face, difficult to be got rid of, impossible to be denied, it seems that the mere fact of our knowing the theory of the science, and fully conceding the importance of its claims, only results in the practice of sanitation being continually ignored. We boast of our superior enlightenment, of our high state of civilization, of our mechanical wonders, our luxuries, and comforts: we plume ourselves on a Glass Palace: we talk complacently of the Great Exhibition, and are proud of the genius and the wealth which fill it with its glowing wonders; but we pass "unheeded by" the horrors and miseries which surround us in our daily walks, and treat with no laudation, but unmerited indifference, the labours of the men who have devoted a lifetime to the interests of humanity, and the amelioration of the condition of their fellow-men.

Poll throughout the kingdom the hundreds of wealthy men who yearly lay out vast sums in building, and tell us—not how many are alive to the importance of sanitary construction: they are all to a man convinced of that,—but how many will authorize or instruct their architect or builder to introduce those very arrangements into practice, the good of which they so readily admit in theory. Passing strange it is, that men who in the ordinary routine of their daily business are so cool and calculating as never to lose sight of what has been emphatically called the "main chance," should, in a matter of so much importance to themselves and the community as practical sanitation, ignore or calmly overlook the pecuniary advantages attendant upon following out its details; or, on the other hand, be indifferent as to the inevitable and *calculable* loss suffered by their neglect. And yet, to the veriest dolt that would devote an hour to its consideration, the whole subject is so plain and palpable, that we may well wonder at the apathy with which it is treated by *men of business*. It seems to us as if all the time spent in detailing the scenes of filth, neglect, and—their sure concomitant—disease, which surround us in crowded cities, and of proving, however shortly, that so sure as we thrust our fellow-men to dwell among them, so surely does death begin his dreary work, is but so much precious time lost; that the stern truths we tell of, are but as idle breath to which as much attention is paid as to the "wind that bloweth where it listeth." Sad and woful as are the effects of the great battle of life, ever fighting around us, it is as if the great majority of our luckier fellow-men care not for the sufferings of those whose lives "are not cast in such pleasant places." Verily, seeing the present state of sanitary practice, we may well despair of doing good by drawing attention to the dreary facts made known by sanitary philosophers, in the hope of rousing into activity the principles of humanity, of so large a portion of that class with whom rests the responsibility and the privilege of bettering the condition of their fellow-men. We should like to see, to the close appeals made them, something of a more interested heart's response, a response that would be, not at the best, cold and lifeless, but as a philosopher's stone, that would transmute all it touched into the precious metal. But if appeals to humanity are made in vain, the appeal to the pocket must be attended to. The time *will* come when the selfish question, "how does this state of matters affect my pocket?" will gain high consideration. At present too many act as if the fact that so much mortality results from sanitary neglect was one that could not in the remotest sense affect them; but sooner or later the stern truth will to such become obvious, that no matter when a death takes place which sanitary measures would have prevented, so certainly are they called upon to pay a modicum of the loss, which, in the aspect of individual items, may be looked upon with indifference, but, when heaped up into a mighty aggregate, will then be worthy of earnest thought. To an individual of this class, the recital of the horrors of the cellars and alleys, and of the pest houses of our crowded cities, may do no more than call up an expression of wonder or surprise,—and the deaths occasioned by fevers and plagues, created and fostered by a state of matters shameful to the credit of a civilised community,—may create in him no other feeling than that of desire to be personally clear of the dangerous influences; content with the expression of the selfish wish, too prevalent among many professing to be Christians,—"let me be safe, but as for you, poor nurslings of a day, die—but die alone! let not mine eyes witness your misery." In this quotation—alas! for human kindness and that love which knows no tie save that which binds in a common bond all humanity,—may be summed up the whole degree of interest that many feel in the matter: so that *they* are safe, no matter what may be the lot of others. It would be but a mere idle waste of time to show to such, how from every rank and squalid den around and near them, arises an influence for evil that, sure as the sun gives light, closely affects their interests; that not a death takes place but what they are connected with, and—wink at it as they may, and shut out as they will, the truth from all admission to their convictions—for which they are not in a measure most responsible.

These are those who heap vituperation, heavy in amount, unfeeling in its kind, on the classes they are pleased to term—"the great unwashed;" little thinking that, in the very term they use, there is an amount of keen and cutting irony rebounding on themselves, which, if they would or could but see it, might induce them to make some little effort to remove the term from amongst us. They raise woful Jeremiads about the dishonesty and faithlessness of so large a proportion of our population—of the vice that dwells amongst them—of their crimes, which are ever fast increasing—of the loathsome dens they live in—of their habits of intemperance, uncleanness, and improvidence, and of the disease which is ever filling up loathsome graves; and all the while they think and act as if this was a state of matters which had no concern for them, and which to alleviate and remove called for not the slightest atom of their exertion. Holding, as we do, the opinion, that before expecting any improvement in the moral habits of our poorer classes, or to quote the pet phrase of the advocates of the "laissez faire" system we have already noted "the great unwashed," we must first remove the physical evils which press upon them with such a deadly weight, we cannot blame them, or heap upon them that amount of scorn which so many unthinkingly do. "Here is a point of wretchedness which is incompatible with the existence of any respect for the peace or property of others; and to look, in such a case, for obedience to the laws when there is the slightest prospect of violating them with impunity, is to expect to reap where you have not sown." Born midst physical darkness, breathing a noxious atmosphere, nursed in their earliest infancy amidst filth, and wretchedness, and immorality, their infant lullaby and childhood lesson the hardened oath and obscene expression,—their youth spent in prowling about dark alleys, their companions thieves, their teachers may-hap murderers,—starved, ragged, and uncared for—how can youth, nursed in childhood amongst such scenes, schooled in riper years to vice and wickedness, know better? How can they know the distinction between right and wrong, the difference between good and evil? To expect the inhabitants of such wretched quarters to be morally pure, whilst they are allowed to remain physically impure, is as absurd as to expect the natives of an uncivilised and unconverted island to shew, in their daily walk, the beauties of the Christian life. When shall we—a consideration of our present social state may well enforce the question—begin to strike at the root of all our social misery—of the cause of most of our crime? When shall we learn that all the stately machinery of our courts of justice, of our prisons, penitentiaries, convict ships, penal settlements and the hideous gallows—a dreary list—never will eradicate vice, never prevent crime. We may fill our jails to overcrowding: we may load our convict ships with their living freights; aye, and may hang by scores; but we shall find that so long as we follow our present system, from the dark alleys and haunts of misery recruits will come up fast and thick to fill the ranks of crime and to keep in motion the cumbrous machinery of our criminal law; and so long, moreover, shall we have workhouses to build, poor-rates to pay, and all the items of the heavy bill entailed upon us by a thoughtlessness which it would scarcely be an exaggeration to designate by a harsher name, as "heartless crime at which angels weep."

It is unnecessary again to enter into the proof of the fact we have stated, namely, that for all losses occasioned to society by *preventible* deaths, the survivors in whatever class *must* pay; but seeing that it is so, would it not be better for all classes to unite and get rid of the causes—so foul and rife—of disease and death surrounding us,—to do that voluntarily and with all the grace of a ready and willing gift, which, under the present arrangement, we are compelled to do, and have, moreover, no credit for, but rather, on the contrary, the shame incurred by the neglect? We should like to see the belief become more prevalent, and spread until all the wealthy and the powerful in social life were believers in the creed, that it is more in keeping with our profession as a nation of Christians to prevent crime rather than foster and encourage it—to enable men to live rather than to stand by and suffer them to die—to build good houses rather than have to provide them with graves—to give men work to live in comfort in their own dwellings than to build palaces and call them prisons and workhouses—to raise schools rather than houses of correction—and to enable men to clothe and feed their families rather than to resuscitate the erection of ragged schools and soup kitchens. But before this—we hope not Utopian—scheme of daily life in Britain can be realized, there is much work to do, much rank soil to be upturned, now lying waste; and the cultivation of which would redound with profit to all concerned; great apathy to be overcome, the ignorant to be enlightened, the indifferent to be aroused, the disease and its causes to be discovered and the remedy applied. It is the duty as well as the privilege of every one who can lend a helping hand, in getting rid of the monstrous heap of evils that stare us in the face, to work with a will: there is most assuredly a way. The field is wide, and the labour must be severe; but great men have already worked in it, and earned names that will be as "familiar as household words," when those of the conquerors of battle-fields shall be unknown: it is well to follow in their steps, and although the names of labourers of lesser note may be "unknown to fame," it is some consolation to know that though the amount of labour may not be as great as that performed by the "stalwart men of name," the proportion *may* be, and its influence, in its

nd and degree, not the less marked, or owerful for good: "the race is not *always* to e swift, or the battle to the strong."

ARCHITECTURUS TO HIS SON.

THE LAMP OF BUILDING.

If this lamp among the seven is one comaratively vulgar and common-place, it is evertheless essentially respectable and imortant. Let me commence to speak of this I commenced to speak of science: the archiect is, after a manner, the Artist Builder, will say, and his art therefore demands a rtain knowledge of the ordinary craftswork, a basis of necessity,—but this is not the oint: and further, the architect, as a man of usiness, is a professor of mechanical skill, and ch skill requires, as a preliminary skill, the owledge of the builder's work,—but neither this the point at present: but the architect everyday life has a third part of his subject sides these two, and one of no less promience in his daily duty, in the practical direcon and supervision of the very details of the adesman's operations,—and this is our queson of building.

Now, in fact, among these three matters of usiness, the last and vulgar one may posiely demand to be held the chief. Building ay claim the architect as its own man in the st place, whatever else may have a claim terwards. The genius of the great utilitarian vests him with the trowel to lay bricks and e fork to mix mortar,—the hawk, float, ush, and pail,—the slater's sax, hammer, and ilbag,—the mallet and tool of the mason,—e axe, adze, saw, and sledge hammer,—the ane, chisel, centrebit, gimlet, and glue-pot,—e grozing-iron and ladle,—the heavy pincers the smith,—the diamond, square, and puttyife,—the paint-pot, and hog's bristle brush, with these, I say, does the spirit of everyday ings invest the man who writes *Architect* on his door-plate; and, installing him in the rpetual midst of lime, sand, and buckets of ater,—piles of stocks and malms,—drainpes and tiles,—bundles of lath, coarse stuff, e stuff, and stucco, — ochre and whitesh,—ladies, countesses, duchesses, queens, d rags, — York, Bath, Portland, and aen,—timber and deals,—cast lead, milled ad, and solder, — pig-iron and malleable, crown, sheet, plate, and putty, — pigents and oils,— installing him as *chef de isine*, lord of all this kitchenry, administrar of all this raw material, it assigns to him e undistinguished but useful task to make r it houses of these—dwellings for it to live d eat and sleep and see its friends in, warehouses for it to stow its goods, and shops to ll them in and count the gain, churches and isons, schools and penitentiaries, for its od and evil, bridges for it to cross the river, d sewers under its streets to carry off its rty water. This is the primary mission of e architect,—all else comes afterwards.

In this useful and responsible, but somehat weary and dirty capacity, you can earn, y son, five *per centum* on the amount of outy; and this is cheerfully paid, I believe, in ery instance of the pure application of the inciple above. The builder makes one 5 r cent. for profit, and another 5 per cent. r what may be called the use of his capital, nerally a third 5 per cent. for himself to ot, frequently a fourth 5 per cent. for what ay be called even money, and sometimes a th 5 per cent. for the credit of the concern, rhaps. The surveyor takes 5 per cent., if he a person of tact, for making bills of quantis, incidents included. The auctioneer akes 5 per cent. by selling the property. he house-agent makes 5 per cent. by collectg the rents. And for making the plan and ecification after an approved model, and pervising the building, the man above oken of makes also 5 per cent.; to be sure, he adds to building science and art—knits e skeleton together in enduring balance, and othes it in immortal grace—a deduction may e made on account of this, because he who anquets on nectar needs not to batten on read and cheese; but I think you will find it nerally admitted that any old country carpenter and cartwright, who has emerged from that caterpillar condition into the perfect and full blown insect a "*sirwayer*," may reasonably claim as his fee for the application of his building experience to any matter in hand, the cheerful payment of 5 per cent. All this may be matter of reflection for you when you think of it; but mark just now the satisfaction with which the vulgar world will readily pay the unpretending surveyor of building work the full remuneration, while the "architects' charges" of men of scientific and artistic skill combined with the other are almost universally begrudged as exorbitant. There is a reason for this: when no pretension is made beyond mere practical superintendence the vulgar can understand the value of the service; but when other matters of higher order and more ethereal nature are superadded, the first matter is overlooked and the vulgar conclude that they are paying for fanciful things which they do not want. Draw therefore this conclusion—that for practical use, nothing will be found more profitable to the everyday architect than a thorough knowledge of the universal work of building,—no lamp of the seven more serviceable than this most dingily burning and unpoetical of all.

I have said that in this question of mere building we have the primary mission of the architect as a man of business. I say so seriously, and without paradox; and in the horny-handed and beer-drinking "sirwayer" of the provinces I behold the original and archetype and first edition of the professional architect—Charles Barry, as it were, in a wild state. Indeed, my dictionary, being the nineteenth edition of the work of John Walker, gives no other signification of the word *architect* but "a professor of the art of building,—a builder,—the contriver of anything," (this last being, of course, but figurative), while the lately published "Dictionary of Terms" of Mr. Weale's rudimentary series gives me "*architect*, a person skilled in the art of building,—one who forms plans and designs for edifices, conducts the work, and directs the secondary artificers (!) employed,—and whose emoluments are generally 5 per cent. on the amount of money expended." Both these definitions are disgraceful to the book-making of the nineteenth century, but they afford a happy illustration of the circumstance of how much even now the business of the professional architect retains that primary character which is evidenced in the derivation of the name *Archi-tectus*—the chief of the workmen.

For when a man of the world determines to have a house built, as the days are gone by when he would have to set to work to erect it with his own hands, the idea of a builder comes into his mind in the first place. But as civilization is too far advanced now-a-days to admit of such a work being done, except under a specific contract as to price, in the second place there arises the idea of the need for a supervisor to check the builder's honesty; while, in the third place, when we become too discreet to trust to the builder's capacity, there arises the idea of the need for a preliminary contriver to design the plan and conduct the work. And thus we have the original, uncultivated, or wild architect. There is no dreaming of such a thing as art all this time; perhaps the work is a factory or a warehouse: there is scarcely such a thing as science involved; certainly no further than the small empiricism of the workman's skill. The architect was once at the bench himself; the fact is his chief stock in trade, and our man of the world satisfies himself of this before he entrusts him with the outlay of his money, and agrees to his commission of 5 per cent.; indeed, both parties are cordially at one on these grand *data*, —first, that science is but pedantic affectation, and rule of thumb the practice, one grain of which is worth a ton of the theory of the other; and, secondly, that art is simply hallucination, whether as a matter of fact or a matter of business.

It is only after this that the higher qualities of the architect come into requisition, and at first but faintly, and in the midst of suspicion as to their genuineness. It is a little science and a little ornament which happen first to be demanded, and this increases little by little, till at length the architect steps forth from the old primary principle so far, and, in the division of labour, becomes so far separated from it, that the builder and the wild "sirwayer" declare open war against him as a knownothing who has never been at the bench. He becomes what is now understood as a "professional man;" indeed, presently his profession becomes one of the "polite," almost one of the "learned;" he becomes a man of higher social class, and scientific calculation and æsthetic study go hard to drive the mastership of the workmen out of the field. And if they should do so, the more the pity, as concerns the architect as a man of business.

Whether the principle of the division of labour, which has inundated our registry nowadays with trades, professions, and other callings by the hundred, of which our grandfathers could not have conceived the possibility, may ever come to separate the superior and inferior provinces of the architect's present dominion, I should not like to predict, although assuredly the separation of the architect from the civil engineer on one hand, and from the measuring surveyor on another, is already sufficiently complete to warrant us to look for another separation such as this if it were advisable. Whether it may become advisable, time will duly show; but at the present day no one ought to recommend the learner to entertain any idea which would lead him to the abandonment of practical building as a subject of his study. It is, indeed, rather necessary to urge upon him the cultivation of this subject as matters stand; for at present, the supervision of building still holds chief importance in the architect's every-day province (even if it were not absolutely necessary that his knowledge of this should be comparatively intimate as a basis for either science or art), while it is too much to be feared that many of our youth are permitted to evade a question which they are inclined to deem unpalatable and *infra dignitate*, to such an extent as to deprive them in the commencement of active life of one of the best means of recommending higher attainments, establishing a reputation, and earning bread. It is a dingy and a greasy lamp, it may be, but it serves to connect its brighter companions with the vulgar light of the common world.

You will meet with many who do not hesitate to insist that no man can pretend to be an architect who has not actually worked at the bench. I have always been free from the assaults of such persons, my son, inasmuch as I was caused in my early days to rise early for perhaps a fortnight, and do duty before office hours as a student of joinery, during which period I nearly accomplished the manufacture of some such matter as a mousetrap, and wrecked a jack-plane on a nail. But although those who contend for this position are generally that species of practitioners who are themselves *au fait* at bench-work, but at nothing more, and who are not, therefore, the best judges of the more advanced question; yet there is another shape in which the matter may be put with a force which cannot be overrated, — every young architect ought unquestionably to spend a portion of his time of study in the capacity of a clerk of works. Nothing more primitive than this is really demanded,—for the architect, even in his wild state, has only to "conduct the work and direct the secondary artificers,"—but nothing less than a practical engagement in the duties of a clerk of works can serve the purpose of him who would start fair in life. No extent of reference to precedents and books can keep him right in his early specifications, no amount of tact can cover his manifest weakness when in contact with the workman, and no amount of mere theory can furnish him with that indispensable readiness and knowledge of routine which practice alone can give.

The extent to which the architect must be acquainted with building is a question of some importance, even if it were one of greater difficulty. He must "conduct the work" in so far as to understand any point wherein the builder may have an option to offer him, and

to determine intelligently his preference; and further in so far as to keep up a course of intelligent and responsible superintendence (having previously intelligently arranged the design in the drawings and specification) so that no inadvertency or error or fraud may be allowed to pass; and further in so far as to comprehend, in some degree, the universal question of cost, as a point never to be lost sight of by the agent of the employer; and, further still, in so far as to be able actually to direct the builder (whose science is most generally only empirical) in all matters of the science of construction or the science of common building work itself, so as, in short, to apply his theory to control and correct the builder's practical knowledge.

Whether the architect requires to attain a knowledge of all the arcana of very *bad* building, is chiefly a question of whether an individual chooses to be the agent of a client, whose object is to have fair work for fair pay, or to be the negro-driver of one of that unscrupulous class, whose purpose rather is to entrap a needy or "scamping" builder into a losing contract, and get all that is to be got out of him at the expense of his creditors; but that every student should acquire a knowledge of *good* building, and carefully learn the principles of *economical* building, is a rule of universal application to all who value their reputation, or aim at honourable success. And in these days of "competition," when you may sometimes turn the scale by a fallacious appearance of economy, or a false assertion of cheapness, beware, I beg of you; for not a few have made a few pounds for the present and many enemies for after-life by the necessity laid upon them by a bad system to adopt bad building, and make the best of it.

One remark more, and I have done with building. It is true that the separation which has taken place between the work of the measuring and valuing surveyor and the general province of the architect justifies the latter in declining, if he be so minded, to be architect and surveyor both; but at the same time no architect can dispense with such a knowledge of the facts of value as will enable him to proceed intelligently in this respect so important to his client; and the more he can conveniently acquire of the surveyor's knowledge the better for his own work.

When I come to look at the lamps of learning and teaching in my next, and deal with the antiquarian and the mission of the man of art and science, my discourse may be more entertaining; but it cannot be more profitable in its subject for the mission of the man of business, who would light his way by the last lamp of making a living. Therefore keep well in mind that even now the chief value of the architect to the world at large is as the master of the building, and that no taste in art or skill in science will prove by any means so practically profitable in business. K.

ON THE ARCHITECTURAL DISTINCTION BETWEEN CATHEDRAL AND PAROCHIAL CHURCHES.

IT has often struck me on many different occasions that many, otherwise observant, architectural students have not fully grasped the great architectural difference which exists between the two main classes of ecclesiastical buildings, namely, ordinary parish churches on the one hand, and, on the other, cathedrals and those churches, chiefly conventual or collegiate, which present the same general artistic character. These last I will rank together under the general name of minsters, a term which may form a convenient appellative for the class of buildings referred to. My chief aim is to contribute something to establishing the existence of a marked distinction between the two, entirely irrespective of size, which is vulgarly supposed to be the only difference. I remember a paper a long time ago on the subject in the *Ecclesiologist*: but a line was naturally taken there somewhat different from that which I wish at present to work out. The distinction, as there drawn, was, if I rightly remember, chiefly ecclesiological, depending on points of ritual arrangement, and referred as a ground-work to the difference of expression naturally to be expected in churches intended for the general worship of the faithful, and those which specially belonged to religious societies; that the one class, in short, were *ad populum*, and the other *ad clerum*. I believe there is a good deal of truth in this view, especially as regards the earlier styles; but my business is rather with the architectural than the ecclesiastical distinction. I have called it a distinction irrespective of size; and yet I believe the difference of size to be at the root of the matter. It is irrespective of size, so far as this, that a parish church may often be larger than a minster, and yet each retain its distinctive character. This was well remarked in an ingenious paper on Christ Church Priory, read by Mr. Hope, at the Archæological meeting at Winchester, from which the reader who has no other means of information respecting that church will certainly not rise with any definite notion of its architecture, but from which he may carry away much matter for reflection connected with the subject of my present essay.

But I think it will appear that size is at the bottom of the distinction, from this consideration, namely, that though there is a wide debateable ground, the largest churches can be appropriately designed only on the one type, the smallest only on the other. A model of York minster, 60 or 80 feet long, would be an absurdity; while Binsey or Besselsleigh, dragged out by Procrustes to the length of 400 or 500 feet, would be an absurdity no less. Indeed, I think it would be by far the greater absurdity of the two. And from this difference in the amount of absurdity, if it be granted, I would make an inference, namely, that the cathedral type is, in itself, the highest type of building, and that the other is simply an admissible substitute for it. Imitation, however inappropriate, of a superior model, is a less evil than the degradation of the higher rank below its place. I hence infer, again, that in those buildings which, from their size, admit of either treatment, the higher model should be followed; though this rule was frequently violated by the ancient English architects, and seems to be hardly ever thought of by their successors. Of the former I need only mention our own Abbey of Dorchester, conceived on the very meanest parochial type: of the latter I need only refer to that structure of Mr. Pugin's, than which few buildings, old or new, supply a more admirable study of detail, but to which I should greatly doubt whether even the benediction of a Cardinal Archbishop can succeed in conveying in the least degree the distinctive character of our ancient minsters.

I have been thus far vaguely talking of the distinction between the two types of churches, without saying in what it consists. Now, the fact is, that I cannot tell you in what it consists, and my ignorance on that point is the chief piece of information which I have to communicate on this occasion. But though I cannot tell you what it is, I believe I can tell where it is to be found, and where it is not; and the remarks I may throw out on this head may be serviceable to others in finding out what the thing itself really is. I believe that if I have not found it out, the fault is not in the thing itself, but in my private idiosyncracy. I always find I can recognise a great deal which I have to get others to define; which I believe has something to do with the presence or absence of subjectivity or objectivity—two hard words, which, as I do not often find them either in Thucydides or Sismondi, I am always forgetting which is the one and which is the other.

Leaving it, then, for some one else to define the difference, to my own mind it appears equally unmistakeable and undefinable. I have said that it is not a mere difference in size: Newark, Boston, Coventry, are churches larger than many abbeys, and yet thoroughly parochial; while no church is more thoroughly a minster than St. Cross. It is not the cross form, which, though essential to the effect, is shared by many parish churches with hardly any approximation to the cathedral character. It is not multiplicity of towers: many noble minsters have but one or none, while some essentially parochial churches have more than one. The triforium is, in England at least, almost excluded from the parish church, but it is not necessary to the cathedral: the clerestory, though necessary, is of course anything but distinctive. It is not vaulting, which, though essential to the highest perfection, is not necessary to the attainment of a very high degree of excellence; and is, besides, always desirable, though so seldom met with, even in the smallest churches. Still less is it excess of ornament: it hardly needs demonstration that a minster may be as plain as is consistent with beauty, and a parish church exhibit the most lavish gorgeousness, without in the least departing from their respective characters. The cross form, and the presence of a clerestory, are the only characters which can be called necessary, and these manifestly are not of themselves sufficient. It is a character which I, at least, cannot describe in words, but which is perhaps the more easily felt, because of the difficulty in its description. It is like those distinctions of style and character among ages, nations, and individuals which are perceived without an effort, and yet are incapable of satisfactory definition. It is like the recognition of likeness in countenance, or of style in composition, by an immediate *αἰσθησις*, admitting of no description or demonstration.

I will now proceed to put together a few facts and observations which, as I before said, may possibly prove, in other hands, the means of falsifying the remarks which I have last made. Anterior to the distinction between cathedral and parochial churches, I would endeavour to make another; that is, between churches which are really works of art, and those whose beauty is derived from mere picturesque effect. There certainly is a large class of churches which at once fill the beholder, in my case at least, before any other feeling, with an irresistible desire to draw them from every conceivable point. Now these are not, for the most part, really grand or beautiful buildings, but some little out-of-the-way barn-like church, perhaps absolutely without detail, and conveying no one strictly architectural lesson. A congeries of high gables produces this effect more strongly than the most gorgeous range of aisle, clerestory, and flying buttress. A saddle-back roof, a square capping of tile, a stunted shingle spire, is preferable for this purpose to the gorgeous steeples of Taunton or Coventry. I had some years ago the pleasure of calling attention to the churches of Jersey, which partake a good deal of this type, though in some respects rising above it. Those of Kent and the Isle of Wight supply many instances; there are some also on the confines of Middlesex and Bucks, of which Stoke Pogis is a remarkable specimen. But the land for picturesque, as opposed to beautiful, churches, is the geographica. opposite to Kent,—Pembrokeshire. I really do not know that I have felt a delight greater in its own kind in contemplating the most magnificent fabrics of Northamptonshire or Somerset, than when I have stood on an eminence, with the church, as is so often the case, cradled in the valley at my feet; a high roofed nave and chancel, a vast porch projecting here, a diminutive transept there: the ground plan broken by further mysterious ins. and outs, whose design might puzzle a deeper ecclesiologist than myself; a large bell-cot crowning the east gable of the nave; while, somewhere or other, north, south, or west, is attached the rude, tall, unbuttressed tower; the only English type to which Mr. Ruskin would apply the epithet "noble," being, indeed, "a bulwark unsupported by other bulwarks," and not unfrequently, owing to the stormy climate in which they are situated, enjoying the further advantage of "*rent* battlements."

Churches of this class are decidedly among the most satisfactory to the eye of any that exist. But I cannot think that their beauty is the higher beauty of real intellectual design, but rather that of mere picturesque effect. Our satisfaction at the sight of them rather resembles that derived from contemplating the irregularity of natural scenery than that which arises

from a perfect and elaborate work of art. Their beauty is akin to that of domestic buildings, which please the eye by boldness and variety of outline, by picturesque groupings of gables, turrets, and porches, but are seldom to be considered as great works of architecture, or illustrations of the principles of the art. So far are we from admiring the fruit of design, that the more fortuitous such a building appears, the more satisfactory is its character. A congeries of detached portions, with their own roofs, put together at different times, simply as they were wanted, usually produces the most pleasing form of the small village church. But this mere picturesque beauty would not be sufficient for a minster or even a great parish church: we there look for real art, real design, and beauty as its result—sought for and directly aimed at throughout. But mere picturesque effect is generally the result of accident, or at least of the operation of some unseen law: to make a deliberate attempt at it is the surest way to miss it.

When we have a clerestory, we have at once reached the sphere of architectural design, for it is usually a loss in the point of picturesque effect. The distinct high roofs and the clerestory belong to two distinct kinds of beauty, and are each satisfactory in their own way, With the latter we generally find combined a certain regularity prevalent throughout; the building becomes an architectural whole, and amenable to architectural criticism. Hence follows that here real architectural merit is necessary, which it is not in the former class; hence arises the danger of mediocrity: the aim being placed higher, it is more frequently missed; and, consequently, buildings of this class, with details of much better character, are often less pleasing than the rudest and most unpretending structures of the merely picturesque order.

Now it seems to me that, speaking broadly, the picturesque form belongs to the Early, the more strictly architectural to the Continuous, Gothic. The picturesque church is often of Perpendicular date, but it affords no scope for the development of the true Perpendicular character. The thick-set ranges of large windows, the rich parapets and elaborate low-pitched roofs, the tall slender pillars, the lofty towers crowned with a forest of pinnacles or a diaphanous lantern, are all excluded. A few plain lancets, a low round column, a shingle spire, are incomparably more in character. The two types never harmonise: sometimes in Somersetshire we see a magnificent perpendicular steeple attached to a little picturesque church, but they never fuse naturally into one whole.

But the regular architectural type of parish church is essentially Continuous, though in some districts, as in Northamptonshire, it began to be introduced sooner. We have it nearly in its perfection in Somersetshire,—the tall aisles and clerestory with the lofty western tower. Unfortunately, however, in that district, the chancels retained from elder churches are comparatively small and mean. In other parts we often find a quasi-basilican arrangement, the aisles running uninterruptedly to the east end, or nearly so, without any architectural distinction between the nave and the chancel. This we have in our own neighbourhood at Ewelme; but I cannot admire it. In the best type of all, the chancel, with or without aisles, is distinguished by a slight inferiority of height to the nave: it may even have a high roof. St. Margaret's, at Leicester, and Penkridge, in Staffordshire, will illustrate my meaning as far as the general arrangement goes, though the individual features are very far below the Somersetshire standard.

We have thus arrived at the higher type of the English parish church, as distinguished from the minster on the one hand, and from the merely picturesque building on the other. I think every one who has really considered the subject will feel that, as I said, it is distinguished from the minster by some difference other than mere inferiority of size and ornament. But more than this, it always seems to me that the largest churches of this type are too large for their type. Boston, which I know only by engravings, I imagine to be the largest church conceived on the strictest parochial type, without so much as aisles to the choir. Of Newark, and St. Michael's, Coventry, I can speak from my own impression, which decidedly was that, even modified as the type there is by a greater complication of outline, they were vastly too large for their type, and that churches of that immense size are not satisfactory unless designed on the genuine cathedral model. Now this seems to me to show that a type which is only satisfactory on a comparatively small scale, is in itself an essentially inferior one.

Nevertheless, this higher parochial type, as being one of strictly architectural design, is a great advance in the direction of the minster upon that which owes its beauty to merely picturesque effect. Let us now endeavour to point out a few of the intermediate stages. The greatest step is certainly to make the church cruciform: this of course does not of itself bring the church into the cathedral order, but it does more towards it than any other single change. The cross form is surely the very noblest that an ecclesiastical building can assume. It, in fact, combines the beauties of both the classes of which we have hitherto been speaking; while it affords the grandest scope for strictly architectural design, it commands by its own inherent nature that beauty of varied and picturesque outline which in other cases is usually the result either of successive alterations, or of some happy accident at the time of erection. But in a cross church the different direction of the four arms at once supplies the required variety in a degree fully sufficient. I say this, because I hold it a mistake to seek for additional variety by picturesque arrangements of gables, as at Purton, Cheltenham, and Kidlington. These all seem instances of the picturesque form carried out on too large a scale.

By a cross church, I understand the complete cross form, with the predominant central tower, and the four arms of equal height. Where the former is absent, the chief beauties, both within and without, are altogether lost. The convergence of the four arms at the crossing, to support the central steeple, is the grandest instance of pyramidal development as applied to the composition of whole buildings. When the tower is absent, and the transepts are the same height as the nave and chancel, the intersection absolutely cries for its crowning steeple; when they are lower, all cruciform effect is gone. This is the case in many parish churches, in which the transepts are hardly more than chapels; they impart hardly more of the character of a cross church than a porch or sacristy does; the whole composition is centered in the chancel, nave, and western tower. Such are the two splendid churches of Finedon and Rushden, with their neighbour of Irthlingborough, and the still more stately fabrics of Newark, Glastonbury, and St. Cuthbert, at Wells. The transepts are but appendages to the nave and aisles, being hardly higher than the latter, and having the clerestory continued uninterruptedly over them. And even when the transepts are the full height, as at Highworth and Adderbury, the complete cross form is not gained,—indeed, it is no improvement, as the want of the central tower is only rendered more conspicuous: these are imperfect cross churches, while the others may pass as examples of the oblong class. Still less can any amount of length given to the transepts atone for the want of elevation. This may be shown by comparing Barrow Church, Leicestershire, with St. John's at Coventry; the former has very long transepts, but as they only project from the aisles and the clerestory is continued above them, the tower being western, there is no cruciform object whatever. The other has transepts which actually do not project beyond the aisles, still, as they are of the full height, and support the tower, the cross form comes out in its perfection.

A fault yet more grievous is when the chancel is of dimensions inferior to the rest. This is most common in our parish churches of all forms, but it is more conspicuous and inexcusable in cruciform buildings, where the interposition of the tower makes the external distinction so much more conspicuous than can be done by any other means. In a church without a central tower a slight superiority in height on the part of the nave is never objectionable, as it serves at once to distinguish between the parts of the building, and to break the formality of the long roof line. But even in these cases we often find the difference in height vastly exaggerated, the chancel being, perhaps, not higher than the aisles. This arises from many causes: sometimes an elder and smaller chancel is retained when the church is rebuilt, as is so often the case in the magnificent churches of Somerset: in others a clerestory has been substituted for the high roof of the nave, and a chancel without aisles has had its roof lowered to harmonise therewith without any addition being made to the height of the walls. In many cases, however, it has been so from the beginning, as is shown by the low chancel arch. This is sufficiently to be regretted in churches not cross, as Sileby, Loughborough (this church has small transepts, but they are nearly swallowed up), Chipping Wardon; but in cruciform buildings it is positively painful. Thus the stately nave of Yatton has for its eastern limb a diminutive chancel, hardly so high as its aisles, and the like is the case at Crewkerne, and with the church at Melton Mowbray, one whose other parts are conceived on so magnificent a scale as to have aisles on both sides of the transepts.

In the interior the want of the central tower, or of the equal height of the four limbs, is yet more severely felt. In the former case we entirely lose the majestic lantern, the four stately arches under the tower, which are the especial glory of a cruciform church; either the arcade is continued uninterruptedly and the transepts are entirely lost, as at Finedon and Irthlingborough, or if they are entered by arches loftier than the rest, as at Rushden, it is simply productive of irregularity. Even the rich strainer arch across the nave of the latter church, and the similar example at Finedon, beautiful as they are in themselves, and admirable exhibitions of the skill with which the ancient architects grappled with an unforeseen difficulty, and converted a mere prop or brace into an ornamental feature, cannot compare with the simple dignity of the genuine lantern.

And even when there is a real lantern, if from any cause its arches are much lower than the height of the nave, its effect is very much lost. The majesty of the lantern itself is very much impaired; and, besides, a blank space is created above the arches, which has an awkward appearance. This is very conspicuous at Stafford and Yatton, where the lanterns are designed for churches much smaller and lower than they are at present: this is still more conspicuous at Stafford, as all the limbs are the full height.

In fact, though it sounds like a paradox, if either of the elements of a cruciform design is to be absent, it is better to lose the transepts than the central tower. I am sure, however, that Iffley is a much nearer approach to the real cruciform type than churches like Highworth and Barrow.

Edward A. Freeman.

Metallurgic Schools for Operatives wanted.—In a recent lecture on the metal manufactures, delivered by Mr. Warren, at Manchester, the lecturer strongly urged the importance of mechanics becoming more intimately acquainted with the materials and rationale of the processes in which they are engaged, and cited Dr. Lyon Playfair's opinion, that, as sure as darkness succeeds the setting sun, our manufacturing greatness will decline, in the face of French and other foreign artisan enlightenment, unless our mechanics pay more attention to the scientific principles of the arts they practise. Mr. Warren illustrated this by various examples, showing the necessity of manufacturers establishing schools, not merely of design, but of metallurgy—for elucidating the principles on which its operations are conducted. Neglect or delay, he remarked, would be penny wise and pound foolish.

NOTES IN THE PROVINCES.

Bury.—The project of a Museum for Bury and West Suffolk is assuming a hopeful aspect. A site and a design have been obtained, and several good subscriptions have been got. The Marquis of Bristol has given 100*l.*, and the Bishop of London, 10*l.* The necessary sum, 1,500*l.*, it is proposed to raise by donations and by 5*l.* shares, transferrable, and giving the holder an interest in the property of the Museum, and a right of admission for himself, his family, and friends, by a yearly payment of 10s., commutable for a single payment of 5*l.* additional.

Windsor.—The Castle approaches are in progress of improvement, and the last pile of old Datchet-bridge has been removed.

Hastings.—Mr. W. J. Gant has deposited at the office of the Town Clerk the town-plan which he had engaged to make, first at the instance of the Hastings commissioners, and finally on behalf of the Local Board of Health. The plan is drawn out on ten sheets, each sheet measuring 3 feet 1 inch by 2 feet, the total space occupied thus exceeding 60 square feet. The survey goes much into detail: in addition to the out-buildings, sheds, &c. it shows whether the yards, areas, thoroughfares, &c. are paved with stone or brick, or whether they are unpaved. It also shows the rain-water-pipes, sinks, and pumps; likewise the pipes conveying the water supply, and the locality of the water closets. Thus the sanitary condition of every house is exhibited at a glance. The scale of the map is 44 feet to the inch, or 10 feet to a mile.

Southampton.—A new map of Southampton and its suburban districts, based on the Ordnance Survey, and inclusive of the latest improvements and alterations has been brought out by Mr. Philip Brannon, of Southampton. Each street, road, and footpath is shown, and also all the public buildings, boundaries of borough and parishes, public lands, sites of old town, walls, and castle, ancient Roman station of Clausentum, and remains and sites of antiquarian and historical importance. The outlying districts of Shirley, Portswood, Woodmill, Bitterne, &c. are also given.

Buxton.—New baths are in course of erection at Buxton, by direction of the Duke of Devonshire, and at a cost of 5,000*l.*

Plymouth.—Of the 60,000*l.* required for the projected Great Western Docks, nearly 10,000*l.* it is said, have already been applied for, over and above the expected subscriptions of the associated railway companies. At a recent preliminary meeting of the shareholders it was resolved that public meetings of the inhabitants of Plymouth and the adjoining towns should be held, for the purpose of promoting the completion of the Docks, and that the Mayors of Plymouth and Devonport, and the magistrates of Stonehouse, be requested to convene such meetings at their earliest convenience.

Abergavenny.—The Joint Counties Asylum was opened for the reception of patients on the 1st ult., and a proportion of the pauper patients from the joint counties of Monmouth, Hereford, Brecon, and Radnor have been received. The style of the building is Early English, and is from the designs of Messrs. Fulljames and Warren, of Gloucester, under whose directions the works have been carried out by their clerk of works. The building is capable of accommodating 250 patients, and the cost, inclusive of gas-works, was 25,000*l.* The warming and ventilating were by Messrs. Haden, of Trowbridge, and the officers' apartments were furnished by Messrs. Trapnall and Sons, of Bristol. There are six male and six female wards.

Denbigh.—A new ward for eight or ten patients, with a new laundry, washhouse, storeroom, and other general offices, have been added to the Denbigh Infirmary. The new building was planned by Mr. Parson, and the work performed by Mr. Bartley, builder. It is in uniformity with the rest of the building. There is still wanted a tank for the supply of soft water to the establishment, as not one-sixth part of the rain water is now collected.

Bangor.—The extensive plant of machinery lately erected by the Royal Slate Company, at their quarries on Brynhafod-y-wern, near Bangor, has been permanently set to work. This machinery has been invented and constructed by Mr. Dixon, the company's resident manager and engineer, for the purpose of sawing and facing slate slabs, and of manufacturing a variety of articles from slates; the several processes being secured by patent. The machinery occupies a building with a ground area of upwards of 10,000 feet, and is set in motion by three water-wheels and a steam-engine. The wheel just completed has its gearing unitable with the gearing of the steam-engine, so that one power can assist the other—or the machinery can be driven by either, as the case may require. The machinery was constructed by Mr. Owen Thomas, of Carnarvon.

Cardiff.—No less than eighty-one pieces of land were taken on the Bute estate, in the short time of one week, for cottages, 16 feet frontage and 25 to 26 feet back. These cottages cost from 125*l.* to 130*l.* a-piece, and bring in 15*l.* rent per annum, at a ground-rental of 2*l.* per annum a house, which it will be seen pays ten per cent.—no bad "spec" it may be thought, for many houses are occupied before finished, the demand for them is so great here: they have been known to be taken the very day the foundations have been laid, so it may be inferred that there is a fine field for speculators in Cardiff.

Sheffield.—That the working classes of Sheffield have of late been in a prosperous condition is very clearly shown, according to the *Sheffield Independent*, by the accounts of the Sheffield Savings' Bank for the year ending 20th November, 1851. Notwithstanding the large expenditure of the artisan class in their visits to the Great Exhibition, and the sums invested by them in numerous freehold land societies, building societies, &c., the savings' bank deposits show the large increase over the previous year of 15,669*l.* 17s. 8d., the amount of deposits being—in 1850, 54,862*l.* 8s. 8d.; and in 1851, 70,032*l.* 6s. 4d. The number of depositors in 1850 was 8,346; in 1851, 10,033, showing an increase of 1,687. As contrasted with 1849, the amount of deposits shows a still further increase.

Nottingham.—The following are the first year's statistics of the Nottingham Public Baths and Washhouses, ending Dec. 13th, 1851:—first quarter bathers, 3,367; second, 11,057; third, 14,391; fourth, 3,562: total, 32,377. First quarter washers, 916; second, 789; third, 708; fourth, 735: total, 3,148. There are six small baths for females, six for males, and a large swimming bath. Four new first-class baths and another swimming-bath will be ready for opening on new year's day.——It is proposed to establish a midland observatory at Nottingham, on the basis of an offer of a valuable collection of apparatus made by Mr. E. J. Lowe, M.R.A.S., on the part of Mr. H. Lawson, of Bath. Besides the instruments, which cost 10,000*l.*, Mr. Lawson is ready to contribute a thousand guineas in furtherance of the object, the conditions being that the corporation or the public build or provide an observatory, with a garden, and an income of 200*l.* a year for a resident observer. Would not this be a good opportunity for settling the question of the uniformity of time, if it is to be reduced to uniformity for Britain, so as to derange the average time of the island as little as possible, by the establishment of an observatory for the purpose in the *midland* district, in place of the much grosser absurdity, exposed by us, of making it noon at Bristol or Liverpool the instant that the sun reaches his noontide meridian at Greenwich? If there must be uniformity of time throughout the country, British time might fairly enough be regulated by *midland* time, so that the whole nation might conspire in declaring it noon throughout Britain so soon as the sun reached his meridian altitude in the heart of the land, and not a moment sooner.

Todmorden.—A project for the erection of a town-hall here has been revived, according to the *Blackburn Standard*. A new committee has been elected, and several new shares taken up. The building is to be erected on the site of the Athenæum, and the market is to occupy the ground floor of the building.

Everton.—A new church is about to be erected at Everton, near Liverpool, on a site presented by J. G. Morris, Esq., at a cost of about 4,000*l.* Six architects were invited to send plans: the design of Mr. Raffles Brown, of Liverpool, has been selected by the committee. The church will be of the Late Decorated period, and will consist of chancel and chancel aisle, nave, north and south aisles, north and south transepts, south porch and tower at west end of nave, crowned with pinnacles, and pierced parapet, and surmounted by a spire rising to the height of 150 feet. There will be galleries in the tower and transepts. Total accommodation for 1,260 worshippers.

Edinburgh.—The committee of the Jeffrey Monument having a surplus out of the fund required for the public statue on which Mr. Steele is at present engaged, devoted it to the erection of a monument over the grave at the cemetery of Dean, which has been completed. The design is by Mr. Playfair, and is of extreme simplicity. There is on it a medallion portrait by Steele. The medallion, like the rest of the structure, is of fine free stone, of a pure white colour.

Dunfermline.—The ancient abbey church, in which many years since the remains of King Robert the Bruce were found, is said to have a disagreeable echo, to remove which an unsightly boarding was long ago set up behind the pulpit. The *Fife Herald* declares that this eyesore serves no good purpose, and recommends its removal. "All cheap methods of obviating the echo," it remarks, "have been tried. Glass is now cheap enough: why not cover in the dome? Try the effect with canvas first: if that will not do we should despair of the church ever being rendered good for hearing. All cruciform churches partake, more or less, of the same fault; and Dunfermline Abbey stands pre-eminent for its echo. It is a pity that so fine a structure should be comparatively useless, if a few hundred pounds would cure the deficiency."

Guernsey.—Government has consented, says the *Jersey Times*, to erect, at its own cost, a lighthouse on the western coast of Guernsey, on the Hanois, if the expense of maintenance, which is not to exceed 900*l.* per annum, be borne by the islands of Guernsey and Jersey conjointly.

CHURCH BUILDING AND RESTORATION.

Pakenham (*Suffolk*).—The additions and restorations in the church (except the chancel belonging to a lay impropriator), are now complete. They have been done at the expense of the late Lord Calthorpe and the parish, aided by the Incorporated Society, under the superintendence of Mr. Teulon. The south transept, traces of which still existed, has been restored to its original dimensions, and a corresponding transept erected on the north side. The church originally was Norman. The nave has been newly roofed, after the manner of the roof found there, being polygonal in its framework. All the walls have been refaced with flint; the porch (on the north side) rebuilt; the windows and doors within the tower completely restored; a new belfry-floor has been inserted, and polychromatic decoration introduced upon it. The new seatings, which are all oak, are after the manner of Stanton Harcourt, and the pulpit and desk bear the same character. The works have been carried out by Messrs. Baldistone and Son, of Ipswich.

Wetheringsell (*Suffolk*).—The chancel of the church has undergone complete restoration, at the sole expense of the rector, the Rev. Robert Moore (a grandson of the late Archbishop Moore). The chancel is of noble proportions: it has a very peculiar sedilia of Early English, executed in a grey stone, with shafts of Purbeck marble: this has been restored. All the windows, which are Perpendicular, have also been restored, or rather reproduced; together with the priest's door. The antient panelled oak roof has, with the stall-seats (which are of very bold character), been carefully reframed and restored. A reredos of plain arcading in Caen stone, with the decalogue and texts

illuminated, occupies the east wall, and the sacrarium is railed in with oak, in character with the stall-seats. The floor is paved with Suffolk pummets, red and buff, set diagonally. This work has also been executed by Messrs. Baldistone, of Ipswich. Further restorations are in contemplation.

Northampton.—The inhabitants of St. Giles's parish have adopted the very provident plan of commencing a fund for the improvement, "at some future time," of their parish church. They are justified, we should think, in their hope that individuals will thus, from time to time, contribute sums greater in the aggregate for such improvements, so collected, than if called upon at any one time for the whole of their gift.

Fryering.—The east window of the church has been filled with stained glass, at the expense of the incumbent, the Rev. George Price, M.A., as a memorial to his sister. It was found necessary to replace the whole of the stonework of the window previous to filling it with the new glass, as the old tracery was entirely decayed. The window is divided into three lights: the centre contains the Royal arms, surmounted by a crown, the arms of the incumbent, and those of Wadham College, Oxford, the living belonging to that society. The north light has a picture of a female kneeling, in worship, at the Saviour's feet. The south light is filled with a representation of the Resurrection. The whole was executed by Mr. Willement.

Cardiff.—St. John's Church was re-opened in due form on Tuesday, the 23rd, after having been closed for three or four months undergoing restoration. This church has a very fine embattled tower in the Perpendicular Style of Architecture. It was built in 1443 by Hart, the architect of Wrexham Church, and of St. Stephen's, Bristol. According to our informant, from the fact that no architect has been employed in this restoration, there is much room to find fault, which would not have occurred if a proper person had been employed to superintend it. The organ loft has been enlarged, and a carved oak screen placed over the principal entrance. The pulpit and reading-desk have been renewed, and moved from the west end, where they originally were, to the east. The high pews have been replaced by low open seats, which by the way are of very rough and coarse American oak in the grain, terminating with very plain ugly bench ends. Fourteen new windows have been put in,—nine by private persons, and five by the parish. A painted glass window has been placed in the chancel, the gift of the Right Honourable John Nicholl, M.P. for these boroughs, representing six incidents in the life of John the Baptist, executed by W. Miller, of London. The tone of this window is far from pleasing. Another is to be put in, but it arrived too late to be fixed previous to the re-opening. The cost of restoration altogether amounts to between 1,300*l.* and 1,400*l.*, towards which the public of this place subscribed 670*l.*, and private individuals 540*l.* A new roof has been put over the chancel: the mouldings on the beam present to the eye a mere square flat surface. This roof is said to be the gift of the Rev. J. M. Traherne. Messrs. Thomas and Norris were the builders.

Yazor.—The Church of St. Mary, Yazor, according to the *Hereford Times*, was consecrated on 4th ult. It stands on the road from Hereford to Kington, about 8 miles from the former. The edifice is cruciform, and in the Early English style. It is built of two descriptions of stone from the neighbouring quarries of Sir Robert Price; the one of fine grain and quality, as well as of extreme hardness, forming the windows and doorways, and the angles of the building; the other, of a coarser grain, filling the rough work. The principal entrance is through a tower 62 feet in height, on which it is purposed to erect a spire 42 feet in addition. A transept of considerable width springs from each side of the nave; and the chancel is finished in an apse of five sides of equal height with the rest of the church. The dimensions are as follow: from the principal doorway to the end of the apse, 84 feet; width of nave, 25 feet; width between the transepts, 49 feet; height, 34 feet. The tower is lighted by a single lancet filled with stained glass, by Messrs. Powell. The visible roof of the church, like the one above it, is of solid oak and chestnut, ceiled between the rafters, with the principals exposed, springing from stone corbels: the nave is lighted by three lancets on each side, and fitted with open seats of simple ancient pattern; they are of oak, from the woods of Foxley. The ceiling of the apse is groined with ribs of oak, partly gilt, the intervening spaces blue, symbolical of the vault of heaven, powdered with stars of Bethlehem, in gold. The five windows which light this part of the edifice are by Warrington: in the centre window are represented the Crucifixion, the Resurrection, and the Ascension; on the two adjoining are the emblems of the Evangelists; whilst the outer ones display respectively the Annunciation, and the Birth of our Lord, the Adoration of the Magi, and the Presentation in the Temple. Beneath the centre windows are the Ten Commandments, illuminated in gold and colours; beneath the two next, the Lord's Prayer and Apostles' Creed; underneath the farthest, in which are the Annunciation and Presentation, the hymns "Magnificat" and "Nunc dimittis." These have been executed by Mr. Crace. Opposite to the pulpit is a monumental slab of white marble, inlaid with a floriated cross of burnished brass; in the centre of which is an elevation of the church, and underneath, an inscription, recording the decease of Mr. Uvedale Price, the founder. The original plans and designs were furnished by the late Mr. George Moore, and the works have been carried out by Mr. John Taylor, the resident clerk of the works at Foxley.

Glass.—In the church of St. Mary Magdalen, Lincoln, a rich border to an oval window which, for a long period, has been hidden from view, has just been brought to light and restored, through the exertions of one of the parishioners. The border is composed of cherubs, cherubs' heads, fruits, flowers, &c., displayed in high relief. The window is situated at the east end of the chancel. A subscription has been set on foot by which the old glass has been replaced by a new stained window. Its size is 8 feet by 4 feet, and the embellishments consist of a white dove hovering in the centre, on a ruby-coloured ground, with rays of amber-coloured light, the whole surrounded by a Vandyked border of dark blue. The glass was supplied by Mr. C. Marshall, plumber, of Lincoln. Mr. Gandy, carver and gilder, superintended the work. ——The subscribers toward a stained glass window in the chancel of the parish church of Doncaster, to the memory of the late Mr. John Crawshay, have resolved that the lower portion of one of the chancel windows, comprising four compartments, be selected as the intended memorial.——A stained window has been placed in the east end of the church at Algarkirk. It consists of five compartments: the centre represents the crucifixion, and on the right is represented the conversion of Saul, when on his way to Damascus: the extreme right represents his martyrdom: the left is a representation of Christ walking on the water: the extreme left represents Christ delivering the keys of the Church of his Gospel. The lower part of the window is of lighter colouring, in the Early English style: the upper is of light tracery, and the figures represented are angels bearing scrolls. The artist was Mr. Hardman, of Birmingham. The other windows for the side of the chancel, as well as the monumental brasses, are to follow as early as possible.

THE ORDNANCE SURVEYS.—A correspondent, "M. N.," suggests that as it has been repeatedly alleged that the ordnance surveys are incorrect, the respectable members of the surveying, engineering, and architectural professions (their interests he conceives being in this case nearly identical) should raise a sum by subscription to enable them to employ efficient members of their own body to test some specific survey done by the Board of Ordnance, and so at once decide the question.

THE LATE MR. BUCKLER, ARCHITECT.

MR. JOHN BUCKLER, Sen., well known as an architectural and antiquarian draughtsman, who died on the 6th of December last, commenced life as clerk to Mr. Fisher, steward of Magdalen College, Oxford, and for many years held the appointment of bailiff to that society. A few years ago age compelled him to resign that office, on which the College assigned him a pension for life, as a testimony of their consideration. From very early years he was fond of drawing, and employed all his leisure time when engaged at the College in that pursuit. We have heard him say that he calculated he had made not less than *thirteen thousand sketches*. In a letter to a college friend, dated December, 1849, which has been published in the *Oxford Herald*, Mr. Buckler writes,—

"In the course of fifteen years I drew and etched the whole of the English cathedrals and many of the abbey and collegiate churches. The Welsh cathedrals were drawn but never published. During this time many drawings of the cathedrals and other churches were made for several dignitaries of the church, which I cannot enumerate. I have gone through seven counties, viz., Yorkshire, Wiltshire, Oxfordshire, Buckinghamshire, Hertfordshire, Somersetshire, and Staffordshire.

Ancient castles, and domestic architecture of England, for Thomas Lester Parker, Esq.

Three volumes, sold to Lady de Grey, for 2,000*l.*(?), now in the possession of Earl de Grey.

Ten volumes, large folio, Wiltshire, for Sir Richard Colt Hoare, Bart.

Eight volumes, large folio, Buckinghamshire, for Lord Grenville, now at Dropmore.

Three hundred coloured drawings, for the late Duke of Buckingham, to illustrate Horace Walpole's correspondence. Now in the possession of William Salt, Esq.

Numerous drawings in Buckinghamshire, also for the Duke.

A volume of drawings of Fountain's Abbey, for Mrs. Lawrence, now Earl de Grey's.

Two volumes of drawings in North and South Wales, for Sir Richard Colt Hoare.

A volume of Anglo-Norman antiquities, for ditto.

A volume of drawings of Eaton Hall, &c., for the late Marquis of Westminster.

A volume of drawings of Wakefield and its neighbourhood, for the late Francis Maude, Esq.

A volume of Glastonbury Abbey, drawings in the town, &c., for Sir R. C. Hoare, Bart.

A volume of a thousand fonts, for Marshal Bland, Esq.

A volume of drawings of Blakfield and Staffordshire, for Lord Bagot.

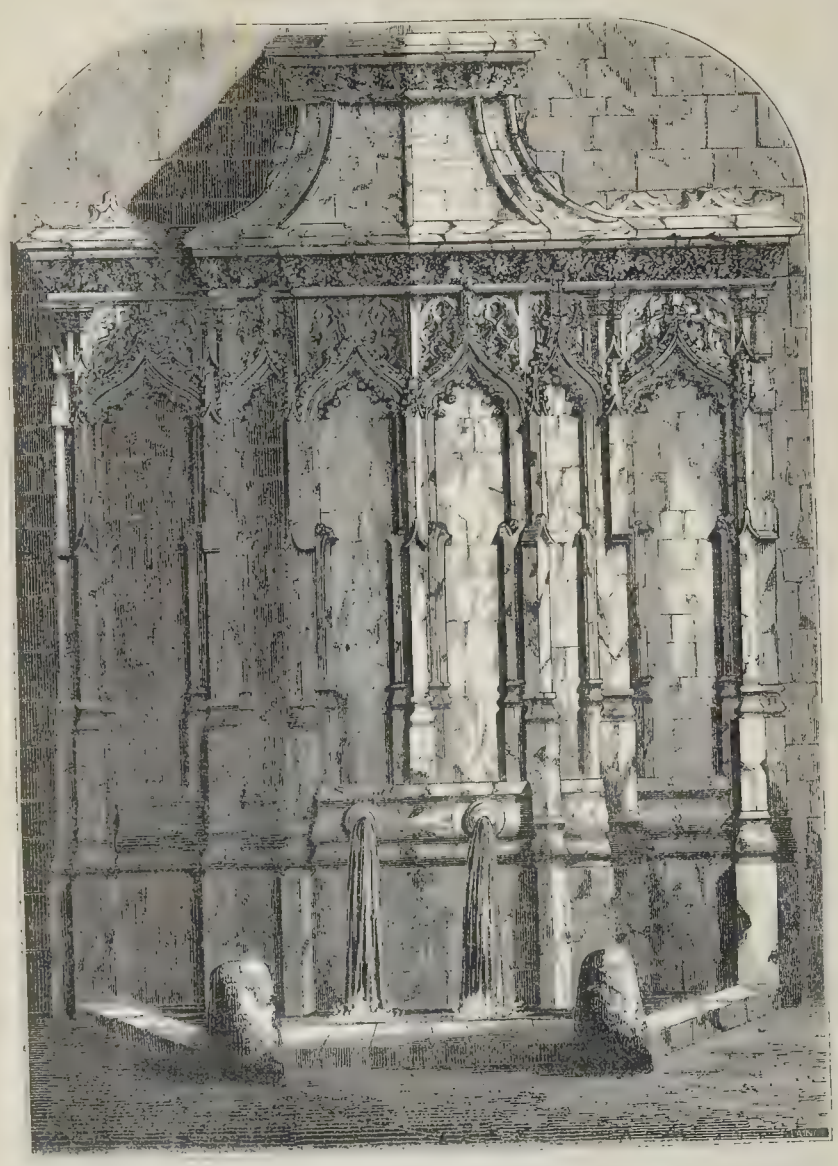
A large collection of drawings, for the late Bishop of Bath and Wells; viz., the cathedral, palace, and churches in Somersetshire, and also a large collection of Litchfield drawings, for his son, Chancellor Law:" and many others.

Mr. Buckler for some time practised as an architect, but, as he says,—"To build, repair, or survey warehouses and sash-windowed dwellings, however profitable, was so much less to my taste than perspective drawing with such subjects before me as cathedrals, abbeys, and ancient parish churches, that I never made any effort to increase the number of my employers as an architect, and as the engagements of my old patrons ceased, my occupations in that capacity ceased also, and would have finally terminated many years ago, had it not been for the early and constant patronage conferred upon me by the president of Magdalen College, Oxford: but with him my profession as an architect terminated with the design and superintendence of the tower and library of Theale Church, in the year 1827." In this work, as in others, the object of our notice was assisted by his son, who still follows the profession of architecture. Our readers will remember an interesting volume published by Messrs. Buckler on "The Abbey Church of St. Albans" in 1847, and reviewed by us at the time.

Mr. Buckler was a Fellow of the Society of Antiquaries, and was 81 when he died.

THE NORTH LONDON SCHOOL OF DRAWING AND MODELLING.—The committee of this institution held a *conversazione* on the 30th ult., when an interesting collection of the works of the students was shown, very creditable both to themselves and their masters.

FOUNTAIN OF THE CROSS, ROUEN.



THE FOUNTAIN OF THE CROSS, ROUEN.

In order to obtain a correct idea of what a fountain should be, it is absolutely requisite to cross the channel and visit some of the continental cities. In England we have nothing that will convey the same notion: with all respect for the works of our own countrymen, we are compelled to acknowledge that the fountains at Chatsworth, Trafalgar-square, &c., are very inferior to those at Versailles, St. Cloud, or even to those smaller celebrities in the Place de la Concorde, at Paris; and the same comparison will hold good with regard to works of lesser note. Here, if water is required in public places for the general use, it is supplied by means of exceedingly ugly iron pumps; while on the continent the same beneficial result is arrived at by more ornamental means. In the markets and other convenient places, conduits are erected, from which water is continually flowing, and is to be procured with very little labour. In no place are these more frequently to be met with than in Rouen. It is said that previous to the revolution of 1792, there was a fountain near every church, and at the present time they are not less than thirty-six in number: of these seven deserve particular notice, either from their architectural or historical character. They are known as the fountains of the Croix de Pierre, the Crosse, the Grosse Horloge, the Vieux Marché, the Pucelle, St. Maclou, and Lisieux. The Fountain of the Crosse is that which forms the subject of our present illustration: it is placed at the corner of the *Rue des Cannes, et de l'Hôpital*, and was erected at the latter part of the 15th century, and although in a very dilapidated condition, is still remarkable for the richness and delicacy of its ornamental detail. It is said to have been completely restored in 1815, but looking at its present state this seems impossible. The lower part from which the water springs is clearly modern.



BILLINGSGATE MARKET, RIVER FRONT.—Mr. Bunning, F.S.A., Architect.

[See page 1, in our present Number.

SCENERY AND DECORATIONS.

THE THEATRES.

Drury Lane Theatre.—Once more this house has been restored to its position as the national theatre, and has been made a fitting place for the purpose. It has been thoroughly re-decorated throughout, and that in the short space of eleven days. The ceiling is painted after the style of the age of Louis XVI. in compartments, consisting principally of representative alcoves; alternating with which are placed shields; and in the decoration of the ceiling are introduced figures representing the elements of the drama,—Silence and Despair, Fear and Fanaticism, Prudence and Counsel, Avarice and Prodigality, Friendship and Serenity. The lower and dress circles are divided into panels and pilasters, the ground of which is white, and the medallions and enrichments of gold, illuminated with blue. The second and third circles are decorated with blue, white, and gold, forming draperies, the upper one in white and gold; the under one with blue, white and gold, and with gold fringe. There is a handsome new chandelier too, and the appearance of the theatre is very creditable to Mr. Hurtwitz, by whom the whole of the decorations have been executed. It is a little prim, and cold, resulting partly from the absence of textile hangings, the fronts of the boxes taking their shape. It may be useful to mention that the whole of what appears to be gilded decorations are of *thin stamped brass*, by the use of which great saving of time was effected. Of the pieces produced and the work on the stage we will speak hereafter, and, in the meanwhile, express a hope that Mr. Bunn's endeavours may be responded to by the public.

The Haymarket Theatre.—People look as naturally now for extravaganzas at Christmas as for mince pies; and if the latter, according to the old superstition, give "happy days" according to the number eaten, the former quite as certainly give merry nights to those who are willing to be so amused. They fall within our province more in respect of the opportunities they afford to the scene painter, the machinist, and the *costumier*, than as literary compositions, although we have before now found in them comments and advice not useless to our readers. It has amused us, too, more than once, to see rhyming lines, given by us from these sources, finding their way into succeeding architectural books, and taking their place amongst the stock quotations of early essayists. The new piece at the Haymarket is founded, by the Messrs. Brough, on a tale by Count Hamilton, and if not very reasonable, is, at all events, very amusing. Buckstone is very funny, Mrs. Fitzwilliam very clever, and Mrs. Buckingham very handsome in it. With the scenery Mr. Morris has taken more pains than usual. The first scene, a hall of "twisted columns," illuminated from behind, is not unarchitectural; and the last scene of the first act, moonlight on water and mountain, is very good. "The Man of Law," a pleasant comedy, very well acted, alternates for the first part of the evening with Gay's "Beggar's Opera," and its charming melodies, —a picture of a period when our prison system was even worse than it is now.

The Lyceum Theatre.—Another of those great successes which author, scene painter, and manager unite here periodically to attain, has been achieved at this present Christmas. *The Prince of Happy Land, or the Fawn in the Forest*, by Mr. Planché, is equal to the best of its author's earlier efforts, and superior to some of his later. It is written with a sparkling and pure pen, and is full of wit from the beginning to end. The opening song, charmingly sung by Madame Vestris, pays a well-deserved compliment so neatly that we are led to quote it. Thus it runs:—

"Once on a time ('tis always so
The charming fairy tales begin),
People of all sorts pined you know,
Towers and dungeons in,
For monarchs in that bygone age—
I beg you will remark—
Consider'd 'twas a maxim sage
To keep folks in the dark.

Once on a time—is long ago—
And soon I hope they'll change their plan,
And upon every subject throw
As much light as they can.
Indeed I'm told a Royal Pair,
With policy more sound,
A Palace built of Crystal fair
To let in light all round."

The scenery, by Messrs. Beverley and Meadows, is singularly beautiful; as, for example, the second scene in the first act, "Point Lace Chamber, in the Tower of Tapers," and the last scene "The Golden Pinery," which is one of those gorgeous displays of gold and colour and machinery and pretty faces, to which we have been for some time accustomed here. The gem in this department, however, is unquestionably the closing scene of the first act, "Peerless Pool and Pleasure Gardens," wherein the water and air remind one of some of Turner's finest pictures. Some morsels of blue and red in the shape of sitting children are introduced with admirable effect; the amber dresses of the ballet *troupe* harmonize beautifully; and the whole is as fine a work of art of its kind as was ever produced.

BITS FROM AMERICA.

A new Building Material.—The Californian papers contain an account of a new building material which has recently been discovered near Benicia, and which, they think, will be extensively used for building purposes in that country. Several houses have already been constructed of it, and the pliability with which it can be worked, the ease with which it can be transported to market, its durability and its power of resistance against fire, will, it is thought, render it hereafter very popular as a material to be used in the construction of houses. It is a kind of sand stone, and can be wrought into different shapes more easily than oak. By subsequent exposure to the weather it becomes exceedingly hard, and pieces which have been tested by fire, have been little if any affected by it. Its colour is light brown, and when properly worked with the hammer, it gives to a building an exceedingly ornamental appearance. Those who have used it say that a house can be built of it more cheaply than of brick.

Safety of Railroads.—The Vermont Legislature, at its late session, passed a capital Act, designed to protect the lives of travellers on railroads. It forbids the employment of conductors, engineers, brakemen, or switchmen, "who shall make use of intoxicating liquors as a beverage," and the employment of such a person, with the knowledge of the president, superintendent, or any of the directors, exposes the company to prosecution, and to a fine of 300 dols. to 3,000 dols. besides being liable for all damages that may result.

Steam Excavator for Digging Guano.—Mr. John Souther, proprietor of the Globe Works, South Boston, has just completed the construction of one of Otis's steam excavators. This machine is to be shipped to the coast of Peru, South America, for the purpose of excavating the substance known as guano. The excavator is capable of taking up three shovelfuls of loose gravel in five minutes, the shovel holding from a yard to a yard and one-half cubic. It is estimated that with it two men can easily perform the same work, in the same time, as would require one hundred and fifty common labourers.

Mr. Barnum's Villa, at Bridgeport, Connecticut, is described as being of a composite order, of the Byzantine, Moorish, and Turkish styles of architecture. Its entire front is one hundred and twenty-four feet, the wings being thrown off irregularly, with domed conservatories at each extremity. The main building consists of three stories, each having broad verandahs supported by pillars, surmounted by minarets. Upon entering the hall, about its centre springs a winding staircase, with a carved balustrade of black walnut, which, gradually contracting, winds to the observatory in the central dome; the niches of the staircase are embellished with marble statuary imported from Florence; opposite to the base of the staircase, large sliding-doors open into a drawing-room, the walls of which are covered with paper, the principal panels of which represent the four seasons; the ceiling is of arabesque mouldings of white and gold; the mantels of Italian statuary marble; the furniture is of rosewood; the dining-room walls are painted in dark English oak, the panels of which represent the fine arts, Music, Painting, and Poetry; the ceiling has gilded mouldings; the furniture is of black walnut. In the Chinese library the walls are covered with Chinese landscapes in oil; the bookcase and furniture are Chinese.

LAYING OUT GROUND.

THE GROVES OF BROMPTON.

IN laying out building plans for new sections of the town, little attention is ordinarily bestowed on any consideration other than productiveness, or the greatest possible amount of ground rent. Too frequently on large estates this is the main object, and to such an extent is it carried, that the mean character of the houses often mars the general aspect of a quarter, and thus foils the intention of a greedy proprietor, who loses in value more than he gains in extent.

Examples might be cited in every district of the growing suburbs, but it would be invidious to quote them: the instance, however, of a few cases of the contrary tendency, may illustrate the policy of not being too niggard of area, and of the much greater benefit that proprietors acquire by allowing abundant space for squares and ornamental expanses.

Belgrave and Eaton squares on one estate; Hyde-park Gardens and the Terraces (Oxford, Cambridge, and Westbourne) on another, have enhanced the rentals, as well as the building interests far beyond what closely-compacted streets and narrow frontages could possibly yield.

It is true that all localities cannot be dedicated to great buildings or first and second-rate houses; but even of the minor class of dwellings better arrangement might be made than the packing together of 17 or 18 feet frontages, in uniform consecutive ranges, as tasteless in the external appearance, as comfortless in internal accommodation, and transitory in permanence.

When the row is numbered, decorated, and tenanted, the builder's view is attained: he parts with his interest, which is but for a sixty, seventy, or eighty years' lease: the annuitant at 7 per cent. succeeds him; and ultimately the landlord acquires a ramshacle property, calculated to endure possibly as long as the fashion that has passed before a matured tenure establishes a fair property in tenements.

The seeming liberality of space, such as squares, crescents, and the like, ought to be carried out in the small as well as the large class of houses. Semi-detached or commodious premises always produce more rent, and not only that, but a better order of tenant—more permanent because more satisfied. Besides, the rents are larger just in proportion to the increased comforts and consequent greater respectability of the vicinage.

As to the quality of architecture in general, that is regulated by the length of the lease, and is just calculated to bide its time. As the custom of short leasing grows, so the frailty of structures becomes more frail. It might be worth consideration whether the possessor of suburban acres would not find his advantage in doubling the present extent of term from 70 to 150 years.

On the existing mode, however, whether for sixty or more years, the policy of building first of all good structures; secondly, commodious curtilages; thirdly, wide causeways; and fourthly, open spaces, with *verdure* and *plantations*—is too palpable to need comment.

A glance at the massive dull ranges of Harley, Wimpole, Wigmore, Welbeck, and the numerous other quadrangular ranges of that dingy locality, will prove the force of these observations; and in laying out the beautiful and (in position) incomparable vacant spaces as yet unoccupied, it is to be hoped that the architect who lays down the ground plan will have due regard to modern improvements in the varied disposition of squares and gardens, of *effective isolated*

buildings, and of that aërial grace which lends a light aspect to the most massive structures.

The quarter to which I allude is the only unoccupied one within the same range of the centre, and to the circumstance of family settlements it is alone due that compacted dwellings have not already covered the whole space between the *Glass Palace and the Brompton-road*. The soil being dry, the air light, the neighbourhood unsullied by any deformity (save the Knightsbridge Barracks), the character of the suburb around being good and much sought after, assure the proprietors of the fact, that it only requires a little liberality of space, with great caution in the adoption of designs, to make this the most fashionable and eligible neighbourhood about the metropolis, as well as the most profitable to the owners.

One of the greatest—the very greatest—characteristic of any town is a grand causeway. The park side is, in this respect, tolerably well, and when the barrack nuisance may be abated, will be second only to the Bayswater-road. The Brompton-road is, however, worse than mean—at present it is miserable.

From the church gate (and that should be withdrawn 6 or 8 feet), full 20 feet ought to be added to the public road, throughout the whole distance to Mr. Freke's buildings. The sacrifice of that strip would confer ten per cent. on the whole estate; and as there cannot be less than 150 acres in the great lease now about to be allotted, liberality in this regard would pay a hundredfold.

There is also a plot of singularly well-placed ground next the church at Brompton, which intervenes, and ought to give up a portion to the road: without this, the widening of the residue might assimilate to the Strand, where, between Clement's Danes and the beautiful church of St. Mary-le-Strand, the wretched stack of houses between the Strand and Old Clothes-row defiles the main artery.

In the old city a similar stack (next Paternoster-row) blocks up St. Paul's, and at Holborn-bars disfigures Holborn: these straits should be avoided in the new town, and this is the time to guard against any such possible Gothicism.

As to the character of architecture to be adopted on so large an extent, it ought to be varied and good. Give each house a space for at least free circulation of air, and, if possible, a large saloon detached, with occasional stables; but, above all, let the grand causeways be spacious, and lead to *something*,—the Park at one end, gardens like Hyde-park Gardens fronting the Hyde,—and the same towards the other outer bounds. Let the trees (if any there be) stand: plant limes and other smooth-leafed species in all openings for verdure, for it also promotes ventilation, not to speak of ornament.

The hand of the destroyer will soon spread havoc among the groves of Brompton Park: the verdant and yet sequestered lawns within the bosom of the town, for the most part unconscious of them, will give place to York and Irish flagging. I pray them, as far as may be, to spare the trees, and to go softly over the stones. QUONDAM.

THE LATE ART-DISCOVERIES ON THE RHINE.

FRESCOES AND GLASS.

M. W. LUBKE, the discoverer of the old frescoes at Sendenhorst and Legden, has, after a more accurate inquiry, published in his own tongue the following detail of these interesting relics. "At Sendenhorst my first labours had brought to light the figure of a bishop, clothed in a red cloak and yellow undergarment. The form of the mitre and staff showed the transition of Romanic in the Gothic style: the figure was of the same type, although not of the superior character of other works of that period. Still examination was continued, as, judging from other analogies, I expected the whole choir similarly pictured. But I soon found that the spaces had been first covered by the daub of the Renaissance, and partly also removed by the scraper of the mason. This delusion has been, however, recompensed by the since discovered frescoes of the church of Methles, near Dortmund, on the Cologne and Minden line. This pretty little church consists of three naves, and is one of the finest examples of the above transition period, and belongs to the former portion of the thirteenth century; and to this period also are to be ascribed those highly-finished and splendid frescoes which cover the whole of the edifice, especially the choir. The white shroud covering these walls has been already removed, and the grand figures, but little faint, bespeak the whole youth, freshness, and creative power of that gigantic art-period. The subjects, so far as uncovered, exhibit the usual cycle, Christ in his primæval, stern conception, with the apostles and patrons of the church on the ceiling; on the walls the twelve apostles and the life of the Virgin. Here, the whole height and perfection of a truly hieratic art are yet displayed. Habited in a splendid antique drapery, with features of high ideality, somewhat approaching Hellenic form-perfection, the solemn array passes before us, greater even than the choir of the tragedy of old Greece. The frescoes which I have discovered in the Nicolai chapel at Soest, nearly approach in style those of Methler. Allied to these, again, although from a lesser hand, are the frescoes on the northern side of the choir of the cathedral at Soest, while those lately discovered in the chief apsis are of a more primitive, more simple and stern style. The importance of this whole series of mediæval frescoes is the more apparent, as the monuments of this art-period are either still hidden under the layer of white-wash, or have long passed away under the hand of Vandalism and stupidity. But even the practical architect may learn and improve from these pictures, as the whole art-tradition of that period is, after all, scanty. Moreover, from the time of the Hellenic arts down to the past masters who built our cathedrals, architecture and painting were undisseverable, like mind and body. The stained windows, also, of the Legden Church, deserve particular notice, on account of their variety, beauty, and high state of preservation. Their brilliancy of colour, and mild, harmonious *ensemble*, are unsurpassed. Their technicism is still the old, imperfect, where every part of the design forms a separate piece of glass, combined with the others by the lead frames, so much so that it is this which forms the contour. Still, the design of the detail, the heads, &c., are of surpassing beauty. M. Quast, conservator-general of national antiquities in Prussia, has lately visited the church of Methler, which augurs well for its speedy and effectual restoration.

THREATENED STRIKE OF OPERATIVE ENGINEERS, MACHINISTS, MILLWRIGHTS, SMITHS, &c.

IT will have been observed by all readers of the daily papers that a formidable combination of workmen throughout the country threatens not only to interfere with the natural progress of demand and supply in one of our great branches of manufacture, by limiting the amount of work done and the use of machinery to do it with, but thus in fact to divert the extensive engineering trade of this country into foreign channels,—at a moment, too, when, having completed our own main railway ramifications, there was some hope that supplementary work for our engineering operatives would be coming in, in increased quantity, from continental sources, to be done on demand, however prompt or limited as to time. The objects which the unionists have in view are, to compel the masters to cease giving overwork, to cease giving piece-work, moreover to reduce the ordinary hours of work without reducing wages, finally to abolish the use of machine making machines, and to discharge those who work them. We cannot believe that the threat will be persisted in, or that so large a body of workmen have not some in their ranks a little more far-sighted than the leaders, who seem to be bent on the destruction of their own means of livelihood, by compelling the removal of capital into channels where no such combinations will interfere with it. The attempt by machine-makers to put down the use of machinery itself is incomprehensible. The masters have already combined in self-defence, and threaten to discharge their workmen in a body of many thousands, if the unionists cause the workmen of any one master to strike for such purposes as those threatened. It is earnestly to be hoped that the threatened evil may be averted.

ANCIENT LETTERING IN MODERN CHURCHES.

IN Mr. Truefitt's "Notes," the writer implies that "the bright, the elegant old letters of the twelfth and thirteenth centuries may be found by those who search under whitewash," &c. I will with pleasure make a journey to see any letters of that date on the walls of a church. But then Mr. Truefitt speaks of those same letters being understood only by a *few* architects and antiquaries, does he mean the black letter or old English? THE BUILDER of Jan. 19, 1850, says—"From A.D. 1000 till about 1350, a kind of Roman character called Lombardic was commonly used. The character called black letter seems to have been introduced A.D. 1350." And THE BUILDER is right, the middle of the fourteenth century is about the time that black letter was first used.

It is not a good argument that because people will not take the trouble to read the old English it should not be written. It is to be acquired in a few minutes. Often, while engaged in writing scripture texts in churches, I have heard such exclamations as "He's writing Latin,"—"that's Greek to us,"—till attention has been directed to the simple construction of the letters, when the speakers have at once taken a pride in conquering the difficulty; and what costs some little trouble to attain is mostly better remembered.

JAMES WEST.

*** The commandments, texts, &c., put up in churches should certainly be open to the "meanest capacities." Records may be addressed to the learned.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

Artesian Springs—Tradition at Algiers.—There exists a tradition in some parts of the Sahara, that a prophet who lived in the time of Abraham, called Dou'l-Kornin, was the author of those springs whose traces are to be met with in many places of the desert. Even now the natives are imitating the meaning of this tradition, and M. Berburgger has addressed to the French Academy a memoir on their procedure. The making of real artesian wells is now practised in the eastern part of the Sahara, at Oued-Rir. They first make a square excavation, each side being one mètre broad, and lined with boards of date-wood. Even men for boring are now found amongst the natives, and M. B. says, that the desert once supplied with artesian wells, will change the face of this part of North Africa.

Cathedral of St. Stephen, Vienna.—M. Endlicher, the architect, of Vienna, has just published a work with fifteen lithographic plates, representing the wooden stalls of that ancient edifice. They date from the fifteenth century, and were executed by Master *Jörg Syrnsten*, a name unknown to art-biographers.

The Pantheon, Paris.—This, one of the finest of the edifices of the French capital, re-rendered now to public worship, was built by *Soufflot* in 1757. Being, however, situate on the catacombs, it threatened ruin, after standing for about thirteen years. It was in the year 1791 that the French constituent decided on dedicating it to the great *men* of France, under the name of Pantheon, with the inscription, "Aux grands hommes, la patrie réconnoissante." The ashes of J. J. Rousseau and Voltaire were deposited within its vaults. In the year 1822 it was again consecrated to religious worship; but again made a secular building in 1830. Since then, it had been ornamented with copies of Raphaelean pictures, and some original paintings. The *Apothéose*, by Gros, attracted great notice.

The form of the building is that of a Greek cross, with a dome in the centre, the *chef d'œuvre* of Soufflot. The front is ornamented by twenty-two columns.

Kaulbach.—This master is now engaged in the design of the cartoon which will form the great frescos of the entrance to the new museum of Berlin. It represents "the flower period (*Blüthenzeit*) of Grecian art," which is grandly reflected on the canvas of the great German painter. M. Muhr, the chief assistant of Director Kaulbach, is at Berlin, preparing for the opening of this part of the building next summer.

Cologne Cathedral.—The works at this huge building are progressing, as the voluntary contributions of this year exceed 30,000 thalers. The Pope has sent crosses of his order to several persons engaged in the undertaking. M. Wiener has made a medal, representing the *dome* as it is, and as it will be when finished, after the designs of the building, by Councillor Zwirner. The explanatory text to the coin is written in German, French, and English. The diameter of the medal is 28 lines, and its cost 12 thalers in silver and 1 thaler in bronze.

STATE OF TRAFALGAR-SQUARE.

BEING a frequent visiter to the Metropolis, I have from time to time noticed with regret the filthy-looking condition of Trafalgar-square proceeding from the leaky state of the ponds; and, upon one occasion, saw work going forward that appeared to me a desirable but vain attempt to make them perfectly sound. I would, therefore, venture to suggest whether or not a small gutter cut round the base of each pond would not at all events answer the present purpose to confine the small quantity of escape to a few inches, instead of allowing it to straggle, as it does at present, over the surface of the pavement. C. E. K.

*** Something effectual should at once be done here: the present condition of the *Place* is miserable. The cement pavement laid down as bands to the stone pavement has failed entirely. Some particulars of its formation might be useful as a warning.

MEMORANDA OF WORKS IN IRELAND.

THE works at the new Lunatic Asylum, which is being erected at *Mullingar*, by the Commissioners of Public Works, from the designs of Mr. Mulvany, are progressing. The building has a frontage of 735 ft 10 in.; and the centre portion extends 664 ft. 10 in. The exterior walls are being erected of rubble masonry, with horizontal beds and vertical joints: all the cut stone is from the quarries at Tullamore. The dressings round windows and doors of the centre building, entrance porch, projecting oriels, mullions, &c. are of tooled and chiselled work, the remaining portion of cut stone being punched and drafted. On principal story of centre building is an entrance-hall, with porter's room communicating with same; master's and matron's rooms, each, 22 ft. 7 in. by 16 ft.; a steward's room, 20 ft. 4 in. by 15 ft. 6 in.; manager's and board room, 25 ft. by 16 ft. 8 in.; surgery, &c. The first floor of this portion contains six bed rooms of various sizes, with a recreation room, 34 ft. 10 in. by 25 ft., linen and clothes store, &c. A chapel is situated over recreation room, and has in connection therewith a clergyman's apartment, staircase, &c. The east and west wings, which are devoted to the accommodation of male and female patients, respectively contain, a reception room, 13 ft. 5 in. by 11 ft. 6 in.; twelve single rooms, 9 ft. by 7 ft. 6 in.; dormitories, with attendants' rooms, clothes stores, padded rooms, wash rooms, water closets, &c., all of which are entered from a corridor 10 feet wide, lit by windows in front of building. Similar arrangements are carried out on the floors above. The general appearance of the building is simple, and the style is Tudor Gothic. The centre building forms a distinct feature, having two projecting wings, with the entrance porch between them: at either extremity are corresponding wings terminating in gables, and surmounted by finials: large oriel windows project from the face of wings, and are finished with a cut stone roof. Between each projecting portion is a series of buttresses, and the windows of the three stories are of simple character, having plain label moulding, mullions, &c. Original contract, 24,203*l.* Mr. John Smith is the builder.

The committee of Natural History of the Royal *Dublin* Society, have "*at length*," decided respecting the proposed Museum; of the plans submitted in competition two were selected, as being most worthy of adoption; one by Mr. John J. Lyons, architect, and the other by Mr. Duncan C. Ferguson, architect (*and master over the architectural school of design in connection with the society.*) After a long deliberation that of the latter gentleman was accepted.

A new Presbyterian College is to be built at *Belfast*. The proposed building is to have a frontage of 130 feet and a depth of 40 feet, to stand on a site (overlooking the Queen's College) 277 ft. by 400 ft. An entrance hall and five rooms of unequal dimensions, with a superficial area averaging 900 or 1000 square feet, porter's rooms, water closets, urinals, &c., &c., are to be provided. The cost is not to exceed 2,500*l.* and the architect whose services are engaged is expected to forfeit his right to any fees over 100*l.* the surplus to be considered a donation to the college,—a novel proposition.

St. Mary's chapel at Limerick is to be rebuilt, and a subscription list has been set on foot for that purpose.

New transepts are to be erected to the church of St. Mathias at *Dublin*, according to the plans furnished by Messrs. Louch and Son, architects.

Considerable progress has been made in the completion of the Knockwilliam contract, and also in the construction of the new works between Knockwilliam and Mullinvat, on the *Waterford and Kilkenny* Railway; and it is expected, that the line will be finished against next spring, to the point of junction with the Waterford and Limerick Railway.

A new National Model Agricultural school has been opened at Woodstock: it is situated at the Western slope of Brandon-hill. The designs have been furnished by the architect to the Commissioners of National Education.

The sum of 3,000*l.* will be required by the Corporation of Dublin for the construction of sewers during the ensuing year.

A new bank is to be erected at Kells, according to the designs of Mr. Wm. F. Caldbeck, architect.

LONDON QUAYS AND SEWERAGE.

TUNNEL ACROSS THE MERSEY.

MORE than four years ago I submitted to a well-known legal firm in Liverpool the sketch of a project for placing a submarine tunnel (of similar construction to that which at present spans the Menai Straits) between the town of Liverpool and the opposite shores of the Mersey, but was, however, given to understand that the idea was altogether too visionary to meet with any sort of favour with the capitalists of that city. Never having had an opportunity since of examining the matter, I am unable to say to what extent I had proposed a feasible undertaking. Observing in a colonial paper that this identical scheme is actually under contemplation, I have taken the liberty of calling your attention to, I trust, a happier application of this system.

It has occurred to me, that by no other method of construction than this could the basin of the Thames be relieved of the offensive burden it is at present doomed to bear; its banks adorned; and the public accommodated with all the advantages of a noble line of quays from Westminster to London-bridge.

By the adoption of such a system of *tubular quays*, constructed so as to become the recipients of the City sewers, it would then be in the power of the authorities to establish, at proper intervals, manufactories for the conversion of liquid into patent manure; or to otherwise dispose of it as judged best.

As the level at which these tubes would have to be sunk would be incompatible with the existence of a continuous thoroughfare, I would propose that a roading should be carried upon it, on columns or archway, at such an elevation as would connect it with the several streets and bridges at present adjoining or spanning the river. C. E.

Canada West.

*** The suggestion, as our readers know, is not a new one. We insert this note that it may be kept in mind.

HEALTH ACTS.

Dewsbury.—The Board of Health for this place has just been elected under the provisions of the Public Health Act, and held its first meeting on the 22nd inst. We are glad to find that the utmost unanimity prevails amongst the members of the Board, and that they are one and all determined to carry out the Public Health Act with zeal and spirit. They intend to lose no time in making the necessary arrangements for sewering the district, and providing it with a good and ample supply of water, of which all, but particularly the poorer classes, are now in the utmost need.

Dartford.—We find that the local Board of Health, having received the Ordnance survey of their district, intend to lose no time in laying out the works of drainage and water supply. A meeting of the local Board was held on Tuesday, the 23rd ult., at which it was resolved that the Ordnance plans should be forwarded to Mr. Ranger, who had some time previously been appointed their consulting engineer, and that that gentleman should be instructed to proceed forthwith in drawing up a report on the most advisable source for the future water supply of the town, as well as on the best mode of laying down complete and efficient works of sewerage and house drainage.

REVISION OF BUILDINGS ACT.

AN endeavour is being made in Greenwich and Lewisham, by the builders and other persons interested in house property, to devise means by which such alterations shall be made in the Metropolitan Buildings Act, as will cause it to be a public benefit, instead of, as it now manifestly is, a public nuisance. It is notorious to all persons, directly or indirectly concerned in the erection of buildings, that the present Act is exceedingly crude, and in many instances its operations have been unjust and oppressive. The fees sometimes, and I speak from my own experience, have amounted to as much as 25 per cent., and sometimes 75 per cent. on the cost of the work, when at the same time no possible benefit could be derived from the supervision of the surveyor; and the consequence is, that many improvements, particularly in small properties, which are necessary for health and cleanliness, are not carried out, or else every endeavour is made to evade the law; and it is thought to be praiseworthy, and something to boast of, when the evasion is successful. A large portion of the clauses of the Act have caused much unnecessary interference, without effecting any good purpose. It only requires a few earnest men to move in this matter, and I know they could lay before the public a mass of evidence, showing that the Act does not effect the purposes for which it was intended, but, on the contrary, oftentimes produces an enormous loss in time and money, and in many cases has been ruinously oppressive. The committee would gladly receive communications, as they are anxious the movement should be on as extended a scale as possible.

JOHN PARKER.

A HOARDING.—I had occasion to be passing along King-street, Cheapside, recently, and at the Gresham-street corner they are taking down a house, round which, of course, there is a hoarding, and whilst I was going along close by it, a cab suddenly shot round from Gresham-street, knocked me down, and ran over my foot, which has confined me to my room ever since. I have addressed you, to complain of hoardings being erected at corners of streets, without pathways being protected for foot passengers.—JOHN WILSON.

MANUALS.—DEMPSEY'S BUILDERS' GUIDE.

WHEN contemplating constructive failures, and their consequences, we have sometimes been led to think that it would not be amiss, when public officers were being appointed for the supervision of structural operations, if candidates were brought forward by their nominators in a manner similar to that adopted in the case of parliamentary elections; in order that those resident in the districts concerned might have the opportunity of satisfying themselves as to their eligibility. Then, the very act of publicly proposing Mr. So-and-so as a "fit and proper person," &c., would lay the nominator under a responsibility which of itself would be a partial guaranty of the candidate's competency; while the electors could put such interrogatories as to them seemed calculated to clear away any doubts that remained, and also to determine as to comparative merit. Under such a plan we should possibly have such colloquies as the following:—

Querist.—"What are your sentiments as to the modern use of ancient architectural styles, for purity or adaptation?"

Candidate.—"Pure; decidedly conservative," or "for liberal adaptation," as the case might be.

Querist.—"And as to labour?"

Candidate.—"Protective; that is, I disapprove sub-letting."

Querist.—"What is your opinion of the practice of compoing?"

Candidate.—"That it hides a multitude of sins; but that the railways will put an end to it; by facilitating the transmission of proper building materials, from the scenes of their production to any where that they may be wanted."

Querist.—"Do you think working-men should be allowed access to scientific information?"

Candidate.—"Certainly: universal suffrage! they want useful-art education."

Querist.—"You may go down for the present."

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Failures are expensive lessons; therefore they should not be lost upon us: in them we may discover the fallacy of what previously may have been considered infallible principles. Non-failures may be just within the verge; and yet pass for successes. Yet, it is not to be denied that just proportions convey a sensation of satisfaction, though we may not perceive, the while, the excellencies that compose the perfection which results; or, on the other hand, that that which is on the verge of failure, if visible, is usually unsatisfactory to the senses, though we do not, the while, detect wherein the impending danger is involved. How vital, that district surveyors should be able practicians; that workmen should progress, and not retrograde; and that those who immediately direct or supervise their operations should be "well up" in the principles as well as practice of the multifold ramifications of their art. There is much more requisite to occupy the mind than the poetry and æsthetics of our art: there are the sterner realities; sterner, because more responsible, but yet pleasurable also, when pursued with right spirit.

If construction be more responsible than design, then should we be ready to award the fair meed of commendation to those writers who devote their time and talents to its development; and who, impressed with its prime importance, waste the midnight oil in its abstruse considerations. And those manuals which walk the cycle of the structural arts, if carried out with integrity, are deserving our regard hardly less than the more elaborated mono-treatises; seeing that they address themselves to the greater number, and convey, in a concentrated form, the pabulum they require.

It was under impressions such as these that we took up a new work by Mr. Dempsey, "for the use of builders, clerks of works, professional students, and others engaged in designing or superintending the construction of buildings."* In this work, though there is hardly anything so salient as to arrest especial attention, we have yet a fruit of much industry and discrimination well applied; and, indeed, in the more important departments of building, such as foundations, boring, piling, &c., there is much that is often left untouched in works of a similar class. To the clerk of works, to the onerous nature of whose office full justice is done in the introduction, it will form as good a "Guide," for its size, as he could wish for. In it will be found several appliances which are thus published in a permanent form for the first time. We feel satisfaction in being able to recommend it, as sound and practical, and free from the encumbrance of unnecessary verbiage. The subjoined extract may serve as a sample:—

"*Slate.*—Slate is a material which is met with in a great variety of qualities. That used for roofing is quarried abundantly in Westmoreland, Yorkshire, Leicestershire, Cornwall, and Devonshire. Also, to a great extent, in Wales, for the London market. In Scotland, Balahulish and Easdale furnish the chief supply. Irish slate, of good quality, is now quarried in the island of Valentia, Kerry. Slate appears to be a sedimentary rock, formed by the deposition of minute particles of the primary rocks in a stratum of mud, subsequently consolidated by heat or pressure. This theory of formation seems especially probable in the case of those slates which contain vegetable or animal remains. In some instances, the depositions of mud have become intermixed with matter ejected by submarine volcanoes, or fragments of older rocks, broken and dispersed by geological convulsions. This kind of intermixture has produced the varieties of grey-wacké rocks, which pass from coarse slate into conglomerate rocks, and occasionally appear composed of slate and sand, differing but little from sandstone. Flinty slate contains more siliceous earth than the other kinds, and is frequently met with alternating with the latter. This kind of mixture, when it loses the laminar structure, becomes *hornstone*, or, as the French call it, *petro-silex*. If it contains crystals of felspar, it is termed hornstone porphyry. All these varieties are found alternating in the same rocks in Charnwood forest, in North Wales, and in Cumberland. Slate contains nearly all the principal metallic ores, either in veins or beds, but *flint* slate seldom contains any of these. The *killas* of Cornwall, which is remarkably metalliferous, is a variety of slate. *Clay-slate* is a softer kind, found in the coal strata, abounding in the most rocky districts, resting on granite gniess or mica slate. That slate lying nearest to the primary rocks has a more shining lustre than the other, and partakes more of the crystalline quality of mica slate: receding from these its texture becomes more earthy. In colour, it has various shades of grey, inclining to blue, green, purple, or red. It is chiefly composed of indurated clay, with, occasionally, particles of quartz and mica, and in the coarser kinds, fragments of the primary rocks, grains of felspar, &c. Clay slate is always found in stratified beds, from half-an-inch to many hundred feet in thickness. Slate rocks vary much in quality in the same mountain. Magnesia enters largely into the composition of some of the slates, giving them a green colour, whence they pass into chloric or talcy slate. Whetstone slate, used for hones, is a variety of this kind. The fine kind, which is used for roofing, seldom forms entire mountains, but is generally embedded in coarser qualities. The beds are sometimes of great thickness, and usually rise at an elevated angle. Those varieties which are the least absorbent have the smoothest surface, and split into the thinnest plates, are, of course, the best for conversion. A symptom of quality for durability is afforded by breathing on the slate, when, if the argillaceous odour is strongly emitted, it may be inferred that the slate will be liable to rapid decomposition. The large slate quarries at Penrhyn, are worked in successive ranges of elevation, or terraces, and the slate is obtained in immense masses by blasting."

LECTURE BY LORD LEWISHAM, M.P.—At Bilston, on Tuesday week, Lord Lewisham delivered, to the colliery and other population of Bilston, a lecture "On Civility, considered as Benevolence in Trifles." There was a numerous attendance. His lordship's lecture was full of good sense and right feeling. Civility towards equals, towards superiors, and towards inferiors, was successively treated of.

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* The Builder's Guide: a practical Manual, &c., &c. By G. Dryadale Dempsey, C.E. 8vo., pp. 196, with 165 illustrations. Atchley and Co., London.

Books.

A Text Book of Geometrical Drawing, for the use of Mechanics and Schools, in which the definitions and rules of geometry are familiarly explained, the practical problems arranged from the most simple to the more complex, and in their description technicalities avoided as much as possible: with illustrations for drawing plans, sections, and elevations of buildings and machinery; an introduction to isometrical drawing; and an essay on linear perspective and shadows; the whole illustrated with fifty-six steel plates, containing over two hundred diagrams. By WM. MINIFIE, architect, and teacher of drawing in the central high school of Baltimore. Third edition, published by W. Minifie and Co., Baltimore. 1851.

WE have thus fully given the title of this volume, not only to show at once its objects and purposes, but that we may be able also at once and comprehensively to say that it appears to us to bear out all its professions. It is really a capital work, and though containing not much more than 100 pages imperial octavo, judiciously comprises the greater part of what a learner needs, though previously entirely unacquainted either with geometry or drawing. The engravings are carefully executed, and the whole comprises mainly a selection, by the author, from the whole compass of standard works, of all that he found in practice to be really useful, simple, and effective in elementary class instruction. The book is deservedly highly esteemed in America. It is evidently the work of one who understands his subject, and we suppose that such of our readers as desire to possess and study it, may, by application to Mr. John Chapman, in the Strand, or some other publisher who deals in American books, be able to obtain it.

Miscellanea.

THE ORIGIN OF ELECTRO-METALLURGY.—On Monday in last week a public dinner was given at Liverpool, to Mr. Thomas Spencer, as the discoverer of electrotype, originator of electro-metallurgy, and improver of the galvanic pile, on the occasion of his departure from Liverpool to reside in London. In course of the evening a purse, containing 200 guineas, was presented to Mr. Spencer, who, in acknowledging the compliment, gave an account of the origin of those experiments in 1837 which resulted in his discovery of the art of metallurgy. "The apparatus," he said, "which I adopted for these operations in 1837 is the same as that now sold in the shops as the 'single-cell electrotype apparatus.' There are several gentlemen now present who saw these experiments in operation at the time; yet many attempts have been made to deprive me of the credit of the discovery. A statement was made in the *Mechanics' Magazine* in 1844 (and most industriously disseminated throughout Europe) to the effect that I had copied my experiments from a letter written by a Mr. Jordan, and published, I think, in the June number of that print for 1839. Nothing could be more absurd than this last charge. In fact, I had never seen the letter until it was thus pointed out; and if I had, I could not have obtained anything practical from it."

NEWS OF THE EXHIBITION BUILDING.—A commission has been issued from the Lords of the Treasury to Lord Seymour, Sir Wm. Cubitt, and Dr. Lindley, to inquire and report on the cost of maintaining the building on its present site,—of its removal elsewhere, either wholly or in part,—and the purposes to which it may be advantageously applied. The evidence of the contractors and others qualified to advise on these subjects will of course be fully gone into.

BANKERS' EXHIBITION ESSAY.—The prize of 100*l.*, offered in January last by Mr. Gilbart, F.R.S., of the London and Westminster Bank, for the best Essay upon the Great Exhibition, in connection with "Practical Banking," has been awarded to Mr. Granville Sharp, of Norwich.

THE IRON TRADE.—If any alteration can be noticed, it has been a further tendency to decline rather than to improvement; and the trifling transactions of the last fortnight appear, in several instances, to have been concluded upon somewhat lower terms. While the first makes are commanding something near the nominal figures, it is not going too far to say that others are now to be had at 15s. per ton lower. From the Scotch market accounts are gloomy, reporting 3d. per ton decline. Notwithstanding these adverse symptoms, it is generally expected that there will be no declaration of reduction at the approaching quarterly meeting, but that existing prices will be maintained.—*Birmingham Gazette.*——The preliminary meeting of the South Staffordshire and Shropshire ironmasters was held at Wolverhampton, on Wednesday in last week, when it became a subject of consideration whether or not the nominal prices for the ensuing quarter should be reduced in accordance with the recent acknowledged downward tendency. No nominal reduction, however, was agreed to.

THE IPSWICH MUSEUM.—The anniversary of this thriving and useful institution was celebrated on Wednesday and Thursday in last week. On Wednesday Sir Charles Lyell delivered the anniversary lecture at the Corn-exchange "On the White Chalk," in course of which he adduced several new facts which he regarded as militating against the development theory of animal life, and in favour of his own. The annual meeting and soirée was held at the Museum on Thursday, when the galleries were crowded with ladies, and the floor was also fully occupied. The Bishop of Norwich took the chair. Mr. G. Ransome, the honorary secretary, read the annual report, and Sir Charles Lyell, in moving its adoption, congratulated the meeting on the flourishing account of the finances, as well as the gratifying and encouraging statistical fact that more than 60,000 visits had been paid in the course of the year to the collection; which, he was sure, as the report stated, was destined, under the superintendence of his friend Professor Henslow, to become a model to other museums, which he hoped would soon be multiplied throughout the country. Professor Henslow renewed his suggestion of evening lectures once a month to the working classes. Various objects were set out for exhibition, and the soirée passed off with *éclat*.

MONUMENT TO WEBER.—The committee for the erection of a monument to the memory of the celebrated Carl Maria von Weber, notwithstanding that the necessary funds are wanting, has been so bold, confiding in the patriotism of the Germans, as to order the execution of the statue of the great musician by the hand of Professor Reitschel, which will afterwards be cast in bronze. Will England not join in the subscription?—England, to which country Weber devoted his never-forgotten "Oberon!"—*Art-Journal.*

WIDE TENDERS.—I send you the following tenders for building a new villa at Pottersbury, in the county of Northampton: Mr. E. F. Law, architect. The quantities were furnished, which makes the difference in the amounts very extraordinary:—

W. M. Cooper, Derby	£1,679
Arnold and Cowley, Stratford	1,451
Howes and Bowden, Towcester	1,425
Savage and Blunt, Northampton	1,320
Twelvetrees, Biggleswade	1,265
Sparrow, Northampton	1,245
Thompson and Roberts, Northampton	1,210
Green, Northampton	1,199
Cosford and Fisher, Northampton	1,180
Watkins, Northampton	1,112

Mr. Green's tender was accepted.—Z. Z.

TENDERS FOR ROADS.—The following tenders were received for making roads on the Westminster Freehold Land Society's estate at Reigate:—

J. Gibb	£1,245
J. H. Brown	1,175
T. Cook and Co.	1,150
J. F. Mathews	1,060
W. Wells	1,019
W. Adamson	895
E. Murray	894
J. Knight and Son	889
J. Becks	856

MONSIEUR HITTORFF, OF PARIS.—We understand that this distinguished architect has been directed to prepare for the municipal authorities designs for two large schools of mutual instruction and Christian doctrine, (?) the one for 600, the other for 1,200 pupils; the site intended for the latter being one that affords an opportunity for very effective treatment. He is also engaged upon a "*cirque d'hiver*," to be erected on the Boulevard du Temple. The central area will exceed 136 feet in diameter, and the roof to cover this vast space will be so ingeniously arranged, as to be carried directly by the enclosure walls, without any intermediate pillars, or being suspended like his roof to the Panorama in the Champs Elysées. Some changes are in contemplation in the Place de la Concorde, and it is whispered that the Prince President, anxious to mark his government by some striking architectural feature, has directed M. Hittorff to prepare a colossal project, so vast, nay, gigantesque, that the conceptions of the loftiest fancy do not exceed it, and it will vie with any of the most magnificent designs of ancient Rome!

EVENING LECTURES ON CONSTRUCTION.—We observe that, for the convenience of gentlemen who are already articled to civil engineers or architects, Mr. Clegg and Mr. Geddes intend, on the 14th inst. to commence a series of evening lectures upon the principles of construction, pure mathematics, and the mathematical principles of mechanical philosophy, upon which most of the calculations necessary for practical purposes are based. The subjects of the first term of twenty-four lectures are—"The Nature and Properties of Materials used in Building, and the Methods of applying them in Work"—"Strength of Materials; Effects of Position in Work; Cranes, Scaffolding, and the Application of the Mechanical Powers"—"Floors; Roofs; Centerings; Timber-bridges"—"Retaining Walls; Brick and Stone Bridges; Oblique Bridges."

ENERGY AND PERSEVERANCE.—An unsuccessful competitor for the Academy silver medal, who signs himself "the Defeated but not yet Conquered Student," and writes to us in defence of the step taken by the competitors, shows the possession of an amount of determination and perseverance (if his statement be true, which we have no reason to doubt) that entitles him to commendation. He says:—"I had every thing against me, being but a very poor architectural student, with not one farthing but what I earn through my pencil, and scarcely a friend to assist me. The office hours are from half-past nine to six, and I was never away a day the whole time, and even my master admitted only five minutes too late twice. I had an hour's walk to the church, and could then only work till nine o'clock or after half-past six. For a whole continuous week I had only a bun, perhaps, from breakfast time at or before five to eight at night: still I did succeed in measuring the whole, from the "dragon" downwards; yet, from these circumstances, had not time to finish my drawings, and thereby came in for none of the honour. But I can scarcely see any reason to envy others, who have received only what they deserved, being more fortunate than myself. Patience and perseverance,—'try again,' say I."

NORWICH SCHOOL OF DESIGN.—On Tuesday, in last week, the annual distribution of prizes to the students in this school took place in the school room, in presence of a numerous assemblage of ladies and gentlemen. Sir J. B. Boileau, Bart., the president of the institution, occupied the chair. The *Norwich Chronicle* remarks that comparatively few of the students competed for *designs*, the main purpose of such institutions. Except in long-established schools of design, however, this will be the case so long as the teachers must first teach their pupils drawing itself, and this they must generally do, until those elementary schools, the establishment of which we have advocated, as well as the general adoption of drawing as a branch of elementary instruction in every ordinary day school, shall have fully prepared the way for the schools of design.

CONDENSATION OF MOISTURE IN SHOP-WINDOWS.—A "Tauntonian" adds another unit to the multitude of requisitionists for a remedy. We can only reply, as we have so often done, that where gas is used in close glass-cased window sills or openings, and deposits moisture on the glass, thorough ventilation (not at the ceiling alone, but immediately from above the jet, by means of a properly arranged tube,) ought to be resorted to. In the present instance, however, moisture obscures the glass even when no light is burning. In such circumstances, and indeed wherever the ventilation is imperfect, some deliquescent substance, such as chloride of calcium in a dry or anhydrous state, might be kept exposed in fitting receptacles within the case. Even newly burnt and unslacked lime might be tried. The expense, with any substance capable of being repeatedly and readily dried by heat after deliquescence, would only consist of the cost of the first supply; and even that would not be much. Should "A Tauntonian" or any other of our readers think it worth while to try such an experiment, we hope he will report to us the result, for the benefit of others. Any practical chemist could advise as to the cheapest and best of the deliquescents for such a purpose, and how to manage it.

STEAM ON CANALS.—A series of experiments to test the applicability of steam power to canal purposes, has recently been made by the Grand Junction Canal Company. In the present instance, the object has been to economise the steam power hitherto wasted, by employing it to produce high tractive power, in lieu of speed. The wave is said to be entirely done away with, by limiting the passage of the boat through the water to a moderate rate of progress.

HOUSES UNFIT FOR HABITATION.—By a clause in the new City Sewers Act now in force, the provisions with respect to houses in a ruinous and dangerous state are extended to any house or building which, in the opinion of the medical officer of health, is permanently unwholesome and unfit for human habitation.

[ADVERTISEMENT.]

IRON BRIDGES AND PIERS.

DREDGE'S taper balance, on tension, in small bridges, with the same weight of iron, is three times the strength of the common principle, and this advantage rapidly increases to ten, twenty, and forty times, and so on, as bridges are increased in span; and in point of safety and inflexibility, it is equally superior. Dredge's taper balance girder possesses the same relative advantages over the common girder bridge.—JAMES DREDGE, Bath.

[ADVERTISEMENT.]

POTTER AND PAYNE *v.* ESSINGTON.

IN the report of the above on the 13th inst., given in THE BUILDER, a portion of the evidence of the defendant was omitted, as was also that of the plaintiff, Mr. Potter. The latter stated, "the working drawings and specification were made at Birmingham. The first time I saw the specification was when it was returned by the committee, when I made the indorsement on it as to its incorrectness." The defendant said in evidence, "had Mr. Potter been the architect, no doubt the work would have been well performed, but as soon as the drawings were done with Mr. Potter left Mr. Payne to carry them out."

TO CORRESPONDENTS.

"Grus," "R. L. F." "T. H. H.," "An Advertiser," "S. C.," "J. F." (apply at the office, 1, York-street. Many of the numbers are out of print), "E. H.," "J. J. M.," "T. F. B." (papers are left at the office), "G. L." (declined with thanks), "J. P.," "J. J. L.," "A Subscriber," (not convenient), "G. M. H.," "W. W.," "J. C. P.," "A. T.," "E. H. D." (thanks), "J. C. W." "G. St. J." (received), "G. S.," "W.G.E.," "T. L. D.," "F. T. D.," "W. A. F." "S. and P." "J. G." "J. T. C." "Subscriber," "B." (suggest to your architect the use of Seyssel Asphalte), "L. V." "N. J. C." "G." "G. H. B." "H. N."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

LIFE ASSURANCE.

THE BRITISH MUTUAL LIFE ASSURANCE SOCIETY, 17, New Bridge-street, Blackfriars, entertains no proposals of any description involving the contingency of human life

Premiums to Assure 100*l.* payable at death, with Profits.

Age next Birthday	Annually	Half-yearly	Quarterly.
	£ s. d.	£ s. d.	£ s. d.
30	2 1 6	1 1 3	0 10 11
35	2 6 11	1 4 0	0 12 4
40	2 14 9	1 8 1	0 14 4

The Public are invited to examine for themselves the advantages gained for assurers by the plan on which policies are granted by this office

The policies are indisputable except in cases of palpable fraud

Peculiar advantages, by introduction of the loan clauses are afforded to respectable and active parties who would undertake the agency in places where no agent has yet been appointed.—Apply if for an agency, with references and full particulars to

CHARLES JAMES THICKE, Secretary.

17, New Bridge street, Blackfriars.

PROVISION FOR FAMILIES IN CASE OF DEATH; AND WOMEN'S FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.

CAPITAL £200,000.

This Company assures disease as well as healthy lives for sums of from 5*l.* to 5,000*l.*

The annual income is nearly 4,000*l.*

Lives declined by other offices accepted at equitable rates.

Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary

WILLIAM HENRY ARCHER, Actuary.
WILLIAM MORRIS, Secretary.

LIFE ASSURANCE for the WORKING-CLASSES

BRANCH OFFICE—2, EXETER CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo bridge), STRAND.

Open every Evening from Six till Eight o'clock.

Subscription for securing payments of 5*l.* and up to 50*l.* payable on death of assurers, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—

Weekly Contributions for payment of 5*l.* at death

Healthy persons whose age on last birthday subscribers shall be—

From 10 to 35 years, to pay	One Penny	per Week.
" 35 to 45	" Twopence	"
" 45 to 55	" Threepence	"

Collectors call at the houses of Subscribers for these weekly subscriptions.

The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.

Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.

N.B. No communications relative to the assurance of sums from 5*l.* to 50*l.* can be attended to unless addressed to Mr. JOHN MOLYNEUX, 2, Exeter Change, Wellington-street North, Strand

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament Capital, 500,000*l.*

TRUSTEES.

Lord Wenlock, Escrick Park
G. L. Thompson, Esq., Sheriff Hutton Park.
Robt. Swann, Esq., York.

BANKERS. Messrs. Swann, Clough, and Co., York.
ACTUARY and SECRETARY. Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100*l.*

Age next birthday	A MALE.	A FEMALE	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
10	1 7 6	1 5 4	45	3 11 6	3 3 2
15	1 9 1	1 7 1	50	4 4 9	3 14 3
16	1 11 3	1 8 10	55	4 11 6	4 2 6
20	1 14 4	1 11 8	58	5 4 0	4 14 0
25	1 17 0	1 13 8	60	5 6 6	5 12 6
26	2 0 3	1 15 2	61	7 4 0	6 9 6
*30	2 5 1	1 19 9	68	8 4 0	7 10 8
33	2 8 8	2 2 10	70	10 0 4	9 7 8
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 15 0	76		13 1 9
43	3 5 3	3 2 7	80		15 13 10

* EXAMPLE. A gentleman whose age does not exceed 30, may insure 1,000*l.*, payable on his decease, for an annual payment of 25*l.* 13*s.* and a lady of the same age can secure the same sum, for an annual payment of 19*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this company on the most moderate terms

Agents are wanted in those towns where no appointments have been made Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to

Mr. RICH, WOOD, Solicitor, 12, John street, Bedford row, Agent for London.

SPECIAL NOTICE TO INTENDING ASSURERS.

INTENDING LIFE ASSURERS ARE RESPECTFULLY INVITED TO COMPARE THE PRINCIPLES, RATES, AND WHOLE PROVISIONS OF THE

SCOTTISH PROVIDENT INSTITUTION WITH THOSE OF ANY EXISTING COMPANY.

In this Society the whole profits are divisible among the policyholders who are at the same time exempt from personal liability It claims superiority, however, over other mutual offices in the following particulars:—

1. Premiums at early and middle ages about a fourth lower. See specimens below.*

2. A more accurate adjustment of the rates of premium to the several ages.

3. A principle in the division of the surplus more safe, equitable, and favourable to good lives.

4. Exemption from entry money.

All policies indisputable unless obtained by fraud.

* Annual Premiums for 100*l.* with Whole Profits.

Age 20	25	30	35	40	45	50	55
£1 15 9	1 18 6	2 2 1 6	2 6 10	2 14 9	3 5 9	4 1 7	5 1 11

* Annual Premiums for 100*l.*, with Whole Profits, payable for 21 years only.

Age 20	25	30	35	40	45	50
£2 7 10	2 10 8	2 14 6	2 19 8	3 6 4	3 14 9	4 7 2

Forms of proposal, prospectus containing full Tables, copies of the Twelfth Annual Report, and every information, will be forwarded gratis on application at the London office, 13, Moorgate-street.

GEORGE GRANT, Agent and Secretary for London.

*** Since the institution of the Society in 1837, upwards of 5,300 policies have been issued, covering Assurances amounting to upwards of Two Millions and a Quarter.

BRITISH ASSURANCE COMPANY,
2, KING STREET, CHEAPSIDE
Chairman—SYDNEY SMIRKE, Esq., R.A.

The rates for both Fire and Life Assurance are as low as can with safety be taken The Terms for Life Assurance made payable to suit the convenience of the assured Prospectuses and all particulars may be had at the head office or of any of the agents.

JOHN REDDISH, Manager.

THE LIVERPOOL and LONDON FIRE and LIFE INSURANCE COMPANY,
Established 1836.
8 and 10, Water-street, Liverpool; and
20 and 21, Poultry, London
Capital, Two Millions Sterling. Reserved Funds, 268,000*l.*

Bonus to all insurances effected in this Company for the whole term of life when they have acquired an adequate value

Policies, or so per cent off the profits, are assigned to policies every fifth year; and may be applied to increase the sum insured; to an immediate payment in cash; or to the reduction and ultimate extinction of future premiums.

One-fifth of the premium on Insurances of 500*l.* and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at convenience; by which means 1,250*l.* may be insured for the present outlay the assurer therefore profits.

Loans. The Directors will lend sums of 500*l.* and upwards on the security of policies effected in this Company for the whole term of life when they have acquired an adequate value

SECURITY. Those who effect insurances with this Company are protected by its large subscribed capital from the risk incurred by members of Mutual Societies

INSURANCES without participation in profits may be effected at reduced rates. SAMUEL INGALL, Actuary.

*** Policies effected before the 31st January, 1852, will have Five Years' Bonus assigned to them from the Profits to be declared in 1856.

TO BUILDERS, CARPENTERS, CABINETMAKERS, UPHOLSTERERS UNDERTAKERS, AND OTHERS.

THOMAS KITT begs to inform the above trades that he continues to supply, at the lowest prices, all kinds of BAIZES and CLOTHS, suitable for lining doors, gates, doors, tables, curtains, &c.; and billiard, beautelle, card-table, and desk cloths, made and fitted complete, to suit the trade He also begs to add, that having for many years made this branch of his business a particular study, he can safely recommend his wares, of this trade in regard to widths, colours, and prices; much time and trouble thereby saved, and the utmost attention paid Kitt's Wholesale and Retail Woollen Warehouse, 30, Cloth Fair, West Smithfield, where he has been established more than twenty years. Prepaid letters carefully attended.

ADDITIONAL FIRE-ESCAPE STATION. On Saturday last, a new Fire-escape Station was commenced in the Royal Society for the Protection of Life from Fire, opposite to Cumberland-gate, and corner of Oxford-street. A fire-escape, attended by a well-trained conductor, may be found there at all hours of the night, from 8 o'clock p.m. to 7 a.m. This is the Society's thirty-first station, and it is hoped that the original cost attending it is borne entirely by Mr. A. B. Hope; the continued support being undertaken by the Society's subscribers of the district.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c., 43, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts

TERRA COTTA AND SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs. Vases, tazzas, friezes, capitals, casts of arms, chimney shafts, trusses, flower pots, and every ornamental work required to stand out and frost without cracking or chalking colour, may be had at nearly the same cost as cement. Prepaid.

Terra Cotta is more durable than iron, granite, marble, or stone, and can be made of black, red, and light cream colours of every shade It can be made in fret cut and delicately wrought than either stone, marble, and imitation cement, have ever been designed, and fired in this material equally as well as in flat and the chance of copying fresh from the hands of the artist.

NOTICE.—DIURNAL REFLECTORS, by means of which sun may be dispensed with during the day, and natural light diffused in such places where it is obstructed from the rays of the sun. Instructions for fixing in Rooms, Shops, Warehouses, &c., by the patentee's sole agent in England, M. CHAPPUIS, Fils, Forel'n Manufacturer's Agent, 9, Tavistock-street, Covent-garden—Dublin Agent, John J. LYONS, Architect, 17, Wellington-quay, Dublin.

IRON HURDLES.—Great Reduction.—

For Sheep, 6 ft. long, 6 ft. deep ground, in bars, 3*s.* 4*d.* each.	
For Cattle ditto 3 ft. 6 in. ditto, six wires,	3*s.* 8*d.* each.
Strained Wire fences, 3 ft. 6 in. ditto, six wires,	
40 yards, 6 ft. apart	1*s.* 1*d.* per yard.
Ditto with Extra strong Stakes	1*s.* 3*d.* per yard.

We are netting for excluding hares, rabbits, poultry, &c., of various widths, 1*d.* per square foot and upwards; rough and cast-iron palisading, gates, and ornamental garden fences, of every variety Oil and iron benders, with iron frame and hopper, brass bearings, and cast-iron pinions, 45*s.* each. Cast engines, of best construction, metal to fit ring, and fly wheel, with two knives, to cut sixteen bushels per hour, 45*s.* each. Garden or stable pumps, 45*s.* Wrought iron wheelbarrows, 20*s.*

STEPHENSON and PEILL, 11, Gracechurch-street, City; and at the Manufactory, 17, New Parkstreet, Southwark.

TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns, for Gentlemen's Seats, Market Places, Roads, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron. HYDRAULIC LIFT PUMPS, for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, kept for Hire

BENJ. FOWLER, late of 63, Dorset-street, removed to the new Factory, Whitefriars-street, Fleet-street

TO BUILDERS AND PLUMBERS

The attention of the Trade is called to

JOHN WARNER & SONS' PATENT VIBRATING STANDARD PUMP,

which is recommended for the simplicity of its construction, and the ease with which it works.

By the introduction of the vibrating standard, the cumbrous and expensive and expensive slings and guides are unnecessary, and even secure the pump considerably less than pumps made on the old plan.

Beer and Water Engines for raising fluids from a depth not exceeding 26 feet; also Garden Engines constructed on the same principle.

JOHN WARNER & SONS,
8, Crescent, Cripplegate, London.
Manufacturers and Patentees

CHURCH and TURRET BELLS cast to any weight, and tuned. Ship, hand, dinner, sheep, cup, and cook bells of any size.

MUSICAL HAND BELLS

Tuned to the chromatic scale, with improved clappers, and cast in a new pattern which gives a superior tone and facility for ringing.

Memorial Brasses, Pulpit Lights, and Brackets, &c.

Old bells recast or taken in exchange.

J. WARNER and SONS,
BELL FOUNDERS,
ENGINEERS, &c.

PHŒNIX FIRE ASSURANCE COMPANY, Lombard-street, and Charing cross, London, Established in 1782.

TRUSTEES AND DIRECTORS
SIR ROBERT HARRY INGLIS, Bart., M.P.

Decimus Burton, Esq.	James Horne, Esq.
Octavius Edward Coope, Esq.	John Dent Dent, Esq.
William Cotton, Esq.	J. Masterman, Esq., M.P.
William Davis, Esq.	John Petty Muspratt, Esq.
George Arthur Fuller, Esq.	Richard Price, Esq.
Ebenezer Gay, Esq.	George Stanley Repton, Esq.
James A. Gordon, Esq.	Benjamin Shaw, Esq.
Henry Grace, Esq.	Charles Hanbridge Turner, Esq.
Joseph Swan Harris, Esq.	Matthew Whiting, Esq.
Kirkman Daniel Hodgson, Esq.	Thomas Wilson, Esq.
Thomas Hodgson, Esq.	

ASSISTANT DIRECTOR Thomas Richter, Esq.

AUDITORS.

John Davis Esq.	John Hodgson, Esq.

SECRETARIES

Wilmer Harris, Esq.	George William Lovell, Esq.

Assistant Secretary, John Shaw, Esq.
SOLICITORS.—Messrs. Dawes and Sons, Angel-court.

Insurances against Loss by Fire are effected by the PHŒNIX COMPANY upon every description of Property, in every part of the World, on the most favourable Terms.

Persons insuring with the PHŒNIX COMPANY are not liable to make good the losses of others, as is the case in some offices.

Insurances with this Company expiring at Christmas must be renewed within Fifteen days therefter, or they will become Void.

Receipts are issued at the principal offices, Lombard-street and Charing-cross, and with the respective Agents throughout the United Kingdom.

PROVIDENT LIFE OFFICE, 50, Regent-street; City Branch: 2, Royal Exchange buildings.—Established 1806. Policy-holders' Funds, 1,328,818*l.* Annual Income, 150,000*l.* Bonuses declared, 740,000*l.* Claims paid since the establishment of the Office, 2,091,484*l.*

PRESIDENT.—The Right Honourable EARL GREY.

DIRECTORS.

The Rev. JAMES SHERMAN, Chairman.
HENRY BLENCOWE CHURCHILL, Esq., Deputy-Chairman

Henry B. Alexander, Esq.	William Cotter, Esq.
George Dogre, Esq.	Apsley Pellatt, Esq.
William Judd, Esq.	George Round, Esq.
Sir Richard Jebb, Bart.	Frederick Squire, Esq.,
The Hon. Arthur Kinnaird.	William Henry Stone, Esq.
Thomas Mawham, Esq.	Capt. William John Williams
J. A. Beaumont, Esq.	Managing Director

PHYSICIAN—John Macleod, M.D., F.S.S., 22, Upper Montague-street, Montague-square.

Nineteen Twentieths of the Profits are divided among the Insured

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES

Date of Policy	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually	
	£	£ s. d.	£. s. d.	
1808	2,500	79 10 10 extinguished	1,222 2 0	
1811	1,000	31 16 0 ditto	311 17 6	
1818	1,000	34 16 10 ditto	114 13 10	

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased
		£	£ s. d.	£. s. d.
521	1807	900	962 12 1	1,862 12 1
3174	1835	1,200	1134 5 6	2,334 5 6
3392	1839	5,000	3,358 17 8	8,358 17 8

PELICAN LIFE INSURANCE COMPANY, established in 1797, for Granting Assurances on Lives and survivor-ships. Offices, 70, Lombard-street, City, and 57, Charing-cross, Westminster.

DIRECTORS.

Robert Gurney Barclay, Esq.	Kirkman D. Hodgson, Esq.
William Cotton, Esq., F.R.S.	Thomas Hodgson, Esq.
William Davis, Esq.	Henry L. Pollard, Esq.
Richard Fuller, Esq.	J. Petty Muspratt, Esq.
Jas. A. Gordon, M.D., F.R.S.	C. Hampden Turner, Esq., F.R.S
Henry Grace, Esq.	Matthew Whiting, Esq.

AUDITORS.

Emanuel Goodhart, Esq. John Davis, Esq.
John Haggard, D.C.L.

BONUS

NOTICE—FOUR-FIFTHS of the Net Profits realised by the Company from its assurances effected upon the Participating Scale of Premiums are allotted, agreeably to the conditions of the Policies, every Seven Years, so commencing from the 31st July, 1848.

The following is the amount of the Bonuses declared at the first septennial investigation up to the 31st July, 1847:—

Age when Assured	Sum Assured	PREMIUMS PAID		Bonus added.	Per centage on Premiums paid.
		Number	Amount		
	£.		£. s. d.	£. s. d.	£. s. d.
15	3,000	6	315 0 0	144 16 3	33 6 6
25	5,000	7	725 16 8	347 19 4	44 1 4
35	2,500	6	431 17 9	184 18 0	42 11 8
45	2,000	6	464 0 0	173 6 7	37 2 10

Annual Premium required for the Assurance of £100 for the whole term of Life—

Age.	Without Profits.	With Profits.	Age	Without Profits	With Profits.
	£. s. d.	£. s. d.		£. s. d.	£. s. d.
15	1 11 0	1 15 0	60	2 18 10	3 5 3
25	1 14 10	1 19 5	50	4 0 9	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary

The Builder.

No. CCCCLXVI.

SATURDAY, JANUARY 10, 1852.

OF all the problems which now perplex the mind of Europe, the proper adjustment of the rights and duties of Employers and the Employed is the most pressing and the most difficult. Earnestly and anxiously do we look for its worthy solution: earnestly and anxiously do we hope that both classes will exhibit mutual forbearance and consideration. Modifications must come; but pending the decision of them, let us all, whether workman or master, endeavour to discharge faithfully those obligations which our present position obviously involves,—those obligations which Reason, Justice, Kindliness, Charity, make immutable.

The differences between the body called "The Amalgamated Society of Engineers and Mechanics," and the Employers of operative engineers, to which we alluded last week, have taken a fearfully serious aspect, involving not merely immediate injury, privation, and suffering to thousands of individuals, but ultimate loss to the whole nation.

The demands of the society, made to a leading firm, in the first instance were,—

"1. The abolition of overtime, excepting in case of break down.

"2. When overtime is absolutely necessary that it should be paid for at double rates.

"3. The abolition of the system of piecework.

"4. The unconditional discharge of all labourers, or such class of persons at present engaged in working planing machines, or tools of similar character, and the employment in their stead of mechanics, members of the Union."

These were accompanied with the threat of a strike on December 31, in the event of non-compliance. This threat the council afterwards repudiated, but they maintain their intention of "abolishing piece-work and overtime," and of otherwise, as is inferred, "organising labour." The masters, feeling the insecurity of their position under such notices, and the evils that would follow on both sides if such dictation were yielded to, have associated themselves together in self-defence, and have resolved, unless the demands be withdrawn, entirely to close their establishments on the 10th inst. Their views may be gathered from the following resolutions, which were passed by them unanimously on the 24th ult.:—

"1. That while this nation, by its representatives in Parliament, has abolished guild privileges, exclusive charters of corporate handicrafts, restrictions on the export of machinery or free egress from the realm of skilled workmen, and all monopolies, the foregoing requisitions of the Amalgamated Society are an attempt to ignore the right of every British subject to dispose of his labour or capital according to his individual views of his own interest—to deprive the skilled workman of the natural advantages of his superiority—forcibly to compel the industrious and careful mechanic to share the profits of his assiduity and dexterity with the slothful and inexpert—and deliberately to deprive the unskilled labourer of the means of employment.

2. That the dependence of the public prosperity upon the steady and uninterrupted pursuit of mechanical industry renders it essential to the successful development of practical engineering enterprise, to the protection of the community from extortionate prices, of the capitalist from becoming the slave of his own hands, and of the steady and able workman from encroachment upon his independent rights of labour, that the threats conveyed in the foregoing manifesto of dictation to employers and tyranny over the employed should be promptly and peremptorily resisted.

3. That while the division of labour, which is essential to the profitable prosecution of mechanical enterprise, renders the employment of one denomination of workmen dependent upon the co-operation of those engaged in other departments, the threatened strike of the Amalgamated Society, by withdrawing certain classes of artisans from the factory, must have the effect of throwing their fellow-workmen out of employment, by compelling masters to close their establishments until the combinations of skilled labour, interrupted by the secession of the members of the Union, can be supplied."

We have no desire to encourage working over-time: employers, as a matter of course, never resort to it unless forced, inasmuch as they unquestionably get less work for their money than in the ordinary course. But that any society, "amalgamated" or otherwise, should endeavour to establish as a law that masters *shall not* allow operatives to work over-time,—that full-grown responsible men shall not be *permitted* to work over-time,—seems to be scarcely credible. It is perfectly well known that the men regard permission to work over-time as a privilege, and we are compelled to regard the demand simply as a war-cry and a pretext on the part of those who act for the operatives. With what class of men is this prevention to stop? And why, if a "resolution" can settle the matter, should not eight hours, six hours, four hours daily, be long enough for work? Would that it might be so! And may they not employ any of their over-time in any other calling with a view to improving their means? Certainly not; because in that case the members of the calling so invaded could, on the same grounds as those set forth by the "Amalgamated Society of Machinists," at once interfere and prevent them. Those, of any class, who are not workers in over-time, have little chance of effecting for themselves an advance. Let them advise their fellow-workmen to cease working over-time and to spend the evenings in improving their minds: let them warn them against accepting good employment at piece-work (which tends to set the industrious and skilful above the idle and unskilful) if they will; but to say that men shall not do one or accept the other in this the 19th century—this the era of free-trade—seems absurd and incomprehensible.

The demand for the dismissal of the labourers employed on machines, and the substitution for them of skilled workmen (where skill would not be needed and so would be thrown away), is a cry against machinery, and is to increase the cost of production. Would other countries do so too? Certainly not; and those who produce cheapest and best will sell most.*

The Amalgamated Society propose, it seems, in the event of the masters closing, to take the place of the employers, and, as far as the public may supply them with orders, to carry on the ordinary business of their respective trades. They have determined—

"1st. That 10,000*l.* of the funds of the Amalgamated Society shall be paid over to such number of trustees, not less than six, as are selected by the executive, such trustees to be men in whom public confidence would be placed in consequence of their position in society; and to advance portions of the same from time to time, to managers appointed by the executive (whose appointments are to be afterwards confirmed by the society), for the purpose of carrying on the business of engineers, machinists, &c.

"2nd. These advances, as well as others which the trustees may obtain from other sources, shall be secured by a mortgage of all the plant and stock in trade employed in such business, to the said trustees, who shall have a power to give a preference security to any such other advances over sums advanced out of the funds of the Amalgamated Society.

"3. The conditions of work under which such business is carried on shall be such as are approved of by the executive of the Amalgamated Society, from time to time, with the view of giving employment to the greatest possible number of members of the trade who are out of employment for the time being, consistently with the stability of the business, and the welfare of the workmen employed."

Much may be done by a co-operative body of workmen; but from an association under the present circumstances, we should not expect a favourable result. If the profits of masters were so large that operatives working as joint masters, with the disadvantages necessarily attending such an arrangement, could pay for the capital required, and obtain larger wages and freer rules than they now enjoy, other capitalists would come into the trade, and producing thus a greater demand for men, the rate of wages would rise. At this moment, so far as we can learn, the masters are not realizing large profits; and, if they had to pay greater wages, which, after all, is the result looked for in all such movements, they could not compete with foreign rivals, trade would be checked, the capital now employed in it be diverted into other channels, fewer workmen would be needed, and the competition for employment becoming greater, wages would naturally fall. It is often urged that manufacturers should not avail themselves of the reduction in wages brought about by competition or other causes, but continue to pay the former higher rate. This, however, is not to be expected, and if it were attempted could not possibly last. As a writer in the current number of the *Westminster Review* justly remarks:—

"The manufacturer who, by rejecting those who offered their services at reduced wages, attempted to keep up an artificial price of labour, would soon find himself distanced in the race: his competitors would be carrying on their establishments at less cost than himself: his means would be crippled, and his profits disappear and be replaced by loss; and the ultimate effect of his unscientific benevolence would be, that his power of doing practical good would be at an end. If it were attempted to evade this consequence by maintaining the artificial price of labour by legislative or by any over-riding social influence, and the attempt should be successful, the only result would be the transference of our superiority to foreign rivals and the diminution of demand for our fettered productions. The individual manufacturer in the one case, the whole nation of manufacturers in the other, would find that the issue of their kindness—the consequence of their resolution to give good wages only to a few—would end in their having no wages at all to give to any. The plain truth is, that neither the most boundless benevolence, nor the most consummate ability, can fight against the clear moral and material laws of the universe. If the field of employment is too limited for the numbers who crowd into it, no power and no goodness can prevent wages from falling; and all schemes, whether old or new, *for enabling labourers to be redundant, and yet to evade the consequences of their redundancy*, must come to nought."

What we want is a movement for educa-

* This demand has been withdrawn.

ional and social progress,—a union of masters and men for mutual advantage, not the union of class against class. Earnestly we implore the body of operatives to reconsider and withdraw their unwise demands; and, if it be not too late, we would with equal earnestness implore the masters to pause yet a short time longer before throwing 100,000 persons out of bread, punishing alike the innocent and the offending.

ARCHITECTURE AND HER OFFICES.*

IN showing how Architecture is adapted to preserve the other arts, not alone without injury, but also with benefit to herself, we may glance at the analogy between them. All they have in common depends upon the perfection of the sight from continued observation of nature in her forms and effects: from this observation arises, in all, the facility of comparing works of art with nature, or with that remembrance of it of which the observing mind always retains a strong impression, storing up some idea of beauty, grace, or grandeur which it afterwards strives to reproduce. The minds of different artists gather then a similar idea, possess a similar type or standard from which to work, and the result will be that the several beauties expressed by each will harmonize, especially when employed for a common object, and will produce in union one transcendent beauty, attainable by not one of them alone. To sculpture belongs exact observation, intimate acquaintance with beauty,—to painting, harmony, perspective, proportion, knowledge of colour and effect; and true architecture must also possess these, even though she avoided adorning herself with the actual works of the other two. But if perfect in her own developement she expresses the principles of the others in her peculiar work; and, consequently, when these three graces stand together, they are at once seen and felt in grace to harmonise, because of this secret community of principles on which they are formed. But, to enter more fully into the question of connection between the arts, there is a greater analogy, theoretically considered, between architecture, poetry, and music than between architecture, painting, and sculpture. We have seen that the connection between the two latter and our subject rests,—as on their in common being arts of design,—so on the exercise of certain things necessary to the right practice of each, such as study of nature, accurate observation, and the like. "Language," says M. Legrand, "refined from that in common use, and subjected to rhythm and regulated metres, often allowing of musical imitation of sounds, grace, beauty, grandeur of imagery, expression so chosen as most directly to appeal to the soul, proportion of details to each other and the whole, that whole gradually growing upon the understanding with one complete effect of many combined charms – and the object too often forgotten, of pleasing only the better to instruct,—these constitute the attractions of poetry." Music results from sounds combined, like the words in poetry, in similar measures; from expression of moral situations by means of accents descriptive of nature; from the combination of these accents in one skilful harmony; from an imitation of natural sounds and illustration of words, with various results, but which still operate more or less on the soul through the sense of hearing; from similar relative proportions to be observed, and rightly, from the same object as poetry. If in the above accounts we substitute material parts for words and sounds, we shall nearly arrive at the theory of architecture. Architecture consists of material parts, their arrangement in accordance with the laws of proportion and taste; divisions regularly repeated through the extent of the works with due respect, as in poetry and music, to each other and the whole; delight and astonishment produced by the expression of the ideas (as before) of grandeur, beauty, and grace; the continual satisfaction of the soul through the sense of sight, and (as I think) the same object of pleasing only the better to instruct. Architecture, we repeat, consists of these. Whence it appears there is a complete theoretic analogy between poetry, music, and architecture, and partial analogy between each of them and sculpture and painting; and, taking them altogether, the principles upon which each is founded are so similar, that he who is thoroughly a master of one would find little difficulty in understanding and following the others, as has been done by many a great Italian. It results, then, that to be rightly a preserver of the other arts, so as not only not to detract from but to enhance their effect, the art we treat of should look to maintain her analogy with them, in herself following the true principles of universal art, from which thing alone can there arise a harmony between herself and the other two. The claim, then, in her office of *preserver* is, that she be true to herself. And though I deny that they are absolutely necessary to her efficiency, she would indeed be very austere without them—and lonely as a muse who has lost her sisters; and because they are protected by her, I assume their powers to be in some measure due to her, and bound to her service; and therefore what they declare in her, I shall say she declares; what they chronicle in her, she chronicles; what they attest in her, she attests.

Having seen the analogy between architecture and poetry, let us enter into a brief inquiry as to how far the former may be carried out on the principles of the latter, and let us endeavour to show how we can effect the poetry of architecture, so much debated about. On a former occasion I took a baptistery for the purpose of illustrating this matter: treating that as an embodiment of the ideas of purification, commencement, and promise, we made it a place of the dawn—we filled it with a dawn-light—we adorned it with the buds, and not the full-blown flowers. I will now take as a subject upon which some have been lately meditating—a marine palace. We have, then, to do with the sea. Now, the poets, in treating of any subject, not only endeavour to describe it by simple expression, but they aim at illustrating it in the very construction, the ornament and sound of their lines. The instances of this are almost innumerable, such as the χειι πολυηχεα φωνην of Homer's nightingale—his passage of Neptune over the sea—his description of the speed of race-horses, which we can hear, for instance, in the line

κραιπνὰ μάλ' ἴυθα καὶ ἴυθαω διείμεν ἠδὲ φιβεσθαι;

many similar passages in Virgil; the whole of Milton's "Battle in Heaven," in such expressions as "down their idle weapons dropt," where we almost see the arms fall, and, before, in "sonorous metal blowing martial sounds," where we hear the trumpets; the rush of passages ending like that with "invulnerable, impenetrably armed;" the lines in the "Penseroso," descriptive of the sound of the distant bell—

"Over some wide-watered shore,
Swinging slow with sullen roar;"

Dante's description of the confused sounds in hell, beginning—"Diverse lingue, orribili favelle;"—all these exemplify the truth of the observation, that there is not mere verbal description attempted, but actual description of facts in the construction of the lines, and close imitation of nature. With respect to the sea, the same thing nearly always occurs; as, for instance, in Homer, Βῆ δ' ἀκεων παρα θῖνα πολυφλοισβοσο θαλαίσης,—in Byron's

"Roll on, thou deep and dark blue ocean, roll!"

and more wonderfully than anywhere, in Schiller's "Diver." As to the ornament, poets choose in this case their metaphors and illustrations from the things of the sea, and those connected with it, as, in the passage of Byron above quoted, he calls ships "oak leviathans," not oak elephants, and speaks of man sinking into the sea "like a drop of rain." These are not so much instances of mere imitation of sound, so complete in music and in "Israel in Egypt," but of expression of action; of adaptation of the work to the subject.

Now, we cannot make the ear have any thing to do with architecture, but there is a vast power of appeal to the eye; and I claim a similar regard for it as hath been shown to be given to the ear. I should like a marine palace to look as if it had been founded by Neptune and adorned by the sea nymphs. Let us consider. The sea gives us the idea of vastness, boldness,—the coast (I take some part of our own) of severity, ruggedness: the sea and coast viewed together impress us with the notion of grandeur. We will not, then, think of building what we call a pretty palace, nor of florid style, nor of frittered ornament. We will have a style in accordance with the ideas we have gathered from the place. We want a grand disposition of masses, severity, solidity. We are going to build in the very face of the ocean,—our base naturally buffeted with the waves, our summit by the hurricane. Now I say, if we observe all these things, imbuing our minds with the spirit of the place we are going to build in, we carry out in our main design the poetry of architecture. As to the ornament, it should be vocal of the sea. If ever dolphins and shells are justifiable, they are so here: they belong to the place. Those only who have studied it can imagine what an infinity of beautiful things there is in the deep,—what graceful foliage, what lovely coralline trees. Under the sway of those resistless tides wave groves glorious with all that is exquisite in design. The plants of the sea (for instance, that commonly known as *maiden's hair*), are of the finest and most delicate sort; its smaller inhabitants and their shells of every variety of form. Surely, then, in the marine palace, we shall not be compelled to have no foliage but such as grows on the land; no ornament but such as the forms of the country suggest. Our capitals may find another leaf than the acanthus; our carving another elaboration than that given to the vine and the ivy. We are going to build before Neptune, and are bound to consult him. Our palace is to stand between the sea and the earth, and it should equally declare the wonders of both. If this be done, we carry thoroughly out that kind of expression which is achieved, even in words only, by the poet; we realise the poetry of architecture; we erect a palace that does belong to the ocean; that is marine, in another and truer sense, than that of being merely taken up, like Aladdin, by some ghoul of prejudice from somewhere far in the interior, far from the sea, and clumsily dropped upon the coast.

But to resume. Architecture having called upon Painting and Sculpture to beautify her by the addition of their graces, and then having availed herself of them, at once assumed several new and important offices in their name. For men naturally asked, "What shall we paint, and what shall we sculpture?" What could they do? Either simply imitate nature, or depict their manners, and illustrate their history. If in the temple, depict the story of the gods and heroes; if in the public hall, the actions of their ancestors. It is said they were ignorant of landscape painting, and what other painting there was has perished: the sculpture remains to tell us with what success men achieved the objects they had in view. The temple soon enshrined its sculptured god: its walls probably displayed his painted myth; the revelation in colours of his attributes and creed. And thus architecture assumed another office—she became a *witness* of religion—she handed down the faith of nations to their posterity—the same Minerva sat calmly in the temple as sat there before—the same Jove frowned with marble brows and menaced with his dreaded thunder, as frowned and menaced of old, when art first made him. It is a duty of your art to witness and commemorate the faith of the people among whom it is cherished. It is right that the temple should itself be a Bible in stone, an unalterable record of truth, an imperishable witness of creeds. It is right that the very walls should have an expression and an eloquence for the eye, for the eye has as great a claim to an exalted usage as the ear, and if that may without objection be the vehicle of the mind of truth—the channel by which the religious orator pours in his flood of refined speech,—so

* See vol. ix. p. 811.

may the eye be the glass through which the religious painter may let fall the lines of beauty in living representation on the soul, the gate by which the illustrative ideas of the sculptor may enter and find rest. Did the Creator exalt the ear above the eye? Meant He, when He gave us several senses, that we should learn of him but through one? Did He design in bestowing on us several faculties, that we should trust alone to eloquence to illustrate His attributes, and that of all powers, eloquence alone should teach religion, and only the ear attend to it? Never were supposition more ridiculous. But yet in our day, even concerning architecture, there seems to be an extraordinary opposition of parties under the several badges of the ear and the eye. These, delighting in eloquence, exalting it over all other things, swearing as well by the least word as by the most artfully elaborated period of their favourite pulpit orator, declaring the silent eloquence of artistic grace and symbolic ornament to be little less than accursed, may be styled the party of the ear. Those, loving symbolism to excess, greedy of ornament, pledged to display, insisting on the graces of the suggestive arts, regarding the eloquence of the preacher as dangerous, if not needless, may be called the party of the eye. The ear and the eye, the eye and the ear! and men to whom both belong rending each other in their several causes. Strange and inexplicable thing! For the soul is like one sitting in a chamber with several doors which are the senses, and through which or some of which she must be approached. Can any one show how he reaches the soul without opening any of these doors, or why the door he may best be able to open is a better one than all the rest? Hearing only is right, says the man of speech —sight, says the man of art—smell, says the perfumer; we shall soon come to touch and taste. Why, this puts one in mind of Messieurs le philosophe, le maître d'armes, and le maître à danser, in the *Bourgeois Gentilhomme*, where they dispute on the superiority of their several professions, and finally end in a general struggle about it, leaving their pupil to help himself if he can. But we have a right to avail ourselves, without abuse, of all our senses: we may look for the genius of Raphael, and hope for the eloquence of St. Paul. Architecture (and the other arts) are in peril from this absurd contest; for if it once be allowed that the cause of religion is best served by their utter insufficiency and wretchedness, then is the first blow stricken at them, then is the battering of the wall begun. We ask not in a church for gaudiness, for tinsel, for an impure and diseased decoration, for mythical monsters, for devils in stone and in paint; we seek only pure majestic beauty, chastity of design, a sacred elegance, a holy grandeur. Let none use the arts of rhetoric to destroy architecture, and her sisters; for every word the orator aims at them, every argument prepared for their destruction, will become a weapon that must slay its wielder. Eloquence is now put in this position: she is forced to say, "I am exciting, charming, persuading your senses, to make you believe they have no right to be charmed, persuaded, or excited by any one else." What is there more injurious in colour or statuary than in rhetoric? Indeed, there is more risk in the latter. For the subject of art being once well chosen it remains when executed for ever the same; but the purpose of rhetoric may be subtle and variable as the inclination of man. But we need not enter further upon this, being convinced that we have a right, under the sway of careful judgment, to use all our senses, and to submit them, by the lamp of reason, to the guidance of art. Everything may be used, everything can be abused: for us it is to use and not abuse. But are we to be cold and dumb and still? O art! art! how wert thou fallen if, of all the consoling spirits that have descended to cheer the earth, thou alone wert forbidden to worship in the temple of thy God!

Having thus shown architecture a witness of religion, we find her in another office as a *recorder* of history and chronicler of manners. Sculpture and Painting now describe in her the events of their country: Assyria, Egypt, Greece, and Rome yield us even now the records they made of their times: battles, sieges, bringings of tribute, forms of animals, nature of countries, modes of life, arms, implements, costumes, are all depicted before us, and give invaluable information of the past. In modern times the Italians have done as they of old: the portraits of the doges thronged the walls of their palace, with how terrible a significance, if there be among them the blank and the black curtain of Faliero! It was to record history and perpetuate her husband's fame that a Queen hung her walls with the Bayeux tapestry, descriptive of the conqueror and his deeds. How invaluable to the antiquary are the exquisite memorials of the Middle Ages, preserved unnumbered by the Gothic architecture throughout its whole progress! How excellent the feeling that was concerned in bestowing life and animation on the otherwise gloomy halls! Thus walls, bare and naked, are suddenly peopled with the great ones of the past, and men remember, like Earl de Warenne, the valour and virtue of their ancestors, and are exhorted to keep their honour as bright as their fathers kept their swords. It has fallen to the lot of Architecture to be the chronicler of the dead. There is little need now to speak of the tombs of the past,—to say that pagans expressed their kind of hopes in their monuments,—that Christians did so too, long since; but there is need to ask of what sort are our tombs to-day. In all matters of the dead we are notoriously behind savages; we are barbarous. Let us look into some old cathedral, and what do we see? The monuments. And what are they like? The beauty of the structure is defaced; its traceries often shattered; its walls are thronged with unsightly slabs, crowned with every variety of unsightly urn; gross pagan cupids flutter in hundreds about misplaced pediments, and preside over heathenish symbols, eloquent only of despair: here there is a collection of various arms that would suffice for an armoury; there there is every variety of vehicle—every fashion of peruke: here, amidst flags, trumpets, and medallions, stone commanders expire; there, amid books, busts, and cupids, favourite divines ascend to heaven in shrouds; and, whether it be for lost or saved, Fame blows her eternal trumpet—Fame indites blasphemy—Fame offers wreaths of amaranth and branches of palm—Fame mediates for sinners, and conducts their marble bodies triumphantly to bliss!—and it is thus in the churches of Christ that we publicly dishonour the memories of our dead! But comment is needless: it is not architecture, it is ignorance and irreverence that create these impious memorials.

We have followed architecture through her gradual developments as a provider, a protector, a preserver of the kindred arts, a witness of religion, a recorder of history, a chronicler of the dead: it remains but to say a few words on her final office of *instructor*. It is a necessity that a building which is a witness and recorder, as we have described them, must teach, if it be only through inquiry; as when a child of every generation, on entering such an edifice, asks of its parent, who has once inquired the same,—Whose portrait is that? What do these statues mean? Why are there so many columns? And let us suppose the answers to be—That is the portrait of the good Howard, who devoted his life to the wretched; or, that is the statue of Peel, who having everything he could desire, yet preferred the service of his country to his ease, bestowing on her inestimable benefits; or, this building was raised at the end of a war full of victories, and they set up a column for every victory, and engraved on the base the name of the conqueror, and on the capital some name of the God who permitted them to be won: let us suppose such answers as these, and who will tell us that child would go away unimpressed; would have no feeling of emulation, beneficence, devotion; would not understand the meaning and the purpose of the columns, and venerate the name carved in the capitals?

But in the most general sense, Art, when excellent, is, and must ever be, an instructress. Art is most flourishing in the times of peace. We saw in the most wonderful exhibition of all time, how a long course of quietude has enabled our people noiselessly to perfect themselves in those matters wherein it was supposed they were behind the rest of Europe. But it is strange that in those very things the glory of this country stands with no superior, and in all that concerns our architectural decoration—in our carving in wood and stone—our working in iron and brass—we assume not the position of pupils, but of masters. For once and for ever is the fallacy refuted, that we have no taste; and the extent of our skill is proved by the immense variety of objects upon which it is triumphantly exercised. For it is the glory of art to apply the immutable principles of beauty alike to every production of nature: she can carve the lily in wood or stone, or gracefully shape it in iron, and the beauty of her work is still the same—its grace still that of the lily. What then shall we say? When is art most excellent? When, applying herself to the materials of the age, she embodies beauty in metal, porcelain, and glass, as she of old embodied, and now embodies, it in stone and wood, and proves that there is no material that can withstand her beautifying spell. The more we exercise our intellects on the works of industry, the more we devote ourselves to our calling—every longer day employed upon art; every increased exercise of thought; every mightier effort to excel; contribute surely and unerringly to the maintenance of the holy cause of peace, to the ultimate unity of men. We make Art an instructress, and she teaches peace; an exalter, and she raises our souls from thoughts of strife, to gratitude and love.

Though the picture drawn of Architecture shows how much she requires, her favour has often been attained, and is ever within the reach of hope. Hope shines ever beyond the work achieved, and beckons to a further advance: the true artist has no despair, for he knows that the inscription over the infernal gates should never brand the portals of the muses. Work is the slave of the lamp of science, but the magician who rules it is thought,—thought which creates worlds and systems in the intellect out of an apparent void,—thought which, like the still and pensive night, ever reveals to watchers the glories of the heavens, veiled, till her advent, by the glare of the joyous and pleasure-loving day. And the mind is like unto a sea, whose depth no man can tell till he fathom it: he may pass over the surface a thousand times and find it but labour lost if he will not try the waters. Can we know what is within us save we apply the test of thought? But it is for the diver to ascertain the depths—to rise with the rare and lovely pearls: it is for the thinker to sound the caverns of his mind, and to raise from them those inestimable jewels, which are as stars in the diadem of Truth.

H. T. Braithwaite.

THE LIFE OF THOMAS STOTHARD, R.A.

A life of Stothard, by Mrs. Bray, fully illustrated with outline engravings of his best works, has been recently published by Mr. Murray,* and will enable us to give a sketch of his career.

Thomas Stothard was the only son of a native of Stutton, near Tadcaster, Yorkshire, who, though of an old and respectable family, filled no higher calling in life than that of an innkeeper. Removing in 1750 to London, he established his business with much success in Long-acre, and it was here, August 17th, 1755, that the future Academician first saw the light. Being of a delicate constitution, he was sent, when five years old, to an uncle at York, who placed him under the care of an aged widow living in the neighbouring village of Acomb, where he gained health; and it was here, at the same time, the incipient love of art manifested itself, which led the way to his eventually becoming one of the greatest historical painters this country ever produced,—some will say, the greatest. When he was in his thirteenth year his father visited his native place, and returning to London, took with him his son, and

* Albemarle-street.

placed him at a boarding school at Ilford, Essex, but where he had not been a year before that parent died; leaving a provision for his widow, and 1,200*l.* in the Funds for his son. Thomas Stothard then left school, and lived with his mother. Having shown a great fondness and aptitude for drawing, which had first manifested itself while at Acomb, in copying some heads of Houbraken, and an engraving of Belisarius, by Strange, which were in the possession of the old lady, together with some religious pictures, it was thought desirable he should be placed in some way of life where this might be turned to advantage, and he was accordingly apprenticed, when fifteen, for a term of seven years to a designer of patterns for brocaded silks, such being then in much request.

It was not till about two years before the expiration of his indentures, when flowered silks lost their vogue, the request for designs fell off, and the profession became unprofitable, that he devoted every leisure moment to the improvement of his mind and fancy in his own way. Before Stothard was out of his apprenticeship his master died, but the widow determining to carry on the business, though with a very uncertain prospect of success, he still continued to serve her, devoting his time, after the day's work was done, to studying a translation of Homer, or Spenser, or making designs illustrative of what he had been reading. About this time he was introduced, through his mistress, to the well-known Mr. Harrison, of the *Novelist's Magazine*, which was the means of deciding his future lot in life. He now gave up all thought of making drawings for brocaded silks, and taking apartments in the Strand (1778), conjointly with Samuel Shelly, who afterwards became celebrated as a miniature painter, adopted art as a profession, living on the interest of the money invested by his father, with such additions as he could now and then make by painting portraits. It does not appear that he was regularly employed on the *Novelist's Magazine* till July, 1780, but from that period he was much engaged in the illustration of books. Another important consequence attendant on his connection with Harrison was that of introducing beautiful illustrations as an accompaniment to the popular literature of England; and in this respect he was destined to become the father of the British school. These designs are still the admiration, not only of the learned in art, but of every one having a heart alive to nature, and capable, even in a remote degree, of estimating the highest order of poetic composition. It will surprise modern collectors, who now give almost any price that may be demanded for these early drawings, to learn how little he received for them. He states in his own handwriting that "for one hundred and forty-eight designs for the *Novelist's Magazine* he received one guinea each; for twenty-six for the *Poetical Magazine* he had the same rate of payment; that for twenty theatrical frontispieces (and these were always portraits of the chief actors and actresses of the day) he received seven shillings each; and that for every separate vignette or border his remuneration was *six* shillings."

"It is uncertain," says Mrs. Bray, "whether it was before or after he lived with Shelly that he exhibited his first picture, a Holy Family, at the Society of Artists; but soon after he did so he was admitted as a student at Maiden-lane, where, before the establishment of the Royal Academy at Somerset-house, the artists held their meetings, drawing from the model as well as from the antique." We can settle this difficulty by saying he was admitted a student in 1777. "Stothard's method of study was peculiarly his own: he adopted not the practice so general with the students to sit down and draw from a single figure for six or eight weeks. He would place himself opposite to it, and in a small sketch-book would make a careful outline in pen and ink, about five inches in height. He said that he had recourse to this method, because it obliged him well to consider the lines and the proportions before they were drawn, and that thus they became impressed upon the memory. He disapproved the practice of rubbing out, and maintained that an eye and a hand well trained in making pen and ink outlines, would be characterised by truth, carefulness, and a good flow of line; in short, would be masterly. Having thus, in less than an hour's time, taken one view of the figure before him, he would change his position so as to command a different view of it; and then, being especially careful to mark the change of contour in his subject, he would begin another sketch, and thus continue to work till he produced seven or eight drawings of the same figure. He frequently remarked that any one who adopted this method of study would, after a little practice, be surprised by the knowledge he had attained. At the same time he would by no means have the student neglect light and shade, and rounding well the figure; but truth of outline in its varied form was most essential, and after having acquired it, he might pass with safety to the living model, as the imperfections of nature would be immediately discovered and corrected by the knowledge previously gained. Stothard was ever a close observer of nature; but it was nature in action that he most studied and admired, and thought that however good might be the design or the conception of a picture (frequently displayed with freedom in the original sketch), it was often spoilt by presenting in the figures which composed it, all the stiffness of the lay figure, and all the rigidity and fixed attitude of the living model from which the artist worked. He would remark, that action was momentary—it could not be fixed: to be well expressed, it must be caught at once by the mind. It is generally known that he never painted from the model; and it was after having been apprised of this fact that an eminent artist now living was heard to exclaim, "Then he stands alone; and I can now understand how it is all Stothard's works are so graceful." We are far, however, from recommending such a course. Even at Burleigh House, the seat of the Marquis of Exeter, on the Grand Staircase, where the figures are nearly 8 feet high, not one was painted from a model. Having taken to himself a wife in the person of a Miss Rebecca Watkins, and a family rising rapidly about him, he experienced the benefit of early economy and prudence in never having made use of the principal of the money invested by his father. He now turned it to good advantage in buying a larger house, freehold, which offered itself, No. 28, Newman-street; and to effect the purchase, he sold out nearly all the funded capital. His increasing family obliged him constantly to labour, and often to accept commissions of a trifling and insignificant nature, such as designs for pocket-books, ladies' fashions, and for ordinary magazines and play-books, but so great was his love of art, that he made these with the same care and put into them the same grace which he bestowed on the highest order of his works; feeling assured that "what was worth doing at all was worth doing well." In 1791 (Mrs. Bray says wrongly, 1792), he was elected an associate of the Royal Academy, and that year exhibited his beautiful picture of the Confirmation. "Thus was he fairly established in 'Artists'-street,' for in a few years so was Newman-street designated. West, the president of the Royal Academy, had lived there seventeen, and Bacon, the sculptor, eighteen years, before Stothard bought his house; and in a comparatively short period, Russell, Ward, Howard, Jackson, all academicians; Dawe, and a host of other artists, to the number of about forty, all became residents in the same street." The next memorable event in Stothard's life was, that in 1794 he was elected a Royal Academician. It was soon after his becoming an Academician that he designed those illustrations for the "Pilgrim's Progress," which, as a series, he never surpassed. From this time to his death, which took place through natural decay, in his house in Newman-street, April 27th, 1834, Stothard's life showed few vicissitudes: he pursued unceasingly his vocation as an artist (holding, besides, the position of Librarian to the Academy from 1817), and produced no less than 5,000 specimens of his power and imagination, of which some 3,000 have been engraved. "In painting, as in literature, we sometimes see, that if the artist pursues only the quiet, unobtrusive mode of presenting his works before the world—if he is not thrust into notice by himself or by his friends—if no great patron takes him by the hand, and his name is seldom seen in print; these circumstances will combine to his present injury, since his fame cannot spread whilst he is too little noticed to be known to more than the favoured few. But time will do him justice; and though the earth may have closed over him ere this take place, his reputation will not eventually suffer. The genius of Stothard, though it can only be said within the last few years to have been spoken of, as it deserves to be by the public at large, was, from a very early period, duly estimated by men of real judgment, whose praise is often the long forerunner of public fame. Sir Joshua Reynolds said, when applied to by Sir John Hawkins for a frontispiece to the drama of the "Ignoramus," "Go to young Stothard, he will design it better than I can;" and Sir Edwin Landseer remarked, on seeing his picture of "Confirmation," "Come here and look at this: nothing in beauty or grace can go beyond that." Amongst his many works may be mentioned the "Canterbury Pilgrims," which is, perhaps, the most popular production of his pencil, and for which he received but 60*l.*; designs for Defoe's "Robinson Crusoe;" illustrations of "Shakspeare;" "The Wellington Shield;" and the ceiling of the Advocates' Library at Edinburgh, not forgetting "The Flitch of Bacon," designed when he was nearly 70.

In a literary point of view the book is scarcely equal to its subject: it is, nevertheless, pleasant reading, and makes a most elegant volume,—to our liking the most elegant of the season that has come under our notice. The illustrations, from drawings by Mr. G. Scharf, nearly sixty in number (beautifully executed), are in brown ink, and the printing is of the best.

CONSIDERATIONS UPON SOME OF THE PRODUCTIONS CONNECTED WITH ARCHITECTURE IN THE EXHIBITION OF 1851.*

THE slate self-acting cisterns, shown by Struthers, were ingenious illustrations of the filtration of water by ascension: the filtering medium being packed between two pierced false bottoms, the water from the cistern at the top passed by a pipe into the fourth or bottom division, through the packing in the third, and rose in the second by the pressure of the water in the cistern, or top division. Slates were also exhibited from the neighbourhood of Stamford, and from several parts of Ireland, including Valentia, the slate stone from which is said to be non-absorbent, and to require nearly six tons as the crushing weight of an inch cube. It is raised in slabs about a foot in thickness, and, having no true cleavage, requires to be sawn. Canada also possesses this useful material, as well as Trinidad, a fact which excites some surprise, when we recollect that large quantities of shingles are sent to the West Indies. It is, I presume, a recent discovery. The United States, Nassau, France, and Sardinia, were the only foreign countries which showed slates: from the latter there was a slab about 5 feet 6 inches square. France sent a slate billiard-table, and some fine slabs, 5 feet 6 inches by 3 feet 11 inches, by $\frac{3}{4}$ inch thick. The slate company of Angers, which manufactures 130,000,000 of slates, like those of Cornwall, and the slate company of Rimogne, exhibited each a series of the sizes usually made. The slate of the latter company is remarkable for its tenacity and strength: by exposure to the open air it acquires increased hardness and consistency, its surface becomes polished, and upon being struck it gives out a clear metallic sound. The joints of slab

* The following is part of two papers read at the Ordinary General Meetings of the Institute of Architects, Nov. 17 and Dec. 15, 1851.

roofing are generally made with tongues in grooves set in cement, covered by ribs; but it is difficult to make a joint that will stand, on account of the material swelling and shrinking like glass: at all events, it is disturbed by the slightest settlement. Attempts to remedy this disadvantage were exhibited in Taaffe's patent, and in the so-called improvement on the same, by Russell, in both of which the principle of I cramps and screws, or nails, with zinc gutters under each line of junction of the slate, is adopted. No arrangement, however, appears to me so good as that of lead drawn in grooves, and covered by ribs set in putty on the slates, screwed down to the rafters; as no gutters are required, and holes in the slate are avoided as much as is possible. The patent slate ridges and hips seemed well contrived. It will be seen that I place no reliance on constructions of iron and slate, except under shelter, or in very peculiar circumstances.

Passing for the present the imitations of marbles, we may notice those of stones. Ransomes' patent stone differs from cements and other artificial stone in the employment of silica, both as the base and the combining material. It may be regarded as a collection of particles intimately combined with silicate of soda, by which they are held together as by a kind of glass. Another manufacture consisted of an admixture of caustic carbonate of lime (with or without magnesia), and silica in a gelatinous state, which produced a hydrous silicate of lime as a result. The largest collection in illustration of this branch was shown by White and Sons, and was divided into two classes—the natural and the artificial. The first consisted of Sheppey stone, and nodules dredged up off Harwich, from which respectively are obtained the varieties of the article known as Roman cement, introduced by Dr. Parker about fifty years ago. These stones, as well as those from Christchurch and Romsey, which yield the Medina cement, are found among the older tertiary deposits. The Whitby stone is found in the lias formation, and gives the cement, known as Atkinson's. At Wolverhampton and in Derbyshire, cement stones occur in connection with iron stone, which imparts to them a ferruginous tint. Other districts yield natural cement stones; but the above-mentioned are those which are best known in commerce, being extensively used both for mortars and stucco. The name of Greaves is intimately connected with that of blue lias lime; and this material was abundantly represented in the Exhibition. The artificial cements, composed of a mixture of carbonate of lime and argillaceous earths calcined together, were chiefly represented by the so-called Portland cements, furnished by White and Sons, and by Robins, Aspdin, and Co. The first-named firm exhibited the celebrated brick beam, and specimens of concrete, consisting of one part of cement to ten of gravel: the second showed several instances of tests of strength of the cement, pure and mixed with sand; but as some of the statements made since the exposition vary considerably from those which I noted, I have put them aside. The inutility of the experiments, made with much parade on Portland and Roman cements, is apparent when we consider that a single trial, under complicated conditions, can never be taken as affording a quotient for use as a constant in calculation, and that we have had no series of experiments made by rival manufacturers on the same day and in the same place and manner; and that, moreover, the results so obtained can only show the properties of the best materials supplied by the manufacturer, while no architect can tell with certainty on every occasion what cement the workman uses. Hamelin's mastic seemed to be wholly unrepresented or forgotten. I do not exactly know where to place what was called "cement-stone," a limestone believed to be the basis of Peel Castle mortar; a cement made from the "curl-stone," found at Coal Port; Dyer's patent metallic cement; Furze's fusible mineral cement; Orsi and Armani's patent metallic lava, nor Spence's patent zinc cement. The latter should be inexpensive, as it is manufactured entirely from refuse matters. Among the British possessions, New Zealand sent a Roman cement stone; and France two hydraulic limes. It was said that by the process of M. Henri de Villeneuve, engineer, a superior hydraulic lime might be obtained from all carbonates of lime, without the addition of other substances, and that the cement exhibited possessed different degrees of rapidity in setting. Belgium also sent a hydrofuge stucco, or plaster; Holland a hydraulic cement; and Wurtemburg, "a hydraulic chalk cement, hardening under water in a few minutes." Portugal presented hydraulic clays from the Azores, and hydraulic scoriæ, by which, with the addition of lime, "a hydraulic bitumen, called Argamassa cement," is produced. From Prussia, we received a "Roman cement," being an argillaceous carbonate of lime with magnesia: the double silicate may probably be of very great solidity. Ant. Peppini of Florence displayed some neat octagon paving squares, "in cement, called Calcarea." The renowned Roman hydraulic cement is said to have been made of a mixture of volcanic sand and lime. I did not notice pozzolana from the Papal States, Tuscany, or Naples, although I believe there were specimens. Greece sent a box of this volcanic earth (a silicate of magnesia?) from Santorin, which was ash-coloured, and said to have the same qualities as the Italian: mixed with lime it solidifies and sinks in water. A considerable quantity is exported annually to Turkey and Trieste. Spain also claimed to exhibit this material, but gave it the alias of soapstone of Somontin. The United States also sent steatite, or hydrated silicate of magnesia, combined with a little alumina and oxide of iron: its peculiar greasy feel has been the origin of the name of soapstone. It is much more abundant, and more extensively used in America than in England; and being almost as readily worked as the soft woods, and with similar tools, it is applied to many purposes for which its superior durability renders it preferable, as baths and the jambs of fireplaces; and it is used in Switzerland for stoves of superior quality. Large beds of the pure material are found in the English possessions in Canada. The terms, mortar, stucco, and cement are at present so indiscriminately employed as to cause considerable confusion, and a strong feeling of the necessity of some authoritative scientific lexicon. I shall pass a few specimens exhibited, for the third great division of imitative stones. Gypsum, or hydrous sulphate of lime, called alabaster when in a semi-crystalline form, and selenite when in crystals, being heated from 250° to 275° Faht., becomes an anhydrous sulphate, and, reduced to a fine powder, furnishes the plaster of Paris of commerce. The peculiar stone obtained from the tertiary deposits of the Paris basin contains above 7½ per cent. carbonate of lime, and 3 per cent. of clay, which so greatly improves the cement as to have given the peculiar name to the preparation in other countries. The genuine article from Paris was submitted, as well as supplies from Ireland and Canada. The English sources are chiefly in Derbyshire, Nottinghamshire, and Cumberland; and when combined with alum, the products are the hard artificial cements known as Keen's and Parian patent cement. The effect of the last, vitrified, is exceedingly good. Gypsum is also understood to be the basis of Martin's cement. Of these rivals, we shall all recollect the handsome specimens which were exhibited. It will hardly be supposed, that of all foreign nations Tunis supplied nearly the most interesting examples of this material. The wall decoration, closely resembling that of the Alhambra, hardly seemed to be a cast, and was remarkable for the way in which the top surfaces were modelled so as to be relieved easily from the mould, and to show to advantage either on a level with, or above the eye. Spain sent an original piece of the Alhambra wall decoration; and Don Rafael Contreras, of Aranjuez, exhibited a portion of his copy of all the Alhambra work of this kind in the same material, one quarter of the real size: such a collection has rarely, if ever, been formed.

We may divide the subject of coloured glass into four modes of manufacture, viz.,—stained, or flashed; solid, or pot; enamelled; and etched glass. Without touching, it was very difficult to decide how some specimens were executed: those by Chance and Co. obtained my highest approbation for the quality, too often lost, of lucidity; and I think they consisted chiefly of flashed glass, cut, where requisite, to produce the lights. The specimens by Hall and Sons were also very satisfactory. I noticed no foreign glass of this sort. Hedgland, Hardman, and Co. and Gaunt exhibited works in the antique style; and I observed a window from a very clever design by T. T. Bury. The Belgian and French were single specimens of the second division of manufacture: the latter, consisting of works for Ely Cathedral, by Gerente, seemed poor and ineffective. The work by Toms appeared very good in taste and execution; and I must group together here the names of Ballantyne, Claudet, Hetley, and Wailes, with one exhibitor from Austria. All these seemed to present a third class of work, partly stained and partly painted glass. The enamel school, I think, included Messrs. Baillie, Bland, Gibbs, Gibson and Toby, the St. Helen's Co. (whose taste I question), two clever examples from Austria, one from Saxony, a good specimen from Holland, and five from France, of which I can say nothing favourable, but that No. 229 was perfectly a picture, and that Lasson's work contained a beautiful female figure, and was in all respects more in accordance with our notions of glass-work. The American glass, as white glass, appeared to me to be, without exception, the finest that I had ever seen for material, but very badly manufactured. The numerous varieties of glass decorated with opaque patterns, embossed or marbled, differed in no respect from that which we see daily advertised. Chance and Hartley stood pre-eminent for their window glass. The French glass, the Belgian, and the Prussian followed in the order of merit in which they are mentioned: the Bavarian was indifferent. Glass tubing seemed to have attracted much attention, both in Holland and in England: metallic joints seemed generally to be contemplated, but I apprehend that the recent introduction of vulcanized india-rubber to form the joints of iron pipes, is equally applicable to those of lead, terra-cotta, stone ware, and glass. Except Swinburne's glass domes, I did not observe any glass for ordinary use, as tiles in roofs, on the English side. France sent some, 15 inches by 9 inches, under the name of Francis Fox, with terra-cotta tiles, 14 inches by 9 inches. Prussia sent glass-tiles and pantiles; and Brunswick exhibited glass tiles, very good glass slates, and excellent lace glass. Before quitting the subject, it may be remarked, that the artists of the Mediæval ages, being much more moderate in their demands upon their material, were more primitive, and, perhaps, more successful than their modern rivals in the effect produced, while their successors have certainly advanced in an artistic point of view, but at the expense of transparency, breadth, and simplicity. As a general rule, the modern works are too much paintings, in the strict sense of the word, too opaque in their shadows,—in fact, too much shaded; whereas painting on glass, to be really effective, should be almost entirely outline and colour, and as free from non-transparent shading as possible, for this becomes a sort of neutral tint when opposed to the light; hence the muddy character of much modern glass. I think it must be borne in mind that a stained glass window is a means of admitting modified and tempered light into a building—hence it must be transparent; that the picture is to be seen from a distance, generally considerable—hence that boldness, breadth, and harmony are more favourable to its effect than minute detail; and lastly, that the artist is not producing a work for isolated exhibition, but is labouring in combination with the architect of the edifice which he is to adorn, and with which his work is expected to harmonise, not to jar and contrast by painful and violent effects of light and shade; in short, that the window ought never to lose for an instant its character as a window, that is, a means of admitting light, which is its absolute

and æsthetic relation to the chamber which it illuminates. Enamel painting on glass is decidedly pushed much further than in former times, but we must doubt if it has advanced in its legitimate object, that of an adjunct to architectural effect.

Terra cotta, as a decorative adjunct to buildings, is one of the objects which the Exhibition was well adapted to bring under notice. After the progress made of late years, particularly by the firm of the Ladyshore works, it might seem remarkable that the combination of elegance with durability which it offers, should not have secured employment of the material commensurate with its capabilities, did we not call to mind the competition with which it has been met by the makers of artificial stone, and which has prevented its adoption for reduplications of a pattern.

Other difficulties arise from the very nature of the processes to which it is necessary to subject each branch of the manufacture, for we may regard the term terra cotta, in its most extended sense, as including even the finest porcelain. The component parts of the usual terra cotta are potter's clay, fine sand, and pulverized potsherds, mixed with water and thoroughly incorporated, and either modelled or cast in the state of a thin paste, in porous plaster moulds, which absorb the moisture. After air drying, the objects are baked in proper kilns at a very high temperature, during which process the shrinkage is sometimes very great. It is foreign to our purpose to enter into a detail of the different gradations in manufacture which exist between terra cotta, as baked fire clay, and porcelain, but all of them are subject to the inherent defects of contraction and distortion. The naturally abundant distribution of the clays which are found underlying coal seams in the colliery districts conduces much to the extensive application of the material, which, for the purposes of ornament, is gradually recovering the importance which it acquired in Italy, France, and Germany, from the fourteenth to the sixteenth centuries. Besides the productions of the Ladyshore works and other firms, a kind of perfect pottery, salt glazed and very nearly approaching to a true porcelain, was shown in the shape of drain and water pipes, vases, garden pots, architectural ornaments, and cases for plants, constructed upon Ward's principle. A bath, of the usual adult size, made in one piece of fire clay, plated with porcelain and glazed, was also exhibited. These baths are at present much used in public as well as private establishments, and I may observe that although they will bear a heavy blow without injury, yet they are liable to crack on the first inlet of hot water, if they are bedded solidly or fitted tightly: they should therefore stand on piers or bearers, and be free from anything which may prevent the expansion and contraction of the material. An Ionic capital for Clefden House, a Gothic pinnacle for a chapel at Tottenham, and some samples of "Parian" vitrified, seemed to promise well. In my own experience I have found that articles badly manufactured in terra cotta are likely to scale away on the surface, a defect which arises chiefly, if not always, from an improper mode of filling the moulds.

J. W. Papworth.

Natural Gas Jet.—In sinking for water at Chat-Moss a few weeks since, a stream of gas was got instead, which has ever since burned with a flame, extending to a height of 8 to 9 feet from a pipe 35 feet in length above ground, through which it has been conducted. This is not the only gas-jet of gigantic size running to waste in this country. There is one near Newcastle, which has blazed away for many years, and which it was some time since proposed to turn to useful account in street-lighting. If the one at Chat-Moss be likely to last, might not Manchester or Liverpool reap the benefit of it through a main run along the railway? Since writing the above we are led to understand that the jet at Chat-Moss has been put to use in heating the boiler of a steam-mill.

CONDITIONS IN SPECIFICATIONS.

"A Builder," sends the following extracts from the specification of a building about to be erected; and evidently regards the conditions they contain as altogether tyrannical:—

I. "All works to be done under the direction, and to the satisfaction of, A. B., Architect and Surveyor, or, in the case of his decease, of any other that the committee may appoint."

Here there is of course nothing to complain of. Individuals, or committees, having occasion for the professional intervention of an architect, are entitled to be satisfied as to the quality of the article to be paid for; and certainly that can only properly be through their professional friend or employé.

II. "The several works to be executed to the true intent and meaning of the drawings and such other details as may from time to time be furnished by the architect."

The details referred to are plainly enough "parts at large" of those works only which are set forth in the general drawings. As "other details" is the expression, we presume that a fair quantum is already given, sufficient to indicate their average degree of elaboration: if such is not the case, the contractor is reasonably entitled to look for them before binding himself to a price. Where details are given out by the architect piece-meal, after the contract is taken, dissatisfaction is very liable to spring up, and disputes ensue.

III. "In case any dispute should arise touching or concerning this contract, the matter in question shall be referred to the said A. B., whose decision shall be binding on all parties."

The carrying out of structural schemes is the natural and proper province of the architect; between whom and his immediate agent, the builder, an honourable confidence must subsist. When the former is so qualified that he can furnish his drawings and specifications so complete as to obviate all questions, and the latter makes his estimate with such care that out of a conscientious fulfilment of his contract he shall earn a fair profit, there can no harm accrue to the builder from the solution of difficulties resting with him who contrived the work in all its minutiæ. The contractor's undertaking being an onerous one, he should take care and enter upon it with his eyes open. The substitution of an *arbitration clause* for this sole reference to the architect engaged for the employer, has been insisted on by the leading builders of the metropolis, and where large interests are at stake may reasonably be desired. The "Builders' Society," if we mistake not, was originally formed for the purpose of carrying this point.

IV. "Should anything be shown in the plans and not described in the specification; or anything described in the specification, and not shown in the drawings; or anything omitted in both which the architect may deem necessary for the completion of the several works in the design, the contractor is to execute the same in such manner as shall be directed by the said architect, and the same shall be included in the amount of contract."

The two first clauses here are reasonable: the two classes of documents, the drawn and the written, must be regarded together, and everything which they collectively demand be taken into consideration in the first instance and complied with. The third savours of the arbitrary, and might be unduly stretched, although the thing deemed necessary were only *for the completion of the design*. Were only a library chimney-piece, for example, forgotten both in the drawings and specification, there might be a wide difference of opinion as to the material and the amount of art-labour proper for it.

It is the duty of an architect to make his drawings and specifications so complete and clear that contractors, fully understanding the intention, may allow in their estimates neither too much nor too little for it; and then, on the other hand, it is the duty of the contractor to carry out that intention fully, and co-operate honourably with the architect in producing a satisfactory result.

AMERICAN NEWS.

Tremont Bank, Boston.—The corporation of the bank have just completed a new building for business on the site of the old one in State-street. The new building extends from State-street to Post-office Avenue (a depth of over 130 feet), and is four stories high. The front is of Connecticut sandstone, in the Italian style of architecture, and of the Palladian school, though the cornice is nearly a copy from one of Vignola's. The first story is a series of three arches with rusticated piers and voussoirs, surmounted by a stone balcony: the second story windows have moulded architraves and pilasters and carved consoles, supporting circular and triangular pediments: the third story windows are finished in the same manner, but with horizontal cornices, and a stone balustrade before each window: the fourth story windows have architraves only, but broken at the angles of the opening, and surmounted by horizontal cornices. The design is suitable for a more extended front. The building was erected by Mr. F. W. R. Emery, and the design was made by Mr. Charles E. Parker, of the firm of Bond and Parker, architects, all of Boston.

Fresco Painting. — Much progress, says the *Boston Transcript*, has been made in our country within a few years in this art. Our churches have many of them been relieved from their previous barn-like appearance, and the impression conveyed upon entering them made more compatible with the purpose for which they are intended. And no one has done this to greater perfection than our own countryman, Whittaker. We found him the other day at Thorndike Hall, putting on the finishing touch, and but lately returned from a visit to the Crystal Palace, and to the best specimens in his line in La Belle France. It is evident to many that stucco, costing ten times as much as fresco, will not prove so satisfactory as the latter, as recesses, projections, &c., giving walls and ceilings uneven surfaces, do not reflect sound so well as smooth and even surfaces, and consequently those churches and halls finished in fresco are always preferred by speakers and musicians to those richly finished in stucco. Mr. W.'s services have been so much in demand for the last five years, that some portion of the time he has not been able to execute orders short of a year's notice. [We suspect it is not *fresco* after all that is spoken of.]

Electro-telegraphic progress.—The *Commonwealth* states that there are already in the United States and Canada more than 12,000 miles of wire, involving a capital of 3,000,000 dollars. To work these lines costs annually 720 tons of zinc, worth 57,000 dollars, more than a million pounds of nitric acid, worth 117,800 dollars, and 27,000 dollars' worth of mercury, besides a considerable value in sulphuric acid, &c. [These statistics may show what amount of saving would be effected by the substitution of the magnetic telegraphic for the electro-magnetic.] On the line from Pittsburg to Cincinnati alone there were transmitted, in the year 1850, 364,559 paid despatches, and the revenue received was 73,278 dollars.——A correspondent of our own informs us that the suggestion of a telegraphic fire alarum for towns, made in our pages, has been already carried out by the city government of Boston, and is now in successful operation, the telegraph giving the alarm to every engine house and church bell over the city, as well as to the mayor's and city marshals' offices.

Smithsonian Institute, Washington. — The building designed for the accommodation of the Smithsonian Institute is rapidly approaching its completion. The external part of the work is entirely finished, with the exception of a single tower, and the interior of the building is making good progress. Mr. Downing, a writer on ornamental landscapes, &c., is laying out the extensive grounds attached to the Institute, and planting them with trees and shrubbery. The whole surface has been drained and subsoiled, and it is intended to form, with these grounds, one continuous park, extending from the Capitol westward to the Potomac. This area will include the site of the Washington

Monument, and will form one of the most extensive parks in the States.

New Model for Fast Steam-ships. — The Washington correspondent of the *Atlas* (American paper) says:—"There is a drawing in the Navy Department of a new steamboat, which is about to be built in New York for the Hudson river, and is intended to compete with the New York and Albany Railroad. Her proportions are as follow:—length of keel, 500 feet; length of deck, 350 feet. She looks like a sword fish. There is 75 feet of keel at each end, extending out from the deck, which shows itself above water, and which is sharp and pointed like the sword of a sword-fish. Both ends of the boat are alike, and her engines are to work both ways, the vessel not being intended to turn round, but to work like a ferry-boat. She is to be called the *George Washington*, and to have accommodations for 3,000 passengers. The passage of 150 miles (between New York and Albany) will be made in five hours. She has been designed and modelled by Mr. Davidson, of New York."

TRANSCENDENTALISM OF ART.

BY GOETHE.*

As we are convinced that he who examines the intellectual world and becomes conscious of the *beauty* of the truly intellectual, will surely also perceive *her* origin, exalted above anything connected with the senses; so we shall endeavour to understand and express to our satisfaction, as far as this be possible, in *what way* we may be capable of comprehending the beauty of the mind and world.

Let us, therefore, suppose two stone masses to be placed near each other, of which one has remained rough and without artistic elaboration, the other converted by art into a statue either of men or gods. If it were one divine, it might represent a grace or muse; if one of human character, it would not be that of an individual human being, but rather one which art has created by a combination of the beautiful.

Then the stone, which art has converted into a beauteous form, will at once appear beautiful; surely not because it is a stone, else the other mass would also be esteemed beautiful, but because it possesses a form which art has impressed on it.

It was, however, not the matter which possessed that form, but this existed in the inventor (*Ersinnenden*), before it reached the stone. But this did not exist in the artist, because he was in the mere material possession of hands and eyes, but because he was imbued with *art*.

It is in art, therefore, that a still *greater* amount of beauty is recondited; because it is not the form reposing in *art*, which reaches the stone, but it remains there unalterable, and one of a subordinate kind arises, which does not repose purely on itself, nor is it that as the artist *imagined* it—such a one, in fine, as art can, in any way, impose on inanimate and tangible matter.

But, if art even reproduce that which it really *is*, and reproduce the beautiful according to reason, upon which alone it ever can draw, then it is indeed *this* which possesses in its essence a greater and more sublime beauty of art—more perfect than anything which ever can appear outwardly and tangibly.(!)

Because, as form transgressing into matter becomes already extended, it becomes of necessity weaker than *that*, which remains one and unchanged. Because, whatever endures a distancing in itself, secedes from itself—strength from strength, warmth from warmth, power from power, and the same, beauty from beauty. Thence the creating must be superior to the created. Because it is not primordial but concrete music which constitutes the musician—and transcendant harmony produces music enveloped in tones of the senses. But if one would despise art as merely imitating nature, he may be told that the complex of natures (*die Naturen*) are also imitating potencies; that, in fine, art does not exactly imitate what we see with eyes, but draws on that reason by which nature itself is constituted, and according to which she acts.(!)

Furthermore, art produces many things out of itself, and adds, on the other hand, where nature especial may appear incomplete, art being the exponent of absolute beauty. Thus, Phidias could form the god, although he did not imitate aught sensibly visible, but imagined to himself how Zeus would have appeared if he were to meet our eyes.

Idealists of olden and modern times are not to be blamed if they insist so strongly on the consideration of "the One," whence everything arises, and to which everything ought to be again reduced; because, really, the vivifying and arranging principle is so shackled in its external apparition that it does not know when and where to escape. But we wrong ourselves on either side, if we reduce the forming principle and the higher form itself to unity, which then escapes as well our outward as inward senses.

* Translated for the first time from the German of Goethe. "Posthumous Works," vol. ix. p. 104, ed. 12mo.

A MACHINE FOR CLEANSING CHIMNEYS.

Many attempts have, of late years, been made to *do away with* that most *revolting* and *degrading*, not to mention *cruel*, employment of "Chimney-sweeping," by means of climbing-boys. An "Act of Parliament" was some time ago passed, imposing a fine on every "Householder," who should suffer his chimneys to be swept in any other way than by a certain "machine," invented for the purpose. This machine has been found *inoperative* in many cases, and totally useless in others, where there is any flexure of the flue. Consequently, the "Act" cannot be carried out in its full force, and the evil that existed still remains unredressed.

To obviate this difficulty, and to enforce the penalty of the law in every case of its infringement provided the machine I have to suggest be found to answer, has occasioned me, with feelings of humanity and kindness towards that class of society, to turn my attention to the subject.

The machine I have devised may be thus described:—An air-tight bag, made of "Mackintosh-cloth," 3 ft. by 2 ft. wide, and covered over with a texture having strong *bristles* or *split whalebone* interwoven in it: to this is attached a tube of "*gutta-percha*," 40 feet long, and 1 inch diameter, having a brass screw-joint at one end, and another in the middle, with an inflating valve at the end, or it might be a smaller tube, encircled by cord to give it stiffness. A pair of strong kitchen bellows will be required to inflate the bag.

CLERICUS.

GAS AND WATER SUPPLY.

Newport (*Isle of Wight*).—The New Gas Company, in the course of putting down their iron pipes in High-street, laid open several of the old wooden pipes laid down in 1623 for the purpose of bringing water into the town, and in one part of the street they were obliged to dig up a large elm tree in tolerable preservation which had been used for this purpose.

Portsmouth.—We are glad to find the subject of gas-lighting still in the hands of lecturers, and engaging the attention of the general public, in our provincial towns. On Friday fortnight a lecture was delivered to the members and friends of the Portsmouth Philosophical Society by Mr. G. Garnett, on "The Philosophy and Practice of the Gas Manufacture." The lecturer described the chemical constituents of the various descriptions of coal, gave an outline of the manner in which gas is generated and purified, and showed the necessity of chemical knowledge on the part of the manufacturer. A cordial and unanimous vote of thanks was given to the lecturer for his address.

Dudley.—The Dudley waterworks are to be supplied on a plan suggested by Mr. M'Lean, the lessee of the South Staffordshire Railway, for raising water from the Trent, and other intermediate places, and passing it through pipes alongside the railway, delivering it into a large reservoir situate on the Brown-hills, near to Ogley-bay: from thence it will run by gravitation along the line of railway into the heart of the district, and with little deviation into the company's reservoir at Parkes-hall supplying on its route the towns of Walsall, Wednesbury, Hill-top, West Bromwich, Darlaston, and Bilston; Great Bridge, Tipton, and the high districts of the country (as Dudley and Brierley Hill) from the present plant and engines at Parkes-hall. The requisite notices to Parliament have been given.

Oxford.—The preparations for the establishment of a new gas company appear to have induced the old company to issue a circular, intimating that a further reduction in the price of gas will be made from Lady-day next. It is said that the intended reduction will be something like 12½ per cent. The present price is 6s. 8d. per 1,000 cubic feet.

Luton.—The gas question is at present agitating the population of Luton, and we are pleased to observe that here, as in various other quarters, the local Board of Health is promoting the extension of cheap and good gas light. Fresh main pipes are being laid down to carry out the views of the Board of Health, and now the company, it is said, can furnish all the old customers, and as many new ones as choose to burn their gas. The gas is said to have been much improved since the agitation began: it is described as being made from a proportion of Cannel coal; its specific gravity ·481, and its illuminating power far above the average of gas usually supplied.

Darlington.—Mr. Mason, town surveyor of Darlington, in a report to the Local Board of Health on the Gas question, says:—"In this locality, where coal is cheap, and the facilities for disposing of the residual products great, I think gas can be made (and sold we presume) for 4s. per 1,000 feet, including 10 per cent. upon the capital; and in this I am borne out by the cost at other places. In Liverpool, where coals are 15s. per ton, gas is made (sold) at 4s. 6d. per 1,000 feet, inclusive of 10 per cent. dividend: at Manchester it is sold at 3s. 9d. to private consumers: at Wakefield, the company make gas at 2s. 2d., exclusive of interest, coals being 4s. 8d. per ton. In Wakefield prison, the gas is made at 1s. per 1,000 feet including 50*l.* per annum allowed for wear and tear. At a private establishment near Leicester, where coals are 10s. and 11s. 6d. per ton, gas is made at 2s. per 1,000 feet, with 40*l.* for wear and tear. At Wolverhampton, the prime cost of 1,000 feet is 3s. 2d. exclusive of interest—coals 11s. 6d. per ton. At Brentford, the prime cost is 3s. 3d.—coals, 23s. per ton. At Bristol, the prime cost is 3s. 6d.—coals 11s. per ton. At Croydon, 2s. 6d.—coals 24s. per ton. At Warrington, the prime cost is 3s. 2½d.—coals 11s. 4d. per ton: quantity made, 13,900,000 feet. At Ashton, the prime cost is from 2s. 4d. to 3s.—coals 12s. per ton. At Worcester, the prime cost is 2s. 5½d.—coals 13s. 1½d. per ton. The average of these nine towns is 2s. 9¾d. per 1,000 feet, exclusive of interest."

THE RECIPIENT OF THE GOLD MEDAL FOR SCULPTURE. — The *Bridgewater Times* says of Mr. Summers, who obtained the gold medal at the Academy,—"This talented young artist, who five or six years ago had no higher ambition than carrying mortar to the mason, and being useful in a mason and stone-cutter's yard, had awarded to him last week, at the annual exhibition of the students connected with the Royal Academy, London, the customary gold medal, given to the most successful competitors, along with a sum of 50*l.*, to enable him to prosecute his studies by a sojourn among the ancient artistic remains of Italy. In addition to this extraordinary success, this young man carried also away from his fellow candidates the next best prize, consisting of a silver medal, for another and distinct specimen of art—a feat which, it seems, was not accomplished by the great Chantrey himself, and is without an example in the history of the academy." The subject of Mr. Summer's first piece, which gained the leading prize, is "Mercy pleading for the Vanquished."

CATHEDRAL OF SPIRE.

Had imperial Rome left no other mark to record amongst the nations her almost universal sway, the history of architecture would testify to the extended influence of a people endowed with noble feelings and high powers. With the decay of the Roman Empire declined the arts it had fostered. Architecture, true to its trust as the parent art, yet lingers on the stage when the excellence of painting and sculpture has ceased, and then passing in silence through ages of darkness and barbarism again appears to herald their return, and prepare for their reception; when a more universal, a more gentle sway than that of Rome, whose power was in the hearts of men, and not in outward coercion, came to be extensively acknowledged. Yet, after centuries of desolation, the impression of the Roman mind is strong on the works of their successors. Like bulwarks of their new faith, some of the earliest and noblest efforts of the parent art arise, beneath this new influence, on the confines of the fallen empire, and from these strongholds, as from fountains, the influence of the new dominion is poured out to lands untouched by Roman prowess.

The numerous specimens of this stage of the art, which on the continent have been preserved to our own day, cannot fail to inspire us with veneration for the talent which designed, and the energy which executed such vast and imposing works, amidst the turbulence and ferocity of a semi-barbarous population. Of this class, the cathedrals of Mayence, Worms, and Spire are fine examples. The dates of their erection seem to be in succession from A.D. 900 to A.D. 1050, their succession in date corresponding with their position at nearly equal distances apart on the right bank of the Rhine, ascending from Mayence. Following this rule, Mayence, as the first in date, and the first in position, has been most affected by the operation of the succeeding styles. The plan is nearly the same in each instance,—a long nave with aisles, short transept, and an apse at both the east and west ends. The exterior compact and solid in appearance, yet varied in outline by numerous towers of simple form. The interior plain and severe, but massive and solemn. The details strikingly classic in form. The whole grand and imposing to a degree, not surpassed by the bolder imagination and more subtle beauties developed in the productions of later ages.

The erection of Spire Cathedral, which is here illustrated, is attributed to the Emperor Conrad II., called the Salic, who resided at this city. He commenced his reign A.D. 1024, and the building was not completed till the close of that century, during the reign of his grandson Henry IV., who shortly after lost his throne by the arms of his rebellious son and successor Henry V. The city at this time seems to have been of great importance, and the residence successively of several emperors. It was here (A.D. 1146) that St. Bernard, abbot of Clervaux, by his eloquence engaged Conrad III., with many nobles, to proceed with Louis VII. of France, on the second crusade. In 1246, the Bishop of Spire, with five other ecclesiastics, were sufficiently powerful to defy the vengeance of Frederic II., an energetic prince, by crowning, in obedience to the commands of the Pope, a rival candidate for the imperial title. Ten years later the city associated itself with Frankfort and others, for the extermination of the robber nobles who impeded the freedom of traffic on the Rhine. In 1390 it was the scene of a disgraceful massacre and pillaging of the Jews (who in a great measure conducted the trade of the city) to procure money to satisfy the demands of the papacy, then shared by two rival Popes. Until 1688 the Cathedral appears to have escaped wilful injury; but in that year it was partially destroyed by the troops of Louis XIV. of France. It was again devastated by the French revolutionary forces at the end of the last century. By these two misfortunes it was deprived of the most interesting of its ancient monuments. The crypt beneath the choir is said to contain the remains of the founder, Conrad II., and eight other emperors, including the famous Rodolph of Hapsburg, the founder of the House of Austria (who died at Germersheim, distant about 3 leagues from Spire), and Adolphus of Nassau, who followed in the empire, and was killed in battle near the city by the sword of his successor Albert I., who in his turn (A.D. 1308) fell by the hand of an assassin, his own nephew, and here lies quietly by the side of his rival. G. M. H.

LABOURERS' COTTAGES.

Mr. William Cheffins, surveyor, has published in lithograph, plans, elevation, description, &c. of a pair of cottages, estimated to be erected in the neighbourhood of London for 180*l.*, or "on an estate which can furnish stone or brick, and tile, and fir, elm or poplar timber, not exceeding 150*l.*" The design affords, to each cottage, seven apartments, with the various appropriate conveniences, having separate bed-rooms for the parents, boys, and girls, and is well calculated to promote the physical and moral health of the occupants. The author's views are well set forth in the description: the following extracts contain some proper suggestions:—

"In some situations, a brick oven should be built in the outhouse, for the joint use of the cottages; and, if rightly placed, one of very moderate size will be sufficient for six or even twelve (?) families.

In the country, the supply of water principally depends on springs and ponds, which, besides being very precarious, often entails much labour upon the wife and children, and encourages a disinclination to fetch more than is absolutely necessary. If water can be found within a depth of 30 feet, a well and pump for two or more cottages is not an expensive concern.

For each (in a district where the lower estimate would apply) a rent of 1s. 6d. per week will be gladly paid, and a return of 5*l.* per cent. realized on the cost, including a good rent for the 30 or 40 perches of land allotted to each. In and near towns, 3s. or 3s. 6d. per week will be readily obtained, even without a garden, and a very remunerative return secured for the capital invested."

INTEREST OF PRINCE ALBERT IN CONSTRUCTIVE AND MECHANICAL SCIENCE.

His Royal Highness recently sent a donation of 20*l.* to the Slough Mechanics' Institute in a letter, by Col. Phipps, addressed to Mr. Labouchere, who had presided at the anniversary dinner, and who now appears to take an interest in the success of the institute. In this letter a characteristic instance of the good sense and discrimination with which such donations are either given or withheld is incidentally given. "A short time since," says Col. Phipps, "an application was made to his Royal Highness for a subscription towards the funds of this institution; but, as the principal grounds on which that application was based were its former mismanagement, and its failure to carry out successfully any of its original objects, his Royal Highness did not consider that an increase of funds would be sufficient to insure an improved and more successful management in future. Your presidency at the meeting, however—the interest which you have expressed in it, and the tone of the speeches generally upon that occasion—do, in his Royal Highness's opinion, give the guarantee which was alone necessary to enable H. R. H. to gratify his inclination of assisting an institution capable of doing so much good in the immediate neighbourhood of the residence of her Majesty and himself."—— The Prince has been elected an honorary member of the Berlin Building Society, of which the Prince of Prussia is the patron. In a letter acknowledging the honour and thanking the society, Prince Albert says "I shall consider myself fortunate in being named a member of a society that has been so successfully active on a field that on this side the channel has also been cultivated with much activity, for the advantage of the working classes, and for which I have for several years felt a special sympathy. If I can be of any use to your Royal Highness by communicating the results of the experience here made for the benefit of your society I shall be most ready to do so, as well as to send specimens of building materials, or anything of the same kind that may be of service to the society." It would be interesting to know something about the principles and rules on which this Prussian Building Society is conducted. We hope it steers clear of the defects and evils of many of those, in this country, the operations of which have rather checked than promoted the benefits which such societies are highly capable of conferring on the working classes. The Prince Consort's special interest in all matters connected with building and constructive science generally was long since manifested in his spontaneous adoption of our Journal, which is regularly sent him at his special request. To this circumstance we can, we trust, without impropriety, advert on such an occasion as the present, although we have felt a delicacy in making a parade of the Prince's name from interested motives, as many in such circumstances might have conceived themselves authorised to do.

IRON FOR FIRE-PROOF CONSTRUCTION.

I always feel thankful when The Builder adverts to safety from fire in the construction of dwelling-houses: we hear people deploring the frequent occurrence of conflagrations, causing loss of life and property, but they do not seem to reflect that each room in every house is a wooden box, so that, in reality, the wonder is that there should be so few such disasters. When a house has been thus destroyed, the new one is again raised on the same wooden plan.

Let the brains be puzzled to eternity, no scheme will be devised to render buildings thoroughly safe, except excluding combustible materials from their formation; that is, metal must be substituted for wood, and that metal must be iron. Let a handsome prize be offered, open to all the world, for the best essay "*On the most advantageous mode of applying iron to render edifices completely fire-proof.*" In the present depressed state of the trade, it would not be ill-timed if the iron-masters of the kingdom were to subscribe for such an object, thus combining attention to their own interests with benevolence towards their species. And a novel benefit would result from such a mode of building, namely, the equable heating of each apartment. Many a stately pile has been converted into cinders by the unskilful direction of flues, or by overheating them; but in a fire-proof house they may be entrusted with impunity to the superintendence of the most dull. Were such buildings once to become the fashion, the world would be astonished how it could have remained so long in the wood. W.

Metropolitan.—In the report of the Commissioners of Woods and Forests lately issued, an account is given of the following sums expended:—On public buildings and palaces, 98,711*l.* 16s.; Ordnance Office, Pall Mall, 7,000*l.* 2s. 2d.; Buckingham Palace improvements, 5,175*l.* 19s. 7d.; ditto, the inclosure, &c., 5,649*l.* 18s. 6d.; new Houses of Parliament, 113,825*l.* 2s. 6d.; British Museum buildings, 25,096*l.* 14s. 7d.; Nelson monument, 1,326*l.* 1s. 10d.; metropolitan improvements, 22,626*l.* 16s. 2d.; ditto the new street from the docks to Shoreditch, 56,432*l.*; Battersea Park, 22,505*l.* 14s. 7d.; Menai and Conway Bridges, 2,810*l.* 18s. 3d.; Windsor town improvements, 21,781*l.* 9s. 9d.; and New Forest drainage, 1,118*l.* 2s. 2d.——The scaffolding for the commencement of the new ball-room at Buckingham Palace began the other day to show itself above the high hoarding surrounding the works.——The extensive new buildings at Guy's Hospital are progressing towards completion, covering an immense piece of ground at the rear of the old building. ——The building which held the late Chinese Exhibition at Albert Gate, Knightsbridge, has been cleared away. It is said, if Knightsbridge barracks be removed, the whole row of irregular houses here will follow, and a line of mansions, with park frontages, will immediately be commenced.

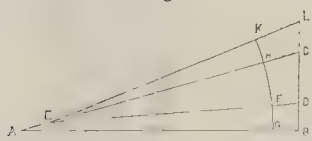


INTERIOR OF SPIRE CATHEDRAL.

TO APPORTION HEIGHTS SEEN FROM A DISTANCE.

THE trigonometrical solution of "Ignoramus's" problem, given in THE BUILDER for December 13, by "E. W." was correctly worked out; but the data upon which it was founded (and therefore the result also) were not very exact. Perhaps, however, a greater degree of accuracy would hardly repay, in most instances, the trouble occasioned by rendering one of the known quantities fractional.

But it will be at once acknowledged that "E. W.'s" diagram is not the best that can be used, when the result is to be obtained by geometrical drawing. Allow me, therefore, to offer to your numerous readers a more accurate mode of proceeding.



Let A B represent the ground line; B C the height of the building; B D that part of it to which the proposed object is to appear equal in height; E the eye of the spectator at any given distance, and at an average height of (suppose) 5½ feet from the ground. Join E B, E D, E C; with centre E and distance E F describe the arc K H F G; measure on the arc a distance H K equal to F G; through E and K draw right line E K L. Then the angles D E B and C E L, at the centre and on equal arcs, are equal; and the perpendicular height C L is the height required.

Perhaps it is as well to add that when the spectator's distance from the building is 300 feet or more, the error occasioned by using "E. W.'s" diagram is very small; but the error would be quite appreciable in some of those numerous instances where the spectator cannot get a full view of the façade at any greater distance than the opposite side of the street.

Humble-minded "Ignoramus" must also remember that his spectator will after all think the object just the right height only so long as he stands at the exact given distance. When he approaches nearer, it will appear too short; when he recedes it will seem too tall.

W. D. PRITCHETT.

CAMPANOLOGY.

THE BELLS OF LONDON.

ALTHOUGH bells are not an intrinsic part of church architecture, yet, as connected with time-honoured or magnificent modern buildings, they have an interest, if not significancy. The following list of sixty-seven peals in London and vicinity is compiled from about twenty years' observation and local inquiry, and includes the most recent additions.

Peals of Twelve.

	Tenor—Cwt.
St. Saviour, Southwark (1)	52
St. Michael, Cornhill (2)	41
St. Giles, Cripplegate (chimes) ..	38
St. Leonard, Shoreditch (chimes) ..	32
St. Martin-in-the-Fields (3)	31
St. Bride, Fleet-street	28

Peals of Ten.

St. Mary-le-Bow (4)	53¾
St. Dunstan, Stepney	32
St. Sepulchre, Snow-hill (5)	32
Kingston, Surrey	30
St. Margaret, Westminster (6) ..	25
St. Alphage, Greenwich (7)	25
Camberwell New Church	25
St. James, Bermondsey	25
St. Magnus, London-bridge	24
St. Clement Dane (chimes) (8) ..	24
Chelsea New Church	23
All Saints, Fulham	21
All Saints, Poplar	21
St. Dionis, Fenchurch-street (chimes)	20
St. John, Horselydown	20
St. Barnabas, Pimlico	20
Streatham Old Church	unknown

Peals of Eight.

St. Lawrence, Jewry	36
St. George-in-the-East (9)	32
Christchurch, Spitalfields	32
St. Andrew, Holborn	28
St. Botolph, Aldgate	28
Hackney Old Church	25
St. Stephen, Westminster (Miss Coutts's)	B. 25
St. Botolph, Bishopsgate	22½
St. James, Clerkenwell	22
St. Nicholas, Deptford	22
St. Mary, Whitechapel	21
St. Dunstan-in-the-East	20
St. Mary, Lambeth	20
Kensington Old Church	20
Trinity Church, Newington	20
South Hackney Church	20
St. Mary, Islington	19¾
St. John, Waterloo-road	19⅝
All Hallows, Barking	19½
St. George, Borough	19
St. Dunstan-in-the-West	19
St. Mary, Rotherhithe	18
St. Mary, Battersea	17
St. Mary, Putney	16½
St. Giles-in-the-Fields	16
Isleworth Church	16
St. Peter, Walworth	15
St. Paul, Shadwell	14
St. Stephen, Coleman-street	14
Christchurch, Surrey	14
St. Matthew, Bethnal-green	12
Woolwich, Richmond, Wandsworth — Old Churches	.. unknown

Six—et infra.

Westminster Abbey	36
St. Vedast, Foster-lane	21
St. Catherine Cree	19
Bow, Middlesex	12
St. Andrew, Undershaft (10)	unknown
St. Olave, Hart-street ..	unknown
All Hallows, Mark-lane ..	unknown
St. Bartholomew the Great, 4 (11)	about 9 cach.
" " Less, 3 ..	about 9 cach.

A few sets of three; not rung.

(1.) The heaviest peal in England, except Exeter Cathedral, 10—tenor, 75 cwt. About nine of the bells here are at least five centuries old.

(2.) There *was* a peal of 12, tenor, 48 cwt., with chimes, at Spitalfield's church, destroyed by fire. There were then said to be only 12 peals of 12 in the kingdom, one (Gresford) in Wales.

(3.) The weekly "leg of mutton and trimmings," left by Nell Gwynne, the kind-hearted, though erring and frail, and afterwards penitent, mistress of Charles II., who originated Chelsea Hospital.

(4.) Probably only *six* when they encouraged Dick Whittington.

"Turn a-gain Whit-ting-ton,
Thrice May-or of Lon-don."

(5.) Eleven; but one not rung with the rest.

(6.) The sound deadened by the overhanging abbey.

(7.) Two added lately.

(8.) Ditto.

(9.) This church, Stepney, and Shoreditch, same key and weight of tenor.

(10.) Very poor toned; but the handsomest church which survived the "fire." St. Catherine Cree, farther in same street, built in the reign of Charles I., mixed Gothic and Italian, curious. Both little known.

(11.) Oldest church in London; but little known as such.

J. D. P.

MONUMENT TO CHARLES XII. OF SWEDEN.—The *Athenæum* says,—"When Charles the Twelfth, King of Sweden, was killed by a ball directed against him from the fortress of Friedrichstadt, to which he had laid siege, a simple column of marble, bearing no other inscription than the monarch's name and the date of his death, was raised to mark the spot. This column having gradually given way before the piece-meal depredations of relic-loving tourists until not a fragment is left,—the Norwegian Government has determined that a worthier monument shall occupy its place; and having submitted the matter to public subscription, three-fourths of the sum needed was offered in less than two days. The work is to be the subject of competition."

"CHEAP" FOUNDATIONS FOR BRIDGES.

IN your paper of the 20th ult. there are, in an article headed "Westminster-bridge," some sentences calling upon you to exercise your influence in deterring the public from countenancing so-called cheap foundations such as are now being put in at Rochester and elsewhere. The writer, who signs himself "A Builder," instances the failures of the foundations of Westminster and Blackfriars bridges, as affording lessons against their use. The reason of the failure of the foundations of the two last-named bridges is, that being upon caissons, without piles, the scour of the river bed has undermined them, which the piles would have prevented. The foundations for Rochester-bridge consist of cast-iron cylinders, 7 feet diameter, sunk deep below the bed of the river, filled with brick-work in cement: these brick piers, protected by thin iron casing, rest upon the chalk, and are of such an area as to present at least a square foot of surface to every four tons weight of the superstructure. No kind of foundation can be more certainly relied upon, their depth below the bed of the river precluding the possibility of their being affected injuriously by any alteration in it. They certainly are *cheap* foundations, for no cofferdam is required to get them in,—each cylinder being one, a *permanent* one, and all who have had any experience in ordinary dam work will know that they are always expensive, often uncertain in their purpose, and, in the case of Rochester, would have been *impossible*.

"Ærumnabilis experientia me docuit."

C.

PARKS FOR THE PEOPLE.

THE forest of Hainault, in Essex, on the borders of London, is about to be alienated from the Crown. Before this is done, I would propose that three or four hundred acres should be reserved, to form a public park.

The close neighbourhood of this disposable remnant of the *folcland* of our Saxon forefathers makes it very desirable that a portion of it, as a breathing-place of pure air, should be dedicated to the community. How much such places for healthy recreation are needed, it is superfluous to tell.

In the proposed park, there might be, hereafter, raised another *ferrovitreous* temple—of statuary, for example, wherein the history of our country might be read in marble and bronze,—where the memories of illustrious men of our land might be gratefully preserved.

And this brings to my recollection that our great Alfred—the poet, patriot, warrior, and minstrel king, the liberator and reformer of his country—deserves the first place. Let the *folcland* park be named, after him, "King Alfred Park"—a fit acknowledgment of the nation's sense of their obligations to the king who declared in his will that he "left his subjects free as their thoughts."

The year 1852 will probably see the people in possession of rights of citizens such as they had in Alfred's time, without a class of *thralls*, to make universal freedom a mere name. The same year should be chosen for an act of grace on the part of the gracious successor of Alfred, who so worthily occupies the throne of Britain, and "in whose veins the blood of Alfred flows."

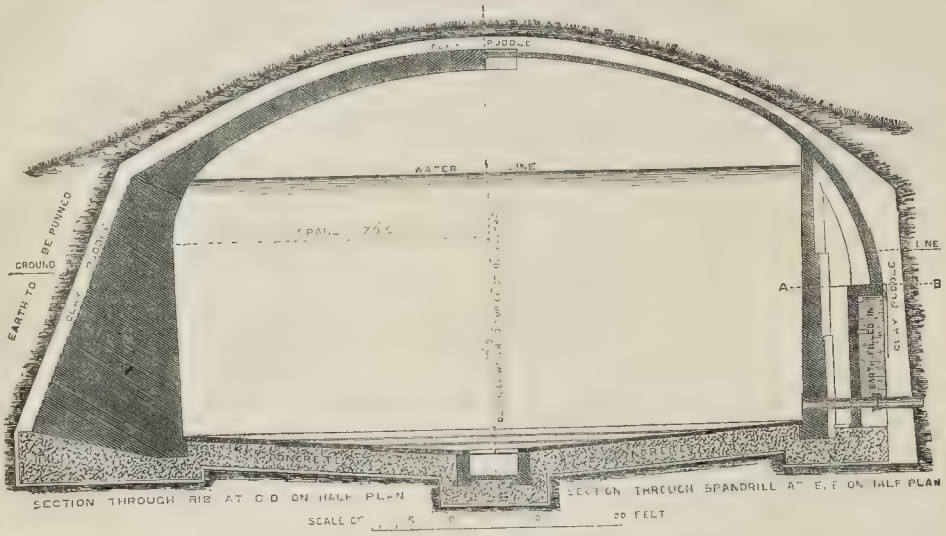
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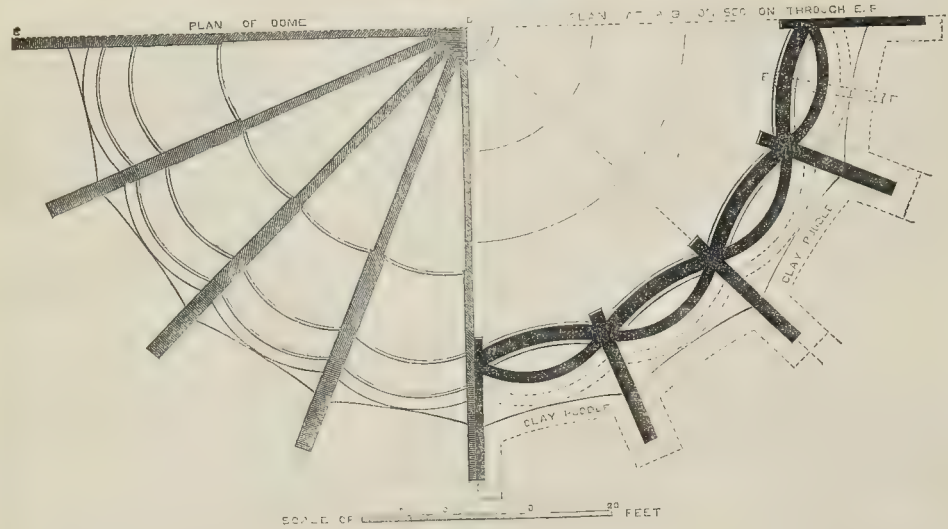
DAMP HOUSES.—We understand that amongst the MSS. left by Professor Anderson, and in the custody of the curator of the Andersonian University of Glasgow, is a paper treating "Of the Moisture in Houses that are situated on Prominent Rocks." Perhaps some Glasgow correspondent would take an opportunity of examining its contents, and forward a brief of them *pro bono*.

IRONSTONE IN NORTHAMPTONSHIRE.—Abundance of iron ore, according to the local *Herald*, has been found in the county of Northampton, bearing 35 to 50 per cent. of iron, while stone with 20 per cent. of the ore is worth carriage. Preparations are in progress for its purchase, and either its transfer to the coal districts, or of coal to the spot, by rail.

RESERVOIR, CROYDON WATER WORKS.

MR. RANGER, ENGINEER.





RESERVOIR, CROYDON WATERWORKS.

THE works for the supply of water to Croydon are the first that have been constructed under the Public Health Act. We have already alluded to them (page 795, vol. ix.), and now give a plan and section of the Reservoir just outside the town, which is not intended for storing, but simply to adjust the supply. This reservoir was constructed under the direction of Mr. Ranger: Mr. Harris was the builder. Our plan shows on one side the retaining walls, on the other the vault with which it is covered. The section is made to correspond. The inner segmental walls forming the sides are in cement, the outer in mortar. The whole is covered with earth, taking the shape of a large barrow; and there is a doorway on one side, above the water line. The diameter is 75 feet; the height to the springing 23 feet, and the rise of the arch 20 feet. The depth of water is 32 feet.

We are glad to find that the members of the local Board of Health here work very well together.

ON A MEANS OF PRESERVING FOR AN INDEFINITE PERIOD BUILDINGS CONSTRUCTED OF LIMESTONES.

The following paper was read at the Paris Academy of Sciences by M. Rochas:—On examining the chemical composition of various kinds of limestone, of which the greater number of our public edifices are constructed, it will be seen that the limestones which have best withstood the ravages of atmospheric influences, are those which contain the largest proportion of silica in combination; whilst those which are devoid of silica, or possess that substance simply in a state of mixture with the other ingredients of the limestone, have undergone a very considerable deterioration.

Observing these facts, I have endeavoured, and I believe successfully, to discover a method of remedying the evil which I have pointed out. It is to place the materials, which are susceptible of deterioration by the action of the air, in contact with silica, under such circumstances, that this latter substance may be made to combine with the base of the limestones, and thus transform them into a very hard, compact, and, to a certain extent, unalterable building material. In pursuing this investigation, I have made a considerable number of experiments, taking as a starting point the previous labours of M. Kulmann.

I have the honour of submitting to the notice of the Academy three specimens of limestone which have undergone the process of silicatization. For these I am indebted to the kindness of M. Violet le Duc, who carefully selected them for the purpose, from amongst some old materials taken from those

parts of the Church of Notre Dame which had undergone the greatest change. Part of each of these specimens I have allowed to remain in an unprepared state, in order that a comparison may be made between it and the part which has been silicatized.

Before closing this communication, I may perhaps be permitted to call the attention of the Academy to the monuments recently discovered by M. Mariette, in the excavations made by him in the Temple of Serapis, at Memphis. In the early part of this year, during my travels in the East, I had the opportunity of examining the statues, sphinxes, &c., which had then been discovered. These monuments of antiquity are for the most part formed of soft limestone, possessing but very little cohesive power. I found that, after having remained buried during so many ages, the limestone had, so to speak, entirely lost its solidity, that indeed in a very short time after their exhumation, the limestone became detached in scales, and the statues so deteriorated, that it was deemed indispensable to cover them again with sand, in order to preserve them.

M. Mariette having informed me of his great anxiety to transport these statues in good condition to Paris, I recommended him to adopt the process of silicatization, in order to give that degree of solidity to the statues necessary for their transport to Europe: at the same time I offered to undertake the charge of the operation.

This communication of M. Rochas was referred to a committee, consisting of MM. Cordier, Elie de Beaumont, and Dufrenoy.

SIGHTS AND SCENERY.

Drury-lane Theatre.—The leading feature of the pantomime here ("Harlequin Hogarth") is the struggle of Idleness and Ignorance with Industry and Knowledge, and it serves to introduce the usual amount of pantomimic acting, tricks, and changes. One of the best scenes, though hard, is the second—a change from the haunt of Idleness to the abode of Industry, wherein are shown bridges, aqueducts, and buildings. The distance in the first scene is nicely painted, and so is a series of transparencies representing Hogarth's pictures of the Idle and Industrious Apprentices. The triumph of Industry is achieved in the transept of the Crystal Palace. The artists here are Messrs. Jones and Cuthbert. In "Macbeth," by the way, which has been revived for Miss Glyn, the most hopeful tragic actress of the day, an anachronism is committed in the shape of a sixteenth century gateway in one of the scenes.

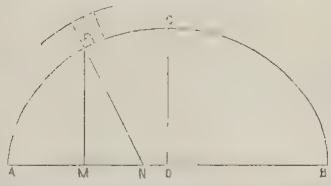
The Princess's Theatre.—At this theatre, which is now under the sole management of Mr. C. Kean, the pantomime, "Harlequin, Billy Taylor," is made to depend rather on the persons engaged in it than the scenery, although there are two or three clever effects, especially the introduction of the conventional fairies (whither have they all flown now-a-days?) in nautilus shells, and a "Bird's-eye view of London by moonlight." The latter shows to great advantage the *cowls and gutters* of our disfigured metropolis, and must have given some trouble to the carpenters. Stage carpenters, by the way, are a distinct race of mechanics. As Dickens says,—"Some of them growl bits of Italian operas, or melodramatic music, as they work. They are full of traditional lore of the 'Lane' and the 'Garden' in days of yore. Probably their fathers and grandfathers were theatrical before them; for it is rare to find a carpenter of ordinary life at stage work, or *vice versâ*. Malignant members of the ordinary trade whisper even that their work never lasts, and is only fit for the ideal carpentry of a theatre. There is a legend, also, that a stage carpenter being employed once to make a coffin, constructed it after the 'Hamlet' manner, and ornamented it with scroll-work. They preserve admirable discipline, and obey the master carpenter implicitly; but, work once over, and out of the theatre, he is no more than one of themselves, and takes beer with Tom or Bill, and the chair at their committee and sick club *réunions*, in a perfectly republican and fraternal manner. These men labour from six in the morning until six in the evening; and, probably, as 'Fee foo Fum' is a 'heavy pantomime,' from seven until the close of the performances." The "Iron Chest" has been revived here, and affords the manager one of his best personations.

The Adelphi Theatre.—We have seldom been able to offer higher praise to the scenic artists engaged at the Adelphi (Messrs. Pitt and Turner) than we can do for their works in "Little Red Riding Hood,"—a sparkling and clever extravaganza by Mr. Tom Taylor, in which Mr. Honey, Miss Fitzwilliam, and others play very cleverly. The scene is laid on the banks of the Rhine, and several parts of the green river are charmingly portrayed. The architecture, too, is drawn with great precision (a vaulted chamber, for example), and the whole is highly creditable to them. The piece is altogether one of the best of its class.

TO DRAW THE JOINTS OF THE VOUSSOIRS TO AN ELLIPTIC ARCH.

In large elliptic arches it is important that the several voussoirs should be accurately jointed together, and the following method will be found to be simple and easy of application.

What is required to be done is to draw the normals at any points on the ellipse.



Let OA and OC be the major and minor axes of the ellipse, O being its centre. It is required to draw a normal at any point P on the ellipse.

Draw PM perpendicular to OA, and let N be the point where normal at P meets OA.

Now, it is shown in Treatises on Conic Sections that $MN = \left(\frac{OC}{OA}\right)^2 \times OM$ and OC and OA are given with the ellipse, so that this equation gives the point N corresponding to any point P on the ellipse; and if we draw the line PN, and produce it above the curve, we have any one of the joints of the voussoirs.

E. W.

NOTES IN THE PROVINCES.

Stourbridge.—We are informed that a design for the Stourbridge School of Design, by Mr. Mr. Thomas Smith, of Stourbridge, architect, had been adopted by the committee on the Government inspector's recommendation; that builders were solicited to send in tenders, and that the tender of Mr. Edward Smith, of Oldswinford, was accepted. The works were to have been in a forward state by Christmas, but some irregularity in the title of the intended site seems to have determined the committee to abandon the new building altogether and to fall back upon a scheme to purchase and fit up the old theatre for the purpose. This building is central for the town, but objections are made to the position as one for a public school.

Stratford-on-Avon.—The chancel floor of the Guild Chapel has recently been newly paved with Minton's encaustic tiles. The Rev. T. Medwin has given orders to Messrs. T. and E. Kemp to fill the east window, from designs which they have furnished, in stained glass, representing the sacraments of Baptism and the Lord's Supper, the Crucifixion, the Resurrection, and the Ascension. This chapel was originally built in 1296; and was rebuilt by Sir Hugh Clopton, in the reign of Henry the Seventh.

Llandaff.—In a communication to the public, signed W. D. Conybeare, in a local journal, occurs the following passage relative to the restorations at Llandaff Cathedral:—"I may say that I (as it were) inherited about 700*l.* from my predecessor; and I have myself collected 3,000*l.*; so that I am responsible for about 3,700*l.* altogether. The first work which devolved on my care was the restoration of the *presbytery*, or the two eastern bays of the choir. This has been now completed, at an expenditure of about 2,800*l.* The works were all executed by contracts, through public tender. The architectural effect produced I submit to the taste of all competent observers; remarking only that the ancient features of the building have been strictly *restored*, with no wanton innovation. The balance remaining at our bankers is rather more than 1,100*l.* The next work which requires immediate attention, and which is essential, in order to supply adequate room for public worship, consists in raising a new roof, and constructing a new clerestory, over four arches. The expense of this is estimated by our architect (who has also consulted the judgment of the late contractor for the presbytery) as falling within 2,500*l.* Our present bishop has munificently promised for the accomplishment of this end the sum of 400*l.*, within the two ensuing years. I have also, from other quarters, 150*l.* pledged to me, so that I need only raise about 900*l.* more from the public generally. We may then proceed boldly to the completion of this most desirable work. The fitting up of the choir and all other needful interior decorations may confidently be referred to the general fabric fund of the Chapter, which is sufficient for that purpose."

Birmingham.—A fountain has been put up in the centre of the Market-hall. The basin is of Yorkshire sandstone, and is 15 feet in diameter, and will hold 1,000 gallons of water. From this rises a double plinth of sandstone, supporting a pedestal of magnesian limestone, on which is placed the metalwork of the fountain. This consists of a fluted metal shaft, surmounted by a Greek tazza, and surrounded by four figures of children emblematic of four of the principal branches of industry carried on in Birmingham. An antique vase, out of which the jet proceeds, forms the apex of the column, the water falling into the tazza being discharged into the basin below through eight apertures in so many lions' heads. Suspended from rings attached to the panels of the pedestal, and resting upon the consoles, are four groups in bronze, representing the various commodities sold in the market. The design and workmanship are by Messrs. Messenger. They contracted to furnish the metalwork for 400*l.*, but it is said to have cost them 900*l.*; and Mr. Chaplin, who contracted for the stonework, finds, it seems, that he has also considerably exceeded his estimate. We hope to find, when we see it, that it is something better than the generality of our public fountains.

Hulme.—It is proposed to erect a new church in Boston-street, Moss-lane, Hulme, towards which donations have been received, amounting to 2,200*l.* A circular, soliciting subscriptions, concludes with the expression of a hope that the subscriptions received will be sufficient for the erection of schools as well as a church: the estimated cost of both is 6,000*l.*

Preston.—The scheme for a covered market, at a cost of 25,000*l.* or, including approaches by new streets, &c., 40,000*l.* has been rejected for the present by a majority in the council of 18 to 17, on account chiefly, it appears, of objections to the proposed site as too destructive of property, and hence too expensive. The mover of the amendment, however, appears to be an advocate for a covered market, but amused the council with his ideas of the *value* of *mere* designs. On this point, as reported by the *Preston Guardian*, Mr. G. Smith, the mover of the amendment, said—"This project required their long consideration and the cultivation of their minds. (A laugh.) He would suggest to the committee that they should advertise and offer a premium to three competitors for the best site, and for the most economical mode of erecting a covered market. For the best site and the least expensive plan he would give 50*l.* (Laughter.) Then for the second best he would give 25*l.* (Continued laughter.) For the third he would give 12 guineas. (Increased laughter.) Now the whole matter of the question came plainly before them: they

would give an amount of something like 80*l.* and he did not hesitate to say it would save them 10,000*l.* (Loud laughter.)" We suspect that some at least of the Preston council do require to get up a little "cultivation of their minds" previous to the issue of the proposed advertisement.

Doncaster.—A meeting of ratepayers and other inhabitants has been held, at which it has been resolved, as the opinion of the meeting, that the existing water power, if applied in the most efficient manner, would be amply sufficient for the supply of the town according to the requirements of the Health of Towns Act, and at the same time the most economical mode of effecting that object. A memorial to the Board on the subject was unanimously agreed to.

Leeds.—Messrs. Peter Fairbairn and Co., the machine makers, have purchased for the use of their workmen, as a means of affording them agreeable recreation, a stock of Saxe horns and other instruments, which will form one of the largest and most effective brass bands in that part of the country. The instruments are of the same description as those used by the Distin family. Mr. Whitley, leader of the Bramley band and of the Leeds troop of Yorkshire Hussars, is appointed teacher of the new band.

Gateshead.—The project of a market for Gateshead is likely to be again brought under consideration. "The Island," in the main thoroughfare, is recommended by the *Observer* as the best site for such a work.

Gatehouse.—A Dumfries paper states that a vein of copper ore, 18 feet wide, was lately found at Laggan, in the parish of Anwoth, near Gatehouse, by a labourer, while pulling heather. The whole district, it is said, teems with metal.

Dunkeld.—"A contract," says the *Perth Courier*, "was some time ago entered into with the patentee of the new discovery of 'water gas' for lighting the streets, shops, and dwelling-houses of Dunkeld. The necessary preparations have now been completed, and a preliminary trial made in presence of the patentee, Dr. Miller of Manchester, and other gentlemen interested in the gas manufacture. There is neither smell nor smoke emitted from the gas, nor during the manufacture. The comparative cheapness is also an important element in the question; and the more so, in a town of limited extent and trade such as this." Under Dr. Miller's patent, hydrogen, as we think has been already explained to our readers, is first extracted in a retort from water and then loaded with carbon in another retort. The hydro-carbons are a curious and interesting class of bodies. They not only comprise the various qualities of illuminative gas, olifeant, &c., but, in proportion as the hydrogen which *wings* them becomes more and more loaded with the carbon, they sink into fluids more and more dense, from subtle ether and alcohol, through the naphthas and turpentines, and at length pass into the solid naphthalines, with their beautiful white crystaline laminæ, smelling like the flower narcissus, and susceptible of iridescence, also into paraffine, and ultimately Cannel and other coals, which, in fact, are still hydro-carbons. Now the idea of first preparing the volatilizing hydrogen and then loading it with carbon, till a sufficiency be converted into gas that will burn brilliantly, as ordinary gas does, to a certain extent at least, in proportion to the amount of carbon with which it is loaded, is certainly ingenious; but still more so, as well as probably far more practicable and economical, is that which it farther suggests of first merely driving out of common coal a hydro-carbonic gas of low illuminative power, and then enriching it by the aid of Cannel coal, the richest of coals in hydro-carbonaceous properties. An approximation to this idea was made by Mr. White, in his alleged preparation of hydrogen from water into hydro-carbonaceous gas by the aid of resinous substances, which are just a sort of solid though partially-oxydized turpentines; but it seems to have been left to our correspondent, "C. C.," to mature the idea of assimilating the highly carbonized hydro-carbon of Cannel coal with highly hydrogenized hydro-carbonaceous gas, or gas of low illuminative power, as at first prepared, and so, easily and readily, to form a brilliant illuminative gas, rich in carbon. Perhaps the only hope of additional advantage, economy, and convenience, in this species of experiment, consists in the possibility that even common coal so treated, by passing meagre gas over it while it is in a heated state in a separate retort, may enrich the gas, so treated, as much as Cannel coal does, if not even more so, though it may not increase it so much in quantity as the Cannel is capable of doing. We have frequently predicted vast improvements in the distillation of coal gas, and are likely, it would appear, to see the prediction very soon fulfilled.

HOW THE WORK WAS DONE ON THE BIRMINGHAM AND OXFORD EXTENSION.

AT a recent meeting of the Institute of Engineers, an account was given of the works on the Birmingham Extension of the Birmingham and Oxford Junction Railway, by Mr. C. B. Lane. The reader said the line was intended to form the connecting-link between the Birmingham and Oxford, and the Birmingham, Wolverhampton, and Dudley, and so complete the broad gauge circuit with Bristol and the south-west of England. The line commenced near the Coventry-road, and was to have terminated at Great Charles-street. From Adderley-street to Park-street, both inclusive, the town was crossed by a viaduct; and from Moor-street to Monmouth-street, the line passed under the highest of the eminences on which Birmingham stands, by means of a tunnel, which was to have been constructed as a covered way—that is, by opening the ground, putting in the brickwork, and again covering up; and the part of it as yet completed, from Moor-street to High-street, being about 142 yards in length, was executed in this manner. It was 27 feet in width at the level of the rails, and was built entirely of Staffordshire brick set in mortar, with the exception of the arch lengths through Carr's-lane, which were set in cement. The average rate of progress in the tunnel was 8·1 lineal yards per week.

The viaduct consisted of fifty-seven openings, composed of nine segments, each 30 feet span and 6 feet rise; fifteen semi-circles, also 30 feet span and 15 feet rise; twenty-seven semi-ellipses, each 15 feet rise, and varying in span from 37 feet to 48 feet, and six street bridges, mostly skew, and varying in form, span, and rise. Its total length was 930 yards; general width, from face to face, 31 feet 7½ inches; and between the parapets at the level of the rails, 29 feet. It was built entirely of brickwork set in mortar, with the exception of the soffit of the bridge over Park-street, which was constructed of cast-iron girders, with a cross-transomed memel flooring. The red brick of the district was used throughout the footings, the internal work of the piers, and the spandril walls: the arches and parapets were constructed of Staffordshire brick, from the "common stock"—the copings, mouldings, and dentels being made of Staffordshire brick clay; and the whole of the work was faced with Staffordshire "best blue." All the brickwork was set in moist mortar, so as to press to a thin joint; and in hot weather the bricks were kept constantly wet. The mortar used in the work was composed of the red sand of the locality, and Dudley or Greaves' blue lias lime, the latter being used in all foundations, arches, and face-work, mixed in the proportions of one part of slaked lime to two parts of sand, and worked by a steam-mill driven by a four-horse power steam-engine, made by Mr. Nathan Gough, of Manchester. This mill was capable of supplying fifty bricklayers per day with a mortar of a perfectly even texture, entirely free from lumps, and therefore less likely to become vesicular, from the transfiltration of water, than that mixed by the common pug-mill. Each set of centres consisted of five ribs, each rib being supported on two vertical, and two sloping props, the former under the heels of the ribs, and the latter under the points, where the struts of the ribs terminated in an iron shoe. The laggings used were 3-inch deals, carefully dressed by the adze to the proper curves, and lined for the courses of the skew arches. Corbels of heading bricks were carried out from the backs of the arches in the range of the spandril walls, of equal width with them, and connected by brick beams from arch to arch, for stiffening and equalising the pressure from end to end of the viaduct; and the useful effect of this mode of construction was proved by the comparatively small amount of the settlements of the arches.

The various modes adopted, and mechanical contrivances used, for raising the materials to a considerable height, were described; and deductions were drawn from a very numerous series of experiments, to ascertain the values for the useful effect produced by the "labouring force" (Whewell), or "Travail Mécanique" (Poncelet), of a man under different modes of its application, and also for a horse under alternating motion over a short space. From these it appeared, that the relative costs of raising the materials to a height of 46 feet, by the horse-lift, the swing-lift, and the box-lift, were 3·08, 5·90, and 4·13 pence per ton respectively, shewing a saving in favour of the horse-lift against the swing-lift of nearly 3d. per ton, and against the box-lift of rather above 1d. per ton.

RAILWAY JOTTINGS.

THE aggregate amount of traffic on railways in the United Kingdom, published weekly from 1st January to 20th December, inclusive, amounted to 14,297,705*l.*; corresponding period of 1850, to 12,513,625*l.*; corresponding period of 1849, 10,823,221*l.*; and in 1848, 9,858,770*l.*——The number of parcels passing "in" and "out" of the Euston-square terminus, during the Christmas week, has amounted to nearly 40,000. Out of these 40,000 parcels only two had the addresses lost. One of the trains brought up ten tons of poultry.——A Bill for an Oxford and Brentford line has been deposited, it appears, by the Oxford, Worcester, and Wolverhampton Company. Messrs. Peto and Betts have put their names down, it is said, for 400,000*l.*, Messrs. Tredwells for 200,000*l.*, and the solicitor for 28,400*l.*——Mr. R. Stephenson is reported to have completed the survey of the Cairo railway. His decision is announced to be that the plan suggested by the Pacha for carrying the work through the Delta should be followed out. Instead of the costly bridge-work proposed across the two branches of the river, it is probable a pontoon, or floating stage, will be used for carrying the rails. 18,000 labourers, supplied from the respective bordering districts, will be set to work immediately.

RESOURCES OF IRELAND.

ENCOURAGED by railroad and packet-station works, the interests of Ireland generally, and of the county Galway in particular, have recently been much stimulated—property in the borough has acquired an increased value, and resources hitherto neglected are being brought into play: this, together with the prospect of a regular line of packets between New York and the noble harbour of the west, promise a futures most cheering for the province of Connaught, heretofore the poorest portion of the kingdom.

With a communication by rail of five hours to Dublin and Belfast, and a continued line of transit *viâ* Holyhead to Liverpool and London, this route cannot fail to be adopted as the most direct postal medium, as well as for the despatch of light merchandise, since a saving of *three days* will be effected, as contrasted with the voyage round Cape Clear, the Lizard, Foreland, the Downs, and the beating up channel. A submarine telegraph between Howth and Holyhead must limit all governmental correspondence to this line.

It will be a novel feature in statistics, if the emigrant hordes which fled misery and famine in their native land, shall be replaced by industrious English, Welch, and Scotch, who may settle in the derelict soil, where they will

make the wilderness blossom, and the poverty-stricken burgh become a city.

The opportune establishment of the railroad and harbour will effect all this, and moreover the as yet unwrought mines of wealth in fisheries, the richest on our coasts, will be developed, and other products, such as marbles and quarry stone, will send their tributes also, enriching the landed proprietor, the labourers who toil, and benefiting both the trader and consumer throughout the country.

For a few years past an enterprising English firm, the Messrs. Franklin (of Westminster), have been operating on the black marble quarries of Menlo, near Galway; and, still more recently, brothers of the same firm have wrought stone quarries at Kilrush, near the mouth of the Shannon. The properties of these quarries, it is said, make them peculiarly eligible for flag-stones and city pavements. The material is a conglomerate limestone: the formation extends many miles: the rock is easily wrought as it comes to the surface, and is of great depth—laminating freely: it can be split into flags of any required thickness and extent.

The colour is a grey drab, and for strength the stone surpasses the Yorkshire, the expense being no more for light, and less for heavy or thick samples. 30,000 feet are to be used for the Galway terminus.

Black marble being now much used by all London architects, and trottoirs or foot-pavements much extended of late throughout the suburbs, the introduction of these fossils from the sister isle would do much to stimulate industry amongst a long neglected people.

QUONDAM.

SANITARY CONDITION OF LONDON.

THE annual report on this subject by the City Medical Officer of Health, Mr. Simon, has been published, and may be usefully consulted by those interested. Mr. Simon points out the new powers which the corporation have for the prevention of sanitary evils, and urges the necessity of using them efficiently.

"In 1849," he justly remarks, "with the cholera amidst us, great exertions were made, and greater promises. In that dreadful week, when 2,000 victims of our metropolitan population fell beneath its poison; when every household, from hour to hour, trembled at the visible nearness of death; the public was scared out of indifference. If the visitation could have been bought away, at the expense of doubling all local rates in perpetuity, no doubt the sacrifice would have been made. Public opinion was kindled to overwhelm all opposition.

The metropolis was to be drained afresh; the outfall of sewerage was no longer to be beneath our windows; the river was to be embanked; its rising tide was no longer to make our sewers disgorge their poisonous contents into our streets and houses; dead bodies in their decay were no more to desecrate the breathing-space of the living; water was no longer to be supplied—clumsily, insufficiently, and unwholesomely, at the discretion of private capitalists: all was to be amended.

For participation in these advantages, the City had to look beyond its own representatives, and to await the more comprehensive measures of her Majesty's Government.

Two years have elapsed, and none of the measures referred to have made visible progress. The water-question remains unsettled: arrangements for extra-mural interment of the dead have been disconcerted at what seemed the moment of their completion: the river still receives the entire sewage of this immense metropolis, and still at each retreating tide, spreads amid the town, as heretofore, its many miles of fœtid, malarious mud."

ARCHITECTURAL EXHIBITION, PORTLAND GALLERIES.—We are glad to hear that the exhibition is about double the previous collection in extent, and of a much better character. We shall have something to say about it next week.

THE POLYCHROMY OF ANCIENT ART is announced as the subject to be considered at the meeting of the Royal Institute of British Architects on Monday next, when Professor Donaldson will call attention to the system developed in the superb work recently published by M. Hittorff on this matter.

EPITAPHS.—HERTFORD CHURCHYARD.

THE churchwarden of Hertford has favoured us with a letter, denying that the two epitaphs we lately gave are in the churchyard there. He continues,—"The only singular inscriptions adjacent to that beautiful avenue, are as follow: on one stone,

Here Lyeth
Black Tom
of the Bull Inn in
Bishopsgate-street,
1696.

And on the other,—

Here
Lies the Body of Sarah Young,
Wife of James Young,
of West Street.
Died, Sept. 8th, 1749. Aged 66.
She
Was a Pious Christian
And 38 Years so Kind
And Loving A Wife as
Never Gave her Husband
An Angry Word.

There is also another singular inscription (considering the building in which it is placed) on a tablet in the chancel, to the memory of Lord John Townshend, of Balls Park in this parish, who died in 1833.

For a period little short of 30 years
He was the Friend and Companion
of that illustrious Patriot and Statesman,
Mr. Fox,
A distinction
Which was the pride of his life,
and the only one
He was anxious might be recorded
after his death."

Our informant of the first-mentioned epitaphs (whose character puts doubts as to his correctness quite out of the question), says,—"It is upwards of forty-five years since I was in the church-yard there; previous to which I was in the constant habit of attending service at 'All Saints Church,' during which time I had many opportunities of seeing and reading, as I have done, the inscriptions I furnished you with. I cannot take upon myself to say whether the tombstones are there *now*: if not, they must have been removed, or the lettering have become defaced by age, &c.; but I am quite willing to restate that they were there *once*, in the situation wherein I have described them."

A SUGGESTION FOR A LIGHTHOUSE ON THE GODWIN SANDS.

THE proposition of erecting a lighthouse on the Godwin Sands has occupied the attention of engineers and scientific men for a series of years, and we are still as far as ever from its being realised.

I would propose that a number of large blocks of stone of various sizes (similar to those employed in the construction of the Plymouth and Portland breakwaters) should be deposited on any selected spot adjacent to these sands: *not on the sand* ITSELF, but rather upon the border of it, in two or three fathoms water. These stones should be in the form of a circle, not less than 150 yards in diameter at high-water mark, and raised as high above as possible. A quantity of ballast mixed with ground chalk should be thrown in with the stones, to bind the whole together. This heap of stones should be allowed to settle and consolidate for two or three years; and as some of them may get washed away by the lashing of the waves, they should be replaced by others as soon as possible.

The next step will be to remove the top stones in the centre of the pile to the level of low-water mark, and prepare for the foundation of the lighthouse by making it level with concrete. The foundation should be of wrought iron plates, strongly riveted and braced together, circular in form, and 60 feet in diameter, upon which should be fixed a border of cast iron 20 feet high, the space inside to be divided into a series of cells (all of cast iron), and filled with concrete, composed of four parts of coarse ballast, two of sand, and two of Roman cement. (The reason why I choose Roman cement is, because it is less likely to have an injurious effect upon the iron than lime.) Upon this erect the lighthouse, constructed of corrugated galvanized iron plates, strongly braced throughout.

Round the lower part of the lighthouse should be raised another border, about 10 feet inside the first one, and about 10 feet high, filled with concrete the same as the other. This would give great stability to the structure.

J. C. P.

Books.

Suggestions for a Crystal College, or new Palace of Glass, for combining the Intellectual Talent of All Nations; or, a Sketch of a Practical Philosophy of Education. By W. CAVE THOMAS, Master of the North London School for Drawing and Modelling. Dickinson, Brothers, New Bond-street. 1851.

THE title of this pamphlet is not a good one; or rather its sub-title, "A Sketch of a Practical Philosophy of Education," ought to have been the principal one. The "suggestions" alluded to are confined to the last two out of sixty three pages; and moreover "a Crystal College" would be wholly unsuited for such a purpose as that suggested, unstable as it would be, and continually exposed to alternations of temperature. Mr. Thomas appends two diagrams, or figurative outlines of a ground plan of such a college, circular in form and divided by inner circles and radii into sectional lecturing or teaching departments, comprehending in all a vast scheme of individual education. The main subject of the author's treatise may be gathered from the following remarks in the preface:—

"The fundamental character of the scheme we are about to develop may startle those accustomed to consider education in taste as an isolated branch of study, as something which may be attained *per se*, disconnected from other studies. Here they will find, on the contrary, our object to be the vindication of thorough instead of partial measures, to show that a purer knowledge of the beautiful can only result from a more perfect system of education, in which all the faculties are proportionately developed, the Fine Arts having their due share of attention with other exercises; also that this is not merely a question concerning the future excellence of our ornamental wares, but the greater one of the future welfare and progress of the British people."

England, the author conceives, would thus, by the adoption of such a system, taught in an edifice such as he describes, and in which the highest talent, foreign as well as native, in every section of science, should be concentrated, become the centre of the intellectual world, and so attain the culmination of her power.

The essay, and indeed anything that Mr. Cave Thomas may set before the public, is well worthy of perusal; but we doubt the practicability of such a system as yet, and fear that even though it were practicable, the fruits of such a vast scheme of education would not be what its projectors would anticipate. Special faculties and prepossessions in youth would inevitably lead to special attention to particular branches of knowledge, to the neglect of all else, in spite of every endeavour to level all to one universal democratic standard of acquisition and of knowledge; and even though this were not the case, what could the result by possibility be, but that an universal and useless smattering of all sorts of knowledge would be substituted for a well-grounded acquisition of the more essential or the chosen branches? Would it not be like an attempt to set up in commercial life with mere samples of everything sold by all, in place of with a good stock of something or other by which the tradesman would be likely to profit and to live? With man's limited faculties, it is only for the few of universal genius to attempt to compass every branch of science.

Transactions of the Architectural Institute of Scotland. Edinburgh, 1851.

THE first volume of the Transactions of the Architectural Institute of Scotland is a creditable monument of the industry and abilities of the members. It contains thirteen papers, occupying 244 nicely printed pages, and has a

number of illustrations. Some of the essays were published by us at the time. Amongst those not given by us are a long and valuable memoir by Mr. R. Ritchie, "On Ventilation and Warming of Buildings, and Heating of Baths, as practised by the Ancients," and an essay "On the Geometric Principle of Beauty in the Mouldings of Ancient Greek Architecture," by Mr. D. R. Hay.

Proposal for a new Cattle Market for the Supply of London. By W. WILSON, C.E. London, 1851. Waterlow and Sons.

THE site proposed by Mr. Wilson is part of the large tract of land which lies on the north bank of the Thames, to the eastward of the new docks now in the course of formation near the mouth of the River Lea, and on the line of the North Woolwich branch of the Eastern Counties Railway. A large plan for a market accompanies the pamphlet.

The Royal Guide to Wax Flower Modelling By Mrs. PEACHEY, Artiste to her Majesty. Rathbone-place, 1851.

ORDINARY ingenuity and industry will enable any lady, by means of this book, to master a pleasing and not useless accomplishment, and to build up enduring representations to adorn her rooms, of the sweet flowers which had their birth

> "To minister delight to man—
> To beautify the earth,"

and die too soon.

The book is as gay as summer, and the language as flowery as Flora herself could desire to be addressed in. In the next edition the leafy luxuriance should be a little pruned, and the fruit will be easier seen. The instructions are clear, and the illustrations pretty. We happen to love flowers dearly, and we like those who love them too:—

> "Flowers are the brightest things which earth
> On her broad bosom loves to cherish."

And when we cannot obtain those "pencilled by the hand of God," desire nothing better than Mrs. Peachey's "counterfeit presentments."

READING FOR RUNNERS.

The Road. By Nimrod. With Illustrative Woodcuts. Murray, Albemarle-street. 1851.

The Turf. By Nimrod. With Illustrative Woodcuts. Murray, Albemarle-street.

James's Fables of Æsop. One hundred original Woodcuts. Murray, Albemarle-street. 1851.

On the Life and Writings of Addison and "Horace Walpole." By Thomas Babington Macaulay. Longman, Brown, Green, and Longmans. 1852.

Murray's "Reading for the Rail," and Longman's "Traveller's Library," must be paying speculations, since the issues proceed so steadily. And they cannot but be successful, considering their sterling merit. In such an instance as that of "James's Fables of Æsop," with such cuts, it would have been utterly impossible that a book like this could have been got up and issued for half-a-crown, unless a profit had been previously realised for it in a more expensive form. The shilling pamphlet on Addison is reprinted from Mr. Macaulay's "Critical and Historical Essays," and, like those which it here accompanies, needs no special recommendation by us.

GOVERNMENT SCHOOL OF MINES.—On Tuesday last, Mr. A. C. Ramsay delivered the introductory lecture of a course to be given by him at the Museum on Geology. On Wednesday, the 7th, Mr. W. W. Smith gave his introductory lecture on Mining and Mineralogy. Dr. Percy followed on the 8th, on Metallurgy.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.—Another visit to the city antiquities will be made by this Association on the 14th inst., when Barber's Hall, in Aldersgate, St. James-in-the-Wall, St. Giles's Cripplegate, and Carpenter's Hall will be visited; a paper will be read by Mr. Pettigrew at Barber's Hall; and a dinner discussed at Mason's Hall Tavern, Basinghall-street, in the afternoon.

Miscellanea.

RELICS AT WANDSWORTH.—The course of a recent ramble in Surrey brought me to the pleasant village of Wandsworth, or Wandlesworth, as it used to be called, from the river Wandle on which it is situate,—a stream dear to the hearts of all true "Waltonians," on account of the excellence of the trout to be found in it. On walking up to a small Roman Catholic church built not many years ago, my attention was excited by an erection against the west wall, which at a distance resembled an altar, but upon examination proved to be composed of three fragments of stone, each about 3 feet to 3½ feet long, and 1½ foot deep, which had once formed the basis of three sets of clustered columns of a late period of pointed architecture. Upon inquiry I found that they were dug up when excavating for the inclosure of the church, the minister of which placed them in the position they now occupy. Where did they come from? None of the county histories which I have consulted mention any building formerly existing in or near that place such as these relics can have belonged to; but perhaps one of your correspondents may be able to inform me. There is a tradition that a house in the town was honoured with a visit from the "virgin queen" in one of her royal progresses. Is this building now in existence?

A. W. H.

THE ROYAL SCOTTISH ACADEMY.—The annual report of the Council of this Academy has been prepared. It congratulates the Academy on the settlement of the whole question of its future position and rank in co-ordinance with the Royal Academy of London, a position and rank for which the Council express their gratitude to Government and Parliament on the one hand, and to the city authorities of Edinburgh on the other. The moiety of the new edifice, with its site on the mound, conjointly with the Scottish National Gallery, as our readers already know, is to be appropriated to the Royal Scottish Academy, on principles and conditions somewhat analagous to those on which the Royal Academy of London is accommodated in a portion of the National Gallery here. In gratitude to Lord Rutherford, as Lord Advocate, to Sir William Gibson Craig, M.P., and to Lord Cockburn, an old supporter of the Scottish Academy, the president, Sir John Watson Gordon, is spontaneously painting portraits of these gentlemen, and the Council have employed him to paint one of the Lord Provost of Edinburgh, Sir William Johnston, the whole to be added to the gallery of the Academy.

SOCIETY OF ARTS.—On Wednesday, the 7th inst., the fifth lecture on the Great Exhibition, as suggested by his Royal Highness Prince Albert, was given by Dr. Lyon Playfair, on "The Chemical Principles involved in the Manufactures shown at the Great Exhibition as a Proof of the Necessity of an Industrial Education." It was an excellent lecture; and we are glad to find that the discourse is to be published. It is to be hoped that the society will distribute it at the various manufactories and workshops wherein most of the articles were fashioned to constitute that Great Exhibition. A visitor present proposed, in a very praiseworthy manner, to commence a subscription, in order to defray the expense of distributing it, but the proposition was not very warmly received. We hope it is the intention of the society to take it into their own hands, and distribute it and the other lectures far and wide.

A STEPHENSON MONUMENT AT NEWCASTLE-ON-TYNE.—If a monument to the maturer of the railway locomotive be appropriate anywhere, it must be preeminently so at Newcastle, and we do not see how the Northumbrians can now delay a movement to that end. But don't clothe him in a Roman toga, says the *Gateshead Observer*; and assuredly the idea of decking out such a man in the secondhand clothes of old Rome is a somewhat incongruous one. There was little of the classic in his composition; yet a good deal of the Doric; and we cannot well conceive of even his statue looking down upon the Roman togery with any other expression than one of grim sarcasm. Even "flourishes" to his name, such as knighthood and the appendage F.R.S., &c., he rejected, though he could accept the honour of president to a mechanics' institute; and on this characteristic ground the editor of the local journal just named suggests that the most fitting monument to him would be a "Stephenson Institute," to be erected at the north end of the High Level-bridge, as part of the approach to that viaduct from the square of St. Nicholas. No more appropriate monument can well be conceived: it would have had his own approval, and as remarked, would be a means of elevating the "order" to which he belonged, and which he so greatly adorned.

THE SCOTCH IRON TRADE.—It is reported that last week, at Glasgow, prices of pig-iron were on the turn in favour of buyers. Warrants f. o. b. were quoted 38s. cash; No. 1, 38s. 6d. cash; and No. 1, Gartsherrie, 40s. 6d. cash against bill of lading, with little doing. The annual circular from Glasgow, of date 31st ult., has been sent us by Mr. Hu. Ferguson. We give some extracts from it:—In the unparalleled depression of 1842-3, best brands of pig-iron were sold at 35s. to 36s. cash. The average price of 1851 is 40s. against 44s. 4d. in 1850. The extreme figures it touched these years are 44s. and 37s., and 50s. and 41s. respectively. The stock at the various depots in England barely reaches an average, and there appears no reason to doubt the universal belief that it is remarkably low throughout foreign markets. In this locality there is, however, a considerable increase over 1850. The exports in 1851 were 452,758 tons, against 324,659 tons in 1850. We cannot overlook the fact of the discovery of immense fields of ironstone, and the erection, in other parts of the kingdom, of new works for reducing this ore. This may possibly affect Scotch pig-iron by supplying districts hitherto dependent on Scotland; nor will the American presidential message—recommending an increase of import-duty on foreign iron—be without some influence on the trade, whatever the ultimate result may be; and, till the European continent presents omens more peaceful and prosperous than are just now visible, the trade here need not expect any impetus by increased demand from that quarter. In fine, if no decided increase of demand is destined to be experienced in 1852, neither is it to be expected that the production will be much, if at all, increased; and, if we have no important advance in the price, that we have at all events arrived at a point, beneath which it is difficult to understand where the trade could succeed in finding a standing position. Bar-iron has been remarkably steady, having varied only 5s. per ton throughout the whole year, and the market now closing without animation at 5*l.* 5s. ordinary brands.

ELECTRO-TELEGRAPHIC PROGRESS IN RUSSIA.—Lieutenant Silemens, inventor of the electro-magnetic telegraphic apparatus employed in Germany, has set out for St. Petersburgh, by desire of the Czar. He is ordered to suspend a line, in the first instance, between the capital and Moscow, and afterwards another, connecting both with Warsaw and Odessa, Other lines will extend to the Caucasus, to the Ural, and the principal seaports.

HEALTH ACT IN CARDIFF.—At a meeting of the Cardiff Board of Health, held on Friday, the 3rd, Mr. Rammell's plan for the drainage of this town was adopted, and resolutions were passed requesting Mr. Rammell to furnish the board with a statement of the amount of his charge for preparing plan of drainage, and report thereon; for making all the working drawings, superintending the construction of the works, and performing, with regard to the same, all the duties of superintending engineer; also to prepare a specification of the various quantities of pipes required for the works, in order that advertisements may be issued for tenders to supply the same. The clerk was directed to inquire of Government, or of one of the insurance companies, whether they would advance the money required for draining purposes on the security of the rates, and in accordance with the provisions of the Public Health Act.

The Builder.

No. CCCCLXVII.

SATURDAY, JANUARY 17, 1852.

FROM the machinery now at work in England, we ought certainly to get some superior architects, and a more knowing public in architectural matters than we have yet had. The Royal Academy, the Institute of British Architects (which scarcely does so much as it should), the Architectural Association, the Scottish Institute of Architects, the Architectural Publication Society, the numerous Architectural Associations of amateurs and others throughout the kingdom, and an independent Architectural Exhibition, should surely do something for the country in this respect. We believe they will, and we hope we may not be disappointed. If we were to say that the Architectural Exhibition which was opened to the public on the 12th inst. in the Portland Galleries, Regent-street, is as good as it ought to be, we should do wrong; but it is nevertheless a very great improvement on the previous attempts, and presents a very interesting collection of works,—interesting, not merely to the professional inquirer, but to all. Perhaps, indeed, too much pains have been taken to make it so, for plans and sections have been, to a great extent, eschewed, and, where sent, have been hung in a subsidiary room,—a course open, as it seems to us, to objections. The collection contains 360 drawings, some of them previously exhibited elsewhere, but for the most part new. There are not many of the leading architects amongst the exhibitors; but the expediency and practicability of the scheme being now established, we may expect more next year.

Mr. Lamb exhibits View of St. Andrew's Chapel, Blenburgh, Yorkshire (No. 2), recently erected; the Chapel at the Consumption Hospital; his design for Birmingham Workhouse (30); Studies for Schools at Shobdon Court (133); and various others. Mr. Scott sends View of Church erecting at Halton (3), geometric, with bell at junction of nave and chancel; views of design submitted in competition for King's College Hospital; views of a fine Church now erecting at Ealing, and of some other works now in progress. The tower of the Ealing Church has a ridged roof, with turret in the centre,—a little distorted in the drawing. As to the King's College competition, our readers will remember that we noticed the terms of it, and the drawings sent in, some time ago. The other competitors were Mr. Ferrey, Mr. S. Smirke, Messrs. Wyatt and Brandon, and Mr. Bellamy, and it was ultimately decided in favour of the last-named gentleman.

The works going on at Bowood-park, under Mr. G. Kennedy, are shown by two drawings, 22 and 23. Mr. Christian has a design for the restoration of St. Mary's, Lichfield. So, too, has Mr. Stevens, who also sends views of the proposed new Temperance Hall at Derby. Messrs. Gabriel and Hirst's design for a Peel testimonial (25) is an "Eleanor Cross," very well drawn. Mr. E. I'Anson has a very clever drawing, in pen and ink, of a design for Club Chambers in Victoria-street, Westminster; also designs submitted for the Mansion House, Chapel, and Schools, Camberwell. Mr. Truefitt exhibits a number of drawings: a design for a town church; the improvements recently effected under his direction at All Saints, Worcester; besides others previously exposed.

No. 66 is a design for the new Metropolitan Cattle Market proposed to be erected in Copenhagen-fields, by Mr. Dunhill, which has some architectural pretensions. The Cattle Market area contains 22 acres, being accommodation for 4,000 beasts, 6,000 sheep, with a large covered calf and pig market. There are also public and private abattoirs, with accompanying factories. The total quantity of land included with the surrounding roads is 66 acres.

The design for proposed bridge at Clifton (No. 86), by Mr. C. Fowler, was made, we suppose, before Mr. Brunel's unfinished suspension bridge there was decided on. We are glad, for Mr. Fowler's sake, that his design for the Dundee Arch (90) was not carried out, though preferable to the monstrous affair which has been put up. No. 93 is a clever suggestion for the union of iron framing and Tate's patent slabs of glazed clay in cottage building, by Mr. Edmeston, jun., one of the active honorary secretaries.

Mr. Edmund Sharpe sends an illustration of his "Seven Periods of Architecture," propounded in our pages; and, in conjunction with his partner, Mr. Paley, a view of a terra-cotta church recently erected by them at Rusholme, near Manchester. Mr. E. Walters has several designs. The ground story of a warehouse now building for Messrs. Brown in Manchester, is very cleverly treated; indeed, the whole front is excellent. The House at Redington (180) by the same is less good: the angle turrets, with battlements around them, are singularly ugly.

No. 96 is a beautifully drawn design in the Renaissance style, by Mr. Digweed, founded on a well-known example in Paris.

The Kent Ophthalmic Hospital, by Messrs. Ashpitel and Whichcord, has no pretensions externally. The same architects also exhibit the Public Baths and Wash-houses at Maidstone, now nearly completed, and Mr. Ashpitel's design for rebuilding Blackfriars Bridge, both previously noticed by us. No. 24 is a design for the Cambridge Lunatic Asylum, by Mr. Innes, of Elizabethan design, with central turret.

Fincastle, Perthshire, by Mr. Fowler Jones, (128); Mr. Edward Falkener's classical design for a Corn-Exchange (139), Doric and Ionic, with glass roof; a clever sketch for a public building (without windows), by Mr. A. Allom; design for the quadrangle of a college, by Mr. G. R. Clarke (187), may all be noticed.

(202), Design for a Church proposed to be built in Islington, by Mr. G. Godwin, is an endeavour to reconcile the provision of large accommodation with small funds. Mr. H. H. Burnell's Design for a Protestant Church, very carefully drawn and made out, gives evidence of French education, and will startle the ecclesiologists.

No. 308 is an elegant design for an Elizabethan Library, by Mr. Fredk. Hering, whose shop-front at the corner of the Circus, in Piccadilly, still remains one of the best in London. Mr. W. B. Colling, Mr. Wardell, Mr. T. Little, Mr. W. P. Griffith, Mr. Shout, Mr. Grantham, Mr. Papworth, M. Horeau, Mr. W. W. Pocock, and Mr. Fowler, jun., have also sent designs.

Amongst the delineations exhibited (apart from design) are two well-drawn views of Lincoln Minster,—one by Mr. Penrose, No. 10 (showing the spires formerly on the western towers), and the other by Mr. T. J. Willson; a number of bold sketches, mostly in Italy, by Mr. J. P. Seddon; a beautifully executed drawing of the Parker Monument, Paignton Church (37), by Mr. W. H. Brakspear; a number of Mr. Ruskin's graceful sketches in Italy; a clever view of the interior of Knapton Church, Norfolk (145), by Mr. J. K. Colling; some views by the Earl of Lovelace; and several Indian buildings, by Mr. Fergusson. Mr. Fergusson also exhibits his design for a national gallery, already noticed by us, and two sketches for street architecture of much merit. Several drawings by members of the class of design of the Architectural Association, especially three by V. T. Horder (242, &c.) deserve notice. No. 298 is a beautiful outline drawing of the tower and spire of Bow Church, by Mr. J. T. Christopher.

Amongst the models, the works contributed by Richard Day stand pre-eminent (356), including the Portico of the Parthenon, and the Martyrs' Memorial at Oxford. W. Tayler, jun., exhibits a pretty specimen of a plaster ornament, a *pièce de circonstance*, for A. E.,—for Architectural Exhibition—are entwined. St. Etheldreda (355), by Frederick Wetherell, has much grace and right feeling, though somewhat "long drawn out;" and Mr. Nockalls Cottingham shews his versatility by exhibiting "A Statue for a Niche" (358) carved in stone. It represents a falconer, but the wing on his cap and a certain classical cast of face led us to mistake him for Mercury in plain clothes.

Mr. Charles Pearson has sent a model of his Great Central Terminus; and Dr. Hodgkin contributes a model of one section (180 ft. span) of the Viaduct over the Susquehanna river, which deserves to be studied.

We have here, too, Mr. Cundy's restoration of part of Queen Philippa's monument in Westminster Abbey (No. 1, in third room), which on several grounds entitles him to praise. We must, nevertheless, express our earnest hope that the original monument will be maintained. We may mention that Mr. Cottingham has recently placed in the hands of the dean and chapter several large fragments, including two entire canopies, of the alabaster work which formed part of the original tomb. It appears these were purchased of the late Mr. Gayfere, the abbey mason, by his father, nearly thirty years ago, and ever since have been most carefully preserved. Among the fragments are many of the deficient pieces of the canopy to the effigy. Some of the foliated parts are more like chased silver than carved stone.

The "Adoration of the Shepherds," by J. B. Philip (No. 9, in third room), the first of a proposed series of panels in the canopies of stalls in Ely Cathedral, is far from satisfactory: he must try again.

That portion of the Exhibition which is especially the result of the announcement that the committee, desirous of forming a collection of the manufactures, materials, processes, &c., immediately connected with architecture, had set apart space expressly for that purpose, and called on persons interested in such matters

to render it, by their co-operation and assistance, as perfect as possible,—falls short of what had been our expectations respecting it, and yet is very interesting. We have repeatedly urged the desirability, and great need, of the establishment of a means by which a knowledge of what is good,—as of the constant advances that are being made in matters connected with art-manufacture generally—might be annually disseminated,—of course not forgetting the value of such a medium as between supply and demand, in a commercial point of view; and we are glad that the initiative should have been taken in those branches which concern our specialty, viz., architecture and building appliances. Most of the objects here gathered are, as might have been expected, recognisable; and it was perhaps from calling to mind the immense amount of interesting and instructive matter brought together in the Great Exhibition bearing on these branches, but which could not have obtained there the attention it justly claimed, that we were induced to believe that manufacturers and patentees would have availed themselves largely of the opportunity here afforded, of bringing their claims to estimation under the immediate notice of those in a position to be of service to them, and have thus formed a collection highly advantageous, mutually. We will, however, take the present as an earnest of future exhibitions: what is here is, of its class, excellent, and we augur for next year a great increase.

Amongst the contributions in terra-cotta, James Pulham, Herts, exhibits, besides specimens of ornamental building bricks and impervious facing tiles, a cap, column and base, made hollow of stone-like terra-cotta, which, filled with cement concrete, is computed to bear a pressure equal to about 400 tons on the foot cube. One of these columns was submitted to a test by Mr. Belhouse's hydraulic press in the Exhibition, and broken by a pressure equal to about 460 tons on the foot cube, being considerably more than granite will bear.

M. H. Blanchard exhibits the capital in terra-cotta designed for the Duke of Sutherland, Clieſden; pinnacle and tracery windows for the new chapel, Tottenham, and Kingston Church; the model of the Yarborough testimonial; in fact, identically the same items as appeared in the Palace of Glass, and which then had our warm commendation.

Messrs. Ransome and Parsons have also transplanted their specimens of artificial stone, previously commented on by us; their ornamental Elizabethan balustrade, piers, copings, &c.; vases and pedestals; samples of open balustrades, ashlars and quoins, water-purifiers and filtering-stones. There also are specimens contributed from Southampton, in white clay, ornamental chimney heads, moulded bricks splayed for window-jambs and plinths, semicircular and double-splayed coping for walls, and ornamental ridge tiles, coloured to match slate or old tiled roofs, and samples of improved Italian tiles by Mr. Brown, as to which we will say a few words at another time.

There are, in the ironware department, two or three cases of most finished specimens of the locksmith's art, supplied by James Gibbons, jun. Messrs. Peat, and Henry Yates, specimens of fancy hinges, ventilators, effluvia-trap and sewer gratings. Messrs. Baily and Sons have placed there for inspection a case of locks' door-handles, bell-pulls of elegant Gothic and Elizabethan designs, a collection of fire-dogs, and a very excellent specimen of cast-iron, bronzed, adapted for gallery fronts: it is a capital sample of what can be done in iron-casting.

The London Parquetry Company furnish a dozen very good samples of their art, besides portfolios of designs. We greatly wish we could see parquetry more generally employed than it is,—superseding the use of oil-cloth in the passages, halls, &c., of private houses.

Messrs. Hart and Sons exhibit a large number of specimens of their patent and very excellent door furniture. Kershaw's imitations of woods and marble are first rate. Mr. Whishaw's improved *Telekouphonon;* Messrs. Powell's glass water-pipe and patent quarries and borders; Mr. Simpson's decorations; and Mr. Foot's exposition of Portland stone help to complete the collection, which we again invite all our readers to go and see; and we say further,—"Stand not on the order of going, but go at once."

ON THE ARCHITECTURE OF INDIA.

SIX centuries before the Shepherds of Bethlehem had their attention rivetted, and their souls charmed, by the melodious cadences of angelic voices ushering in a new and glorious era, there lived in the North of India one Sakya Sinha, better known to us and the modern world as Buddha the Sage: royal blood coursed through his veins: he was the son of a king, and could look back on a long array of princely ancestors; but another now sat on the throne of his forefathers: a usurper ruled the empire which for more than a century of generations had been governed by members of his house and lineage. Leaving the scenes of his childhood and the palace of his sire, he became a preacher of religion and morality; the combiner, if not the originator, of that form of worship and class of doctrine which we recognise as Buddhism.

The dynasty of which Buddha was a member may have included many great and illustrious monarchs: it may have seen a glorious zenith; but its highest greatness, its fullest power, its utmost splendour was witnessed at its decay. Sakya the ascetic, though not swaying the sceptre, and wearing the crown of his fathers, was nevertheless a king, and one of far mightier power than any of his race. His predecessors on the throne of Ayodhya* reigned only during the brief period of their own mortality; but he being dead, yet commandeth allegiance: they governed the temporal concerns of their subjects: he, at this very moment, holds in subjection more than 300 millions of human spirits. India, the stage on which he acted, the place in which he lived, preached, prayed, and died, has, it is true, ceased to reverence his name and obey his commandments, after having honoured him with most enthusiastic adoration for nearly a thousand years; but China, Birmah, Siam, and Thibet, still afford him a spiritual dominion of larger extent than that held by any existing religion, true or false, pagan or Christian.

I have said thus much respecting the birth and religion of Buddha, because I thought that a paper on the Architecture of India could not be better introduced than by a slight sketch of the being for whose worship, and under the influence of whose doings and sayings the most interesting and antique specimens of Indian Architecture were formed.

It would be as unnecessary as it is impossible for me to enter into any thing like minute analysis of the principles acted upon by the ancient Indian artists in their architectural productions, or to attempt an exact description of the numberless forms and details found scattered throughout their various works: my endeavour, therefore, will be to give as clear, comprehensive, and concise a view of the subject as practicable. In order to carry out the intention, I propose to divide the Architectural Remains into classes, marking as we proceed their distinctive features and characteristics; but before doing so, I wish to make a few general collective remarks.

There is no country that can compete with India in the novelty, variety, and number of its antiquities. Greece can only boast of more chaste and purer genius in the works of its ancient architects and sculptors. It has the Parthenon—a building unrivalled in excellence of design, correctness of proportion, beauty of sculpture, and sublimity of aspect. Rome, too, can with justice lay claim to an unsurpassed richness, gorgeousness, and withal a grandeur in the structures erected in the days of her power, while yet she could style herself the mistress of the world. What in magnitude and majestic columniation can match the Coliseum? and what has there ever been equal in magnificence her splendid Therma? Yet, notwithstanding all this, in neither of the classic lands can we find the like amount of original variety as we see displayed in the remains of Indian art; and the same may, I think, be said with respect to numerousness. I know Pausanias informs us that in Greece every village had its temple; but in Bishop Heber's Journal I read, that in parts of India temples were considered indispensable appendages to great men's houses; and another writer says of Southern India, that he is not aware of any region on the face of the globe in which there is such a display of edifices erected for religious purposes.

I would next refer to the age of these monuments. Very extravagant and exceedingly erroneous ideas have prevailed respecting this point. Many European antiquaries have enshrined them in an antiquity far exceeding that of the architectural remains of any other country, and some Trans-Himalayan chronologers have travelled back as far in search of their date, as actually to lose themselves amid the shadows of a past more ancient than creation. Age is ever venerable, and invariably meets with veneration. If you can but view a building through a long vista of past time, you are sure to see it clad in a more interesting and picturesque garb, than if it be but of yesterday, and possess but the clearly defined form of youth and newness. Indian architecture has been deprived of much of its importance by losing its long-recognised claim to primeval antiquity,—a claim which modern investigation and research have proved to be completely at variance with truth.

Fergusson, a recent traveller, to whom we owe the greatest part of our real knowledge of the works of Indian art, says, that it is an indisputable fact, that the earliest remains belong to the reign of Asoka, and must therefore be subsequent to the year 250 B.C. though Dr. Francis Buchannan considers that part of the temple at Gaya, the ancient Buddhist metropolis, may be dated back as far as the lifetime of Buddha himself, or between the years 498 and 543 B.C. Even this latter opinion modernizes the temples of India by some hundreds, and in the case of oriental chronology by thousands of years: doubtless, the appearance of these works helped to bewilder and deceive chronologers. Indian travellers must in their calculation, invariably remember the nature of the climate, which, as Heber tells us, soon causes buildings to assume all the venerable tokens of old age.

The last general remarks I have to lay before you, relate to the similarities which some have traced, or rather attempted to trace between the architecture of India and that of other countries. The most prevalent and common notions are those in which Egyptian and Persian art figure as its offspring. The temples of Luxor and Karnak are, say some, plainly shadowed forth in the choultries of Southern

* "This great and prosperous city, built by Manu himself, the lord of men, was twelve yojanas (nine miles) in length, and three yojanas in breadth, stored with all conveniences. The streets and lanes were admirably disposed, and the high roads were well sprinkled with water. It was adorned with arched gateways and beautiful ranges of shops: it was fortified with numerous defences and warlike machines, and inhabited by all sorts of skilful artists."—*The Ramayana.*

India, and the form and ornamentation of Persepolitan buildings readily discernible in the outline and detail of Indian temples. Taking these ideas as correct, the children are older than their alleged parent, for Egypt had ceased to be a kingdom ere the first of India's monuments existed, and Persepolis was built upwards of ten centuries before the oldest Indian structure. Others have asserted in direct contradiction to the opinions just referred to, that India borrowed from Egypt and Persia, taking the buildings of these nations as models and examples. This, though much more feasible, will not stand careful examination, for the styles are so vastly dissimilar in respect to massiveness, and contain so many individual peculiarities, that you are compelled to conclude against all idea of their likeness. Fergusson, who speaks from what with his own eyes he has seen, states that the architecture of Java is decided Hindoo. He likewise notices a resemblance between the temple of Solomon at Jerusalem and the temples of Southern India,—between the tees and gateways of Buddhistic dagobas, and the pagodas and pailoos or triumphal arches of China, as also between the tombs found in India and those of Lycia. The same author imagines our Stone Henge to be a Buddhist monument, assigning as one reason, the fact that the Buddha of the East is the Woden of the Scandinavians,—that Woden who gives a name to one of the days of our week. Finally, we have Tite fancying he can discern a strong family likeness between the old buildings of India and the recently discovered remains of Mexican art; though Catherwood, who brought these to light, far from coinciding with this opinion, agrees with Fergusson that there is no resemblance at all between the styles of the two countries, except in their being rude and exuberantly ornamentative.

We will now leave that which is general and enter more minutely into our subject, with the remark, that in the architecture of India there are seen three separate and distinct modes of construction, the peculiarity and difference of each of which may be readily discerned by their appellations: thus, we have caves, monoliths, and structures,—the first named, being caverns cut into the rocks; the second, rocks hewn into temples, statues, tombs, and shrines; while the last, of course, denotes edifices raised in the ordinary manner by the piling up of material. Taking up each of these divisions *seriatim*, we first come to the caves which were the work of Buddha's disciples. The earliest of these were probably nothing more than natural caverns fashioned according to the wants and ideas of the Buddhist priest or monk who fixed upon them for his abode, and they generally consisted of a small porch or verandah through which you passed into a square cell forming the parlour, study, kitchen, and bedroom of its inmate: this was the germ of those more extensive excavations called Viharas or monasteries, where you see the small cell and porch of the individual hermit expanded into a large and noble verandah, and a grand pillared hall, having its sides surrounded by the numerous cells of a brotherhood of monks, an assemblage of Buddhistic priests. To the majority of these viharas there was attached a chaitya or church; and indeed we frequently find these Indian monasteries in the possession of more than one church, while, on the other hand, there are sometimes as many as six viharas to one chaitya. These cave temples bear a very striking resemblance, as regards internal form and arrangement, to our own old Norman churches, having, like them, the threefold division into nave and aisles, as also what answers to the apsidal termination. Over the nave is a waggon vault,* the aisles being formed with a flat roof. In the most ancient of these viharas and chaityas, we find but little ornament and no idolatrous statues, whereas, in the later and, to us perhaps, the most interesting specimens, we see greater magnificence and artistic display, the walls and roofs being covered with frescoes, the pillars sculptured, and the interiors having a multitudinous array of statues, which, by-the-bye, are not confined to images of Buddha himself, but represent his followers of both sexes. These male and female saints were regarded with about the same amount of superstitious awe and foolish veneration as is accorded to the saints of some Christian calendars. Many of the statues of Buddha possess giant-like dimensions: one at Candi is no less than thirty-six feet high, and painted in most glaring colours. Two other statues at the same place are also very large, and formed out of fine gold. In a temple at Dhubay, the image of the god has diamond eyes. Better to fix on your minds the appearance of these artificial caverns, we will together visit the most perfect and remarkable one now remaining. After walking about two-thirds of the way up a high hill in the vicinity of Carli, you find yourself at the foot of a precipice, the natural rocky face of which has been visited by artists' hands, and fashioned into a noble archway, containing a double storied portico of ornamented pillars, entering through which, you are within the vestibule, and see on either side alto relievo representations of colossal elephants, while immediately in front is a screen adorned with a richly sculptured row of male and female figures: beyond this lies the temple itself, a noble cavern of above 100 feet in length by nearly 46 in width, divided into a triple form, by two rows of columns, the capitals of which woo your attentive notice by their singularly unique character, each one consisting of a large cap or bell finely carved, surrounded by two elephants with entwined trunks, and carrying two male and one female figure: over head is the waggon-arched ceiling of the nave, decorated with wooden ribs: in the distance is the apsis with its colonnade, and having in its centre the daghopa or altar, crowned by the sacred solid dome, around which the priests of Buddha officiated, and to which the votaries were wont to throng, presenting oblations and rich offerings. Around this Buddhist church at Carli are the many cells of a monastery, arranged in two stories, and connected by means of galleries and steps.

Pass we on now to another class of architectural monuments. The Monolithic. These are, as before hinted, imitations of structural works cut out of single masses of rock, and their appearance is, as may well be supposed, most striking and peculiar. They are situated in deep excavations, oftimes exceedingly extensive, possessing much grandeur, and largely adorned with statues, mythological sculpture, and suchlike art embellishments. I think I cannot better illustrate these rock monuments than by giving you a description of an example, which by all accounts is the most beautiful and the most extraordinary: it possesses the attractive name of Kylas or Paradise, and is found at Ellora, a little rural village near to the ancient Hindoo capital of Deoghi or Tagara, in the province of Aurungabad, and it was probably formed in the tenth century, A.C. Being considerably below the level of the ground, you may be in close proximity to it without knowing that you are in the neighbourhood of such a relic of the genius of by-gone artists. You are perhaps walking over the hill little expecting to see its rocky centre bared and its material fashioned into temple and shrine, gigantic sculpture, and richly carved pillar. The very suddenness with which this scene bursts on you greatly enhances its effect and increases its interest. It appears a superhuman work,—a work which the old Roman pantheist would have ascribed to the power of the gods: verily it is like a mighty alto relievo, the produce of chisels handled by giant artists, a scene of fairy land, a truly picturesque and piquant picture. You stand on the brink of an excavation of more than 400 feet in length, by 247 in breadth, and in one place having a depth of above 100 feet. On looking down from this the highest point you see beneath you in panoramic array, a most curious and pleasing congregation of rock-cut temples, porticos, and statues. Rearing itself upwards from the centre, stands the great temple with its sanctuary and gigantic statue surrounded by balconies, from whence, in days of yore, there issued the solemn music of the religious festival. Outside this sacred inner court, and on a higher level, is the noted chapel of Nandi, and the grand entrance pavilion; while in one place your eye rests on the strikingly grotesque outline of a portico, upheld—not by columns but—by the massive sculptured effigies of immense tigers and enormous elephants; and in another it is greeted with a view of the varied form of finely carved columns and aspiring obelisks; the whole excavated group being enclosed by a cloister, the square pillars supporting which are covered with mythological subjects, and romantically approached by the aid of two bridges connected with some flights of steps: over all is spread a thick vestment of decorative sculpture, and other architectonic enrichment, united with a vast diversity of form, and an almost endless variety of detail; the *tout ensemble* compelling you not only to admire but to wonder,—to wonder that Ancient India should have possessed artists with sufficient inventive boldness to conceive, and with persevering energy enough to carry out so marvellous a work as the transformation of a rocky hill into architectural monuments. Truly art then gained a noble victory over nature, conquering its elements, and moulding them into forms according to its own pleasure, and suited to its purpose. Kylas remains to us as a magnificent, a worthy, and an instructive material expression of the artistic genius which dwelt in Eastern architects of olden time.

Leaving this Indian Paradise, we proceed to notice the last of the three classes into which we have divided the architecture of India. The two modes of art development already illustrated are peculiar to India: caves and monoliths are not general: they are not to be found in other countries, and they consequently are novel. It is not so with structures: they are common, and universally spread over the whole world, civilised and uncivilised; ranging from the hut composed of commonest wood, to the palace built of finest and most costly marble. Notwithstanding, however, the structural remains of India cannot compete with the other two classes in regard to novelty of construction and uniqueness of effect, yet are they excessively interesting, and well deserving of attentive consideration.

The oldest Indian structures now in existence are undoubtedly the pillars or obelisks, and the Dagobas. The first mentioned served as records of the offerings and gifts made to temples, some of them dating back as far as the reign of Asoka, or 240 B.C. The Dagobas* were circular buildings of one or more stories, having a domical roof with a tee supporting an umbrella, or in some cases umbrellas of state. They were erected to receive relics, which formed amongst the disciples of Buddha early objects of reverence and worship. Around these relic shrines there stood a row of rectangular and frequently sculptured columns. In this colonnade was placed the gateway or gateways of peculiar construction, being in fact tremendous trilithons, and exhibiting a top-heavy appearance. To gain some idea of the usual nature of the relics so carefully enshrined, let us visit the pagoda of Rangoon: it is of four stories, and "contains the staff of one Buddha, the water-dipper of a second, the bathing garment of a third, and eight hairs from the head of the last." In the small and completely darkened sanctuary of a temple at Candy, there is to be seen the principal and most precious Buddhist relic now remaining—it is no less than the left eye-tooth of Buddha himself. The priest describing it says, "Its dazzling whiteness shames the purest ivory, its form surpasses all excellence hitherto beheld, and its size that of the largest ox tooth." This glorious relic is inclosed in several boxes, some of pure gold; the outer one of silver gilt adorned with numerous gems, and fastened with three locks. Till lately our Government acted as its custodians; but Lord Torrington returned the keys with great solemnity to the native prince.

The most important and prominent structures in India are of course those raised for the ex-

* Although the Indians very frequently employed the arched form, they were entirely unacquainted with the constructive arch.

* A view of a Dagoba, from a drawing on the spot, by the writer of this paper, will be found in vol. ix., p. 107.

press purposes of worship. They exist in very large numbers, and vary from the comparative simplicity of the Jain churches, erected in early times, to the profuse ornamentalism and overcrowded decoration of the later and more modern Hindoo buildings.

The Buddhists do not seem to have been great builders. Excavation was their forte. There are, however, one or two temples of theirs at Candy very rich in gold and silver work, chiefly to be noted for the awful nature of many of the frescoes which adorn them: thus on the outer wall of one temple there are illustrations of the eternal punishment of the wicked,—"Human figures half or whole roasted, torn with red hot pincers, or swallowing fire, crushed between rocks, and the flesh cut piecemeal from the bodies," &c.

The Jains appear to have been a sect of Buddhistic seceders, represented by one writer as the deists of Hindoostan, while by another they are denominated a gloomy tribe of atheistical ascetics. Whatever may have been their religious tenets, they undeniably possessed a large amount of artistic taste, several of their edifices being endued with much grandeur and purity of effect. The temple built by them in the city of Commulmere, and dedicated to the Supreme God, is so chaste in its character and classic in its proportions as to lead to the idea of its being the production of Grecian artists. Even their village temples were elegant and beautiful. Bishop Hêber, describing the temple at the small hamlet of Calingera, says, "It was entered by a projecting portico which led to an open vestibule covered by a dome: numerous domes and pyramids surmounting as many small chapels or sanctuaries, adorned the roof, and along its several parts ran elegantly carved verandahs, supported by slender columns." There are likewise four magnificent marble temples to be found at the little village of Deliwara. They stand half way up a mountain, the summit of which is 5,000 feet above the level of the plains. The richest of these temples has not a single inch of surface undecorated. It possesses many colonnades, fifty-six niches, each filled with a pure white marble statue of the god, and no less than 133 domes all of a different pattern.

By far the largest division of structural temples are those of the Hindoos in Southern India, most commonly found on the banks of some sacred stream, and almost universally known under the name of pagodas; this term pagoda simply signifying an idol temple, and being derived from the words *pout*, an idol, and *ghada*, a temple. They consist of several distinct parts: first, there is the Vimana or temple itself, having a square basement of one or more stories ornamented with pilasters, niches, and statues: rising from this is a pyramid, oftimes of several floors crowned by a dome, and having its sides entirely covered by sculptured miniatures of temples and figures. Inside the basement is a cubical chamber, containing the chief object of worship. To the Vimana there is appended a mantapa, or porch, which has a flat roof, and is either formed with columns or with solid walls.

The gopura, or gateway, is like the Vimana, except that in plan it is oblong instead of square, this of course necessitating an alteration in the shape of the pyramid, as also in the circular top. The great doorway is made through its smallest diameter. Most temples have more than one gopura: very many have seven or eight; while there are some with no less than twenty. Besides being numerous, these gopuras are commonly of great size, far surpassing in bulk the temple itself: for instance, the principal one at Seringham "is a nearly solid mass of granite, 150 feet wide by 100 feet in depth, pierced by a gateway of 21 feet 6 inches clear width, and about 45 feet clear in height." Had it been finished, the summit of its pyramid would have been 300 feet above the ground. The inclosure, or court, forms another noticeable feature of the Hindoo temple. In the plainest and most simple examples, it exists singly, but all the more extensive buildings have a plurality of courts. Three is the number considered requisite to render a temple complete, but some have no less than five or six; and the pagoda at Seringham already referred to has seven separate square inclosures, one within another, the walls of which are 25 feet high by 4 feet in thickness, while the outermost square is little less than 4 miles in circumference. Of course, the number of courts regulates to a great extent the number of gopuras. If a temple have one court, it has but one gopura, that one being placed at the front of the structure: if it have a second court outside the first, this has two gopuras, one in front, the other at the back: when the third court is added, then, in the centre of each of its four walls, there is a gateway: this makes a total of seven gopuras to three courts.

Another usual appendage to these structures is the Choultry, a large nuptial hall, usually erected in the outer court: on account of the extraordinary number of columns with which their interiors are furnished, these choultries have gained the name of "halls of a thousand columns." In many places there is exactly this number arranged in ten rows, with 100 columns in each: some of the halls, however, have only 600 or 700 pillars: the lowest number used is 500. Even this last-named quantity must present an imposing scene, especially when you consider that not two of the pillared host are alike in detail, form, and ornament, and when you likewise bear in remembrance that they are all carved out of hard blocks of granite.

Besides Vimana, Mantappa, Gopuras, Enclosures, and Choultry, there were frequently included within the precinct of a Hindoo Pagoda, various minor temples and shrines, together with houses for the attendant priests, porticoes, cloisters, and grand flights of steps; the whole collection presenting a right gorgeous spectacle, having an extravagant variety of outline and a profuse display of curiously-wrought sculptures and arabesques.

So much for the general appearance, disposition, and characteristics, of these structures. I will now, in order to give you a yet clearer idea of their extent and grandeur, attempt to depict one of the largest and most ancient. It is that of Chillambaram; situate near to Porto Novo, on the Coromandel coast. It is not simply one temple but a cluster of buildings contained in a rectangular space of above 28 acres in extent, enclosed by walls 7 feet in thickness, and having an altitude of 30 feet. In the centre of each of the four sides there is a gopura of great magnitude, and commanding height, with a lavishly ornamented and many-storied pyramid. Within the outer boundary, the space is divided into four other courts, each one exhibiting something worthy of inspection. The central one is surrounded by a colonnade approached by a flight of steps, and contains the sacred bath for the ablutions of the worshippers; the principal object being, of course, the grand temple, with its portico of many columns, its square vestibule, its sanctuary or Temple of Joy and Eternity, with a massive granite chain hanging in festoons around it, and the altar all shrouded in a dim religious light, either in direct imitation of the gloomy recesses of the cavern churches, or else for the purpose of increasing the superstitious awe of the worshipping multitude; physical darkness frequently, in such cases, producing intellectual and moral blindness. In another court you find a group of three temples, encompassed by a cloister and lighted by lamps; while in a third, which also has a cloister, you see a noble portico, the stone roof of which is borne aloft by a hundred tall columns. In the last court, there is a temple entered through a goodly range of pillars, and having a platform with a statue of a sacred bull. Lamps constantly shed their light over the many sculptures, arabesques, and frescoes of the interior. In a different part of the same court, there is a piscina or bath, dignified by the very enticing but deluding name of "nerta chabei," or "stream of eternal joy."

JOHN NICHOLLS.

CITY ANTIQUITIES.—We are forced to postpone our notice of the visit to some of the London antiquities on Wednesday last.

PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.

THE first of the annual series of lectures by the professor of architecture was delivered on Thursday, the 8th inst. The lecturer observed that on former occasions he had adopted different modes of treating the subject; dwelling sometimes on the history of architecture, at other times on its theory; and again upon the works of those authors who had chiefly illustrated it. On the present occasion he proposed to advert especially to the syllabus and programme laid down in the laws of the Academy for the guidance of the architectural professor. These lectures (and their limitation to the small number of six in the year he much regretted), were devoted to the theory of architecture as a fine art; and the fact of their institution was a matter of satisfaction to the professor, no less than to the students, because no duty could be more becoming in the veteran than to offer to the students the fruits of his study and experience, nor could anything be more profitable to the latter than such means of instruction, if diligently and gratefully accepted. The progress of all art depended on the transmission of its principles from the elder to the younger of its devotees; and in the arduous and difficult profession of architecture, the means of artistic education should be more especially appreciated. The duties and responsibilities of the architect were so heavy and so multifarious, as almost to fill the student with alarm. In practice the opportunities for exercising artistic qualifications were very rare. Members of this profession were of necessity "architects and surveyors;" giving nominal precedence to the nobler branch; but their practice often made them rather "surveyors and architects." If, then, they were chiefly engaged in questions, of price and valuation, in arbitrationse and the management of estates, it was thg more necessary to embrace such animatine studies as the annual lectures of the Academy were intended to afford. The student might be led by the prejudices of his master, and the fashion of his day, to the exclusive study of Gothic or of Grecian art, or of the works of this or that master; and by the fluctuation of fashion, all his hopes of honour might be destroyed; but in these lectures he was enabled to become acquainted with all masters and all schools—ancient as well as modern. In the pressure of actual practice, all study of the theory of art would sink beneath the expediency of the moment; and without the means thus afforded him in youth, the student might be in danger of becoming sceptical of the theoretical and philosophical groundwork of his art, and be even led to discard altogether what he had hoped would form the happiness of his life. Happy was it, therefore, that an institution like the Royal Academy existed, to assert the dignity of art, and the value of history and example; and to exhibit the works and opinions of great masters to all who were disposed to profit by them.

After an earnest appeal to the students to avail themselves of the opportunities afforded only in youth to acquire those artistic qualifications which the cares and anxieties of maturer life utterly excluded, yet by which alone they could hope to achieve honour and reputation, the learned Professor proceeded to observe that, in considering the difficulties of his annual task, he never failed to refer with satisfaction to the syllabus of the Academy lectures. The routine there laid down reflected the highest honour on its authors. In that programme were visible the energy and correctness which distinguished the writings as well as the works of Reynolds; the sagacity and learning of Dr. Johnson, who was, no doubt, much consulted in the formation of the Royal Academy; the perseverance and modesty of Chambers; and the rectitude of George III., of happy memory. Obscured by the attacks of a licentious press, the venerable character of that sovereign had never been sufficiently appreciated; nor had the merit due to him in founding that Academy, and in otherwise fostering the arts, been ever properly acknowledged.

The laws of the Academy directed that the architectural professor should deliver an annual series of lectures, calculated, first, to form the taste of the students; secondly, to instruct them in the architectural laws and principles of different kingdoms; thirdly, to point out the beauties and defects of the most celebrated productions; fourthly, to lead them to an unprejudiced study of the best books on the art; and, fifthly, to encourage a critical examination of architectural structures. These objects were as excellent as they were comprehensive; and, in reference to the first, it should be remembered that the Academy professed only to teach architecture as a fine art True, it could never be forgotten that architecture was a mathematical and mechanical science, demanding a degree of technical knowledge which must be learnt elsewhere. In the Royal Academy it was associated with painting and with sculpture, and the duty of its professor was to indicate those laws of harmony, of form, and proportion, which constituted the sublime and beautiful of the profession as an art. That department, however, furnished an ample field for a single professor. The elevated qualities he had to inculcate might be difficult of definition; and a right sense of them could be only granted in a higher degree to susceptible and delicately constituted minds. There was at the same time reason to believe that those qualities of taste—those *æsthetics*, as they had been happily termed—were to a great extent capable of definition; and that through precept and example they might be realised and appreciated by understandings less refined. Genius was the gift of nature alone; but, adopting the definition of taste, as a higher degree of wisdom, accompanied by an uncommon sense of fitness and propriety, goodness and beauty, much might be done to impart it by judicious instruction. In the works of nature the greatest beauty was always found united with the greatest wisdom, completeness, strength, and capacity; and this it was which had made the beautiful and the good synonymous. This conviction was therefore the first and most essential step in the search after the theory of the beautiful in architecture, and must lead to its foundation on the sure and solid basis of sound sense and cultivated judgment. These qualities must be the groundwork of every successful architectural design; whilst every work must present peculiar circumstances arising out of the site, materials, and other incidents of the case. The next rule of theory would be the harmony of lines, their contrast, variety, and, above all, proportions; and in this the student would be guided by the analogy of nature's works, in which the laws of beauty are constant and unvaried. By these he would be elevated above any attachment to particular styles, and be taught to look upon the works of nature as the only true source of the beautiful. The term "the Great Architect of the Universe," was by no means an idle phrase, but had an obvious meaning to every observer.

Adverting to the second head of the programme, he might observe that these natural principles were constant also in all countries and schools, and in all periods of history. The aspirations, sentiments, and feelings of men were the same among the earliest sons of Adam as at the present moment; and whilst materials and the manner of converting them into use were ever varying with the discoveries daily made, and the progress of the building art, yet its artistic and æsthetic principles—or theory—had ever remained the same. A thousand years hence, architecture may have become prodigiously powerful, and works may be produced to which the Menai bridge may be as a trifle; but it might be safely considered that the theory of the art would be the same, and that the principles which governed the Egyptians and the Greeks would be expounded and enforced in the lectures of the future professors of New Zealand or Sierra Leone. National prejudices there ever had been and ever would be. The Greeks regarded as barbarous many forms which the Egyptians considered beautiful; the architects of Normandy condemned our English forefathers; and whilst the French stamp us as almost incapable of design, we seldom attach much excellence to works which we regard as absolutely French in taste. These were modifications arising from local and national circumstances, but the great principles of art were universal, and the true sources of the sublime and beautiful might be traced alike in the works of every age and every land.

This remark led to the third branch of the subject,—the beauties and defects of celebrated buildings. The study of these was indeed the confirmation of theory, and must lead to that knowledge of form and combination which makes the accomplished architect. The importance of this confirmation of theory was admitted by every practical architect. No man invented an order, or a series of mouldings. These he accepts from the greatest and most reputed masters who have preceded him: he stores designs, books, and portfolios, and prides himself, like the lawyer, on his precedents and authorities. Absolute invention he never proposes to himself for a moment; but by an enlarged study of history and examples, he is enabled to detect the petty prejudices of schools, to emancipate himself from the trammels of nationality and fashion, and to regard the works of all times and countries as subject to his use, so far as they may be conformable to strength, convenience, and beauty.

Adverting to the study of books, the lecturer urged upon the students the necessity of a complete familiarity with the theories of the great masters, and especially with the works of Vitruvius. With these materials they would be qualified to enter upon the fifth branch of the subject,—a critical examination of actual structures. In all the fine arts, and especially in architecture, criticism was most essential, because success was only to be obtained by the continual exercise of sound judgment. And this criticism was not that peevish and malicious detraction exhibited by envy and self love, but a real mental effort and exertion, by which the honey might be extracted alike from the daisy and from the lily, though in different degrees. To feel beauty, sense, and wisdom was one thing, but it was another to understand the logic and the grammar of it. In the one case the observer bent to the majesty of truth and grace, perhaps without accounting for the impression; but if its rules and causes were made clear by a habit of candid criticism, the reason was no less convinced than the instinct; and the passing influence became a moral conviction and an intimate persuasion. The cant terms "good," "bad," and others equally unscholarlike and superficial, should be discarded from such criticism, and the student should endeavour to define the grounds of his approval, whether arising from order, fitness, design, material, form, or only from association. He would thus discover the secret of the master's success, and acquire a sound and ready judgment, which would be the consummation of all his studies.

In concluding his lecture Professor Cockerell contended that in his artistic studies the young architect was bound to put implicit faith, or, at all events, a large measure of faith in the works and reputations which are countenanced by the approbation of ages. Though they knew not the positive merit of Callimachus or Vitruvius, of Palladio or Vignola, they were bound in good faith to accept them as authorities. And the same rule would apply to living masters; for they might be sure that the works of a master in high repute might always be studied with advantage. Though probably not perfect, his productions would display some peculiar merit, which they might appropriate to themselves; and no time could be more profitably spent than in the study of them. They were bound to conclude, he would repeat, that the successive approbation of past ages could not be wrong. He had himself found it desirable to introduce features sanctioned by authority, even though he was not entirely persuaded of their sufficiency; and he always found that he had done so with advantage. He would say, therefore, to the architectural student, "Compare the best examples with the passing fashion which disturbs your judgment: emancipate yourself from the rage of fashion, the cant of schools, and the sottishness and rottenness of sectarian prejudices." The important science of sound criticism, unhappily, was now in singular abeyance. Scientific discoveries occupied ingenious minds, and extended the hopes of all mankind to regions yet untrodden. So it would needs be in every age; and it was difficult to withstand the stream of utilitarianism. Architecture must derive gigantic powers from the discoveries of science, but in the meantime the enormities of taste were likely to be most disastrous to the enduring reputation of the age. There was, indeed, a danger of falling into a Babylonian confusion, and doubting altogether the existence of theory; and more than ever, therefore, it behoved all lovers of the art to canvass that theory, and to fix it by every means that could be well and fairly applied to it.

NOTES OF AN ARCHITECT IN SPAIN.*

CALATAYUD is a Moorish name, and has a Moorish look: its buildings are ruinous and decaying; beaten by the winter's storm, and scaled by the summer sun. There is some of that brick-worked ornament peculiar to Spain here, called "Ajaraca," especially good at the Dominican convent. This town is more attractive to the painter than the architect. We passed hurriedly through Guadalajara, and had only time to see the exterior of the Mendoza's palace. It is of a mixed Arabic and Plateresque character, covered with ornament, in burnt clay and altogether very theatrical and picturesque. The interior is well worth seeing, according to Ford, and the town would repay a short visit. From hence to Madrid we traversed one immense, flat plain, with slight ascents at times. It becomes more and more desolate as you approach the city, and in the distance you see the snow-capped mountains (in July). Madrid lies in a hollow, on this vast table land, and its situation on a large scale resembles somewhat that of Rome; but here the likeness ends; for inside are nothing but broad and clean—'tis true—but most uninteresting streets; no antiquities, no churches, or palaces of any architectural merit. The Prado, a fine public walk or Alameda, with many fountains of mediocre design and execution, but elaborately worked and effective. Here, however, is situated the national picture-gallery, rich in treasures of art, such as the wealth and power of a Charles the Fifth could alone amass. The old portion of the city contains nothing more remarkable than a bad population. There are some Churrigueresque† doorways dotted about, much admired by the Madrilenians, but in the vilest Rococo taste: indeed a city less interesting to the architect could hardly be found. About 25 miles from Madrid lies the Escurial, on the spurs of the Guadarrama mountains, immense, massive, and bald: it has more the appearance of a vast prison than of a palace. So many false ideas are held of this celebrated building, that it is worth a short description, and for that reason only. It is formed on the plan of a gridiron, from being dedicated to a local saint (Lorenzo) who so suffered martyrdom: the courts with their strings of building form the bars, the handle forms the royal residence, and four towers at the corners, the feet. Our modern symbolists must surely delight in this, to me, rather *outré* idea: the whole, according to Ford, forms a rectangular parallelogram, 744 feet from north to south, and 580 feet from east to west. This immense mass of work is almost devoid of ornament, and its only really fine feature is the chapel, a Greek cross, of the severest Palladian, by Herrera, the best artist in pure Italian that Spain has produced. It is impressive and noble, but errs on the side of simplicity, the spandrils and dome being plain, flat masonry, nor can I at all agree with the indiscriminate praise lavished on it.

The Royal "Pantheon," or place of sepul-

* See Vol. IX. p. 734.

† Churriguera, Architect, A.D. 1725, a name synonymous with every thing vile in our art: he formed a school, alas, and did much harm.

ture is a cold, underground place, very dark and full of shelves, on which are placed the coffins gilded and worked in a Louis Seize style: their effect is neither awful nor interesting, at least to those whose sentiment is dulled by tawdry fancy work—cold, dampness, and unpleasant odours: some of the numerous courts are not bad, and the general effect of the palace, from the heights above, with its angle turrets, centre cupola and entrance, is imposing and in good keeping with the dreary sterility of its site. The construction generally is that of simple repose: except the palace, there is nothing to tempt the traveller, and I was well satisfied after a day's observation, nor feel any desire to revisit it. I may add that the many frescoes here are very indifferent and utterly unsuited to the character of the building, being of the gaudiest colouring and the most confused composition.

The Toledo bridge, 385 feet long by 36 feet wide, is a florid, rather picturesque viaduct in abominable taste. Passing this you quickly enter the vast plain again, for Madrid has no suburbs: here, however, it is cultivated, and continues so through Castile and La Mancha to the Andalusian mountains. In La Mancha this vast table land takes its most remarkable form, stretching out in every direction; an immense flat prairie, covered then with ripe grain, few villages, and far between, no walls or hedges. There was nothing on the road to interest an architect, the chief features being dwelling-places cut in the rock—warm, they say in winter and cool in summer,—poverty, deformity, and desolation. To the stranger all this route offers much food for reflection. At last, after three days and two nights' fatiguing travel, we passed the grand defile of Jaen, and were refreshed with a sight of the splendid vega or plain of Andalusia, the distant city of Granada, and the still more distant Snowy mountains. It must be owned that Spain is the land of the unexpected: nothing can be more sudden than the change from La Mancha to Andalusia—from desolation to fertility—from abject poverty to jaunty dandyism—from oppressive solitude to the liveliness of a large city, and above all from the blank brick outside of the Alhambra walls, to the dream-like richness of the interior. I was, indeed, overpowered with delight: it more nearly approaches one's idea of a fairy-built palace than anything I ever saw. The fountains, the shoals of gold and silver fish, the sweet myrtle hedges, the fresh breeze, the bright sky, the inimitable courts—all combine to realise the most poetic fancy: here is nothing barbarous, but only proofs of the most refined and delicate taste, and of the highest artistic skill. One may well be excused for a little enthusiasm,—it is *so* beautiful, so novel, and so cool,—no slight charm in a hot, torrid mid-day. The beauty of the building consists, not only in its rich ornament, profuse and varied, but in its admirable adaptation to its purpose, and that harmony of Art with Nature, which the ancient Romans, as far as one can judge from Pompeii, had no idea of. In Pompeii we see no gardens, and miserable, cockney little fountains. The paintings are coarse—often disgusting, and the ornaments, though graceful at times, generally thin and straggling. Here, on the contrary, are the most delicious gardens and cooling fountains: the ornament is always good, generally beautiful, and often of such delicacy, compactness, and grace, that Raffaelle, in his best efforts, falls far short of it. The complicity of its mathematical forms delights the eye, and gives that exquisite pleasure in the perception of order in seeming confusion, of "concord in discord," such as the most intricate pieces of concerted music afford. It is, indeed, a triumph of art, ingenuity, and good taste, of which its bare exterior would give one no idea; and well has Ford remarked, that "the interior voluptuousness and splendour was masked, like the glittering spar in a coarse pebble."

The work generally is in stucco and wood, and all the ornament, contrary to Gothic use, seems applied. The stucco work is on brick walls, and about an inch and a half thick in all: it is fastened often to the wall with wooden pegs. The ornament itself is about half an inch deep, leaving thus an inch thickness of solid stucco. They were not particular about its face being perfectly flat, so that this thickness is sometimes more or less. Not unfrequently it is studded with raised flowers or geometric figures, but this not often, and never very projecting. The pattern on this stucco work stood out in white or gold, and the cuttings or channels formed a ground of blue or red. The plaster itself is hard, and close of texture, falls to the ground from any height without easily breaking, and takes a polish like marble. What are its ingredients? The honeycomb pendentive work is of plaster, generally. The ceilings in this style are certainly the most beautiful and extraordinary works of art one can imagine. Large cave-like hollows at times are worked in the domes, rendering them still more strange and fanciful: how this great weight is supported appears a mystery to me. No Gothic vaulting is so wonderful as this: it looks like a beautifully-worked and coloured stalactite grotto.

Alhambra means simply *the red*—probably from the deep rich red of the soil on which it is built. It was commenced in A.D. 1248, and finished about A.D. 1314. You enter, first, the Court of Myrtles, and nothing can be more surprising and delightful than the change from utter barrenness outside to such splendour within: it is like a noble soul in a plain man. The principal features of this court and others are the graceful colonnades.

The vestibule to the Hall of Ambassadors and the Hall itself are the most perfect for colour, though even here it requires a second look, and it may be remarked that both here and at the Generalife (another palace) the effect is totally independent of applied colour. The hall itself is a square room, with a honeycomb cornice and a domed roof: the walls are covered with effective, yet most delicate stucco work. The intricacy of the mosaic dado here is admirable: the roof is very dark, with large circles and stars of a subdued silvery white. The Court of Lions is surpassingly beautiful—light, not weak,—and in excellent taste: the projecting portions are square on plan, honeycombed out at angles, to receive a dark wooden circular dome. The Hall of the Two Sisters, the Queen's Room beyond, and the Hall of the Abencerrages opposite defy word painting: their roofs—the finest existing examples of honeycomb work—are truly wonderful, and are noble monuments of Arabic talent, manual skill, and geometric thought.

In this style, doors and windows are externally very plain, and this is the case generally with all exteriors, it is said, in order not to attract that bugbear of orientals and southerns—the evil eye. Mouldings throughout are very flat. Cornices are sometimes used externally, and are of a Byzantine character. The walls are, however, sometimes enriched a little, and are topped with projecting eaves, overshadowing a loggia of small, arched openings. The ornament and character appear to have no very fixed rules: here is the rule of good taste. Profuse ornament is by no means necessary: it may, as in other styles, be judiciously applied; and the architecture for modern use is capable of being assimilated to Byzantine. Columns with the super-imposed arch form one principal feature: in all the mouldings and real *architectural* features there is generally too much sameness: this may be altered, never forgetting the character of the style, however. Curves form its first principle, and I cannot help fancying that the crescent may have had some connection with this, since, though never actually introduced, as far as I have remarked, still the arches, the mouldings, and particularly the leaf foliage, contain something of its form. The outline of the brackets is generally weak and bad, nor do I like their being often double with the intermediate space filled in with honeycomb work. The cavetto, bead, and fillet, are the most usual mouldings, but never very prominent: bosses are constantly used, and form an important feature in all ornament. The round arch, pointed, and horseshoe or crescent are used apparently at will: small half-engaged columns supporting honeycomb work, and the interspaces filled up with letters and foliage, is a common wall decoration, but all the ornament may be applied when and where the artist judges most effective. The soffits of arches are generally filled in with complicated fretwork or foliage: when very wide, geometrical compartments, including writing, foliage, shields, and bosses, are common. The curve which enters so largely into leaf ornament is never continuous, but is characterised by sudden breaks and twists: this applies also to geometrical patterns, as in the tile work: this should never be lost sight of in designing, otherwise the work will become straggling, and one great charm of Arabic ornament is its compactness: indeed the excellent disposal of these constant stoppings best show the taste and talent of the decorator. Profuse ornament is by no means indispensable to the charm of Arabic architecture: its proportions are generally perfect, and this, as far as I could judge, rather from the practised and judicious eye of the architect than from any fixed rule. There is a court-yard of a private house in Granada, very good and little decorated, an architrave to arch in door, a sculptured cap to spring from, and bosses alone in spandrils. Sometimes in frets and mosaics there are centre pieces of a bit of foliage, a scrap of writing, or a shield: flat arches are often used with plain channelled voussoirs and worked key-stone: if the arch stones are ornamented then the channels are broader and ornamented as well. Shells, fruit, and flowers might well be introduced more than is usual: they *are* used but sparingly. The timbers of ceiling may be shown, worked on soffit and sides and supported against wall on brackets. As a man deprived of one sense becomes more acute in another, so the Moor, forbidden painting and sculpture, became more refined and perceptive in decoration, and applied to it all those feelings of grace and fancy which among other races is expended in various artistic studies. Architecture was the only art of the Moor: to him painting and sculpture did not exist: it was his only child, and became his delight and love. By this concentration of his powers, we can appreciate the intensity of his feelings, and it seems here most natural and most touching when, on the walls, we find the building addressed as a living thing: some of the artist's own soul was infused into the lifeless mass—not lifeless after that—and he speaks to it as a being which delights in his care and is proud of its splendour. Exceedingly musical indeed are some of the voices which whisper to the enchanted stranger: listen to that of the fountain,—Am I not lovely? it says. "To look at the basin you would imagine it to be a mass of solid ice, and the water to melt from it; yet it is impossible to say which of the two is really flowing. Seest thou not how the water from above flows on the surface, notwithstanding the current underneath strives to oppose its progress; like a lover, whose eyes are pregnant with tears, and who suppresses them from fear of an informer?" Another voice says, "Look attentively at my beauty, and thou wilt reap the benefit of a commentary on decoration." Another sings, "Praise be to God! delicately have the fingers of the artist embroidered my robe after setting the jewels of my diadem. People compare me to the throne of a bride." These are translations taken from Ford's excellent account of the place, and much did I regret my inability to read the original inscriptions with which the building abounds. It is not strange if my note-book is exclusively devoted to this wonder of beauty; yet there are many other excellent Moorish remains in the town—private houses, bazaar, baths, bridge—and indeed if not *all* Moorish, there is a Moorish character throughout the place. Some little way beyond the Alhambra is the Generalife, a summer palace, with lovely portions remaining; a garden, the perfection of nature and art; and a view, vast and beautiful. After having spent six weeks, most profitably and pleasantly, at the Alhambra, we set out on a mule journey to Cordova; but before going on, let me recommend the Inn de los Martires, at the Alhambra itself, as being well situated for the student, saving him a toilsome walk,

having a magnificent panoramic view over the town and plain, and being very decent: we paid five pesetas daily. It may not be amiss to state here, that for that sum you get a room and three meals a day. Our journey to Cordova was very fatiguing, as, on account of the great heat, we travelled by night only. After three nights' rough riding, more romantic than agreeable, we arrived at Cordova. The celebrated cathedral, or Mezquita, is ruined by Spanish bad taste. Finished at the close of the eighth century, it was second only to Mecca for its sanctity: now it is deserted. The few masses are lost in its labyrinth of columns. An oblong, 394 feet by 356 feet, is divided into nineteen longitudinal and twenty-nine transverse aisles by them; so you can imagine what a forest of pillars it is. These columns are contributions from various places: 115 out of the lot (about 900) came from Nismes and the south of France: others were pillaged from ancient Roman temples, &c., in Spain, and from Africa as well: some were presented. They are of divers marble, porphyry and verd antique being most common. They are unequal in size and design, and generally very dumpy. The capitals have little architectural merit, numerous as they are; and the whole building has rather a heavy than a light appearance, the double arches adding to that effect. I expected a surprise, and met with a disappointment. Strange, it certainly is, but the whole interior is so low that its vastness fails to impress one, the general height not being 40 feet.

Neither the Gothic nor the Classic additions are good. Indeed the latter are without *any* merit. Many picturesque points may, however, be gained. There is not much else in this now poor, deserted city, a noble towngate by Herrera, and the bridge excepted: this last is massive and good, most of its arches are pointed, and their effect in sharp perspective weak and cut up. In the cathedral, the chapel of Villa Viciosa, the whilome "seat of the kalif" is very beautiful. It is of a bolder, more architectural character than the Alhambra, though just as much decorated. The tile dados, or azulejos, are excellent, the light coming from above well managed, and adapted for effect, like an artist's studio: the ceiling is very fine, oblong on plan, and so divided by double timbers, thin and very deep, as to form a square in centre, the interspaces of beams being filled up with hollowed honeycomb work. The large arches, north and south, are also double, supported by massive columns. These arches are formed of large cusps, and are very bold and effective. There is more what I understand by architecture here, the mouldings too are more frequent and more defined, the ornament generally is rather heavy, but often, especially in spandrils, graceful and flowing, without being *too* fined down. The chapel opposite has a fine and remarkable octagon ceiling. In both chapels the windows are just beneath and between the timbers of roof, which are in both cases, double, deep, and ornamented.

The Chapel del Zancarron has a magnificent gateway, ornamented in the richest style of Byzantine mosaic. The roof of this chapel consists of a single slab of marble formed into a large hollow fluted shell with the curved commencement at the entrance. The brackets are often worked with animals, and lions' heads are used as supports. All the ornament here is more Byzantine in character than I have yet seen, not so graceful as at the Alhambra, but more effective, and deeply cast.

The Gothic is not good, but very picturesque, as is usually the case with all architecture in Spain, except that of Herrera, and the modern academicians. The heads and figures are roughly cut, but very expressive, and of an Albert Durer style. Many figures in costume of the period are introduced, and are very interesting. There is a sort of rustication very common in this Gothic. It consists of squares bevelled and sunk, with sometimes ornament in centre. Twisted torus mouldings are also very common, springing from bases, and losing themselves some way up in the principal shaft: not unfrequently they have capitals, but as twisted columns they are inadmissible. The doorway beneath the tower is Gothic, though of Arabic character: the arch is Moorish: the orange court is very handsome, and would be a delightful spot, but for the old orthodox beggars. Some portions of the old Moorish walls are interesting, and, with the palm and aloe, have a most Oriental look.

By diligence to Seville.—The first thing to see was the cathedral, and, without excuses, I will give my impression of it. It struck me as being of pretty good architecture in parts (interior), but generally very poor. Its date of construction is circa 1500. The immense columns are ribbed into stripes, their bases low and weak, and their capitals absurd, being so small as with difficulty to be seen: the ribbed mouldings of columns are often carried up into the groining above, and fade there—very bad effect. The vaulting of the choir is richly groined and worked, but not in over good taste: the principal effect of this interior is its height, the centre aisle being said to be 145 feet, and the good arrangement of light and shade: many parts are not only not worth study, but not even attention. The great Cinquecento, or Plateresque chapel, behind the High altar, is florid and bad,—when I say bad, I mean not in design or execution had a painter or sculptor done it—for as architecture, there is a great deal of fancy, invention, and spirit; but it is of a pictorial fantastic nature, and lacks that proportion, *beauty*, and carefulness which distinguishes the Cinquecento of Italy: to my mind, the interiors of Toledo and Burgos are vastly superior, as monuments of architecture. Some of the small exterior doors are very good, but the great whitewashed entrance is wretched. The painted windows have the reputation of being the finest in Spain, some being by Christobal Alleman (the German), A.D. 1504. Perhaps I ought to have noticed this building on account of its name, more in detail, but I have not done so, as it did not appear to me worth it.

The Giralda is so well known that I will only say it is a fine tower, very excellent, as far as the Moors' work goes, but very bad in the Christians' addition: the misproportion between the massive and rich tower, and the little, cut-up, bastardly series of lanterns above it, is strikingly bad: it may be unique, but is decidedly not a model, far from it; and still above all diminished campaniles of this kind I have ever seen, Bow Church and St. Bride's stand pre-eminent: it was built at the close of the twelfth century, but the lanterns were added in 1568.

The Lonja, or Exchange, is by Herrera (circa 1598), not much outside; like all his other works, very simple: the court is massive and handsome, but not remarkable for originality. In the Plaza San-Tomas is a remarkable brick skew arch, of Moorish workmanship. The Casa O'Lea has a very beautiful Moorish room, the ornament being in the Alhambra style, but more varied. There is a good Ajimes window, or opening, divided by a shaft, here. I would recommend the knockers of an ancient doorway at cathedral, and at Cordova, also, to those who study Saracenic work.

I only saw the outside of the Alcazar: it was just then ruined by having been repainted as a residence for the Duke of Montpensier, done in wretched taste, green and gold being lumped tastelessly about. The exterior is good, and bears a strong resemblance to parts of Venetian architecture: the side arcades have very much the same arrangement as those of the Byzantine palace, near the Rialto (on grand canal), and the windows between door and principal arch are ranged three in a row, precisely like the old Venetian palaces.

The Casa del Ayuntamiento, or town-hall, is of a rich, fanciful, Plateresque style; date on building, 1559. The principal ornaments, heads, figures, and foliage, are at least of three-quarter relief, very well and spiritedly cut: many of the Raffaelesque ornaments in pilasters, &c., are really beautiful: the niches and wreaths, too, are generally excellent: the grotesque spouts or gurgoyles of cornice have a picturesque effect; and, though against all rule, yet add decidedly to the charm of the building.* The houses are generally mere whitewash externally, and the streets are rather uninteresting to an antiquity hunter. In the museum is a rich choir, saved from some suppressed convent, and in the corridors some very good wood ceilings of square panels, with carved geometrical centres, and the joists moulded and worked.†

THE FAILURE OF WESTMINSTER AND BLACKFRIARS BRIDGES.

You have often adverted to the very unsatisfactory and unsafe condition of Westminster and Blackfriars bridges, but I am not aware that the main cause of the dilapidations so painfully evident on these once noble and costly structures has as yet been made public.

The removal of old London-bridge, with its numerous obstructive piers, and the consequent "scouring away" of the river's bed, have been elsewhere given as a reason for their present critical and sinking state, but if this supposition has truth for its basis, how happens it that neither Waterloo nor Southwark bridge—designed and erected by the late Mr. (the present Sir John) Rennie—has suffered a similar fate? It certainly appears to me, then, that other and more feasible explanations are to be found for the matter, and they would tend to show a lack of practical judgment in some who have conducted the *thirty* years' patching and repairing of the first-named bridges. What could, for instance, be more contrary to common sense—leaving scientific wisdom out of the question—than to *draw* the rows of *inner* piles which had been driven in the formation of the coffer-dams around, and close to, the piers of the bridges? Why were they not (as in the case of the erection of Waterloo and Southwark bridges) *cut* off level with the shingle bed of the Thames? Is it not palpable that by withdrawing the roots of the massive piling from the compressed strata in which they were embedded for so long a period, a foundational disturbance seriously dangerous to the immediate stability of the piers would ensue, and that time would accomplish their ruin inevitably?

J. N.

RESTORATION OF ST. ANNE'S CHURCH, LIMEHOUSE.

ST. ANNE'S, Limehouse, was burnt down, our readers may remember, on Good Friday, 1850, on which occasion we gave some particulars of the structure.‡ It was built, all know, from the designs of Nicholas Hawksmoor, between 1712 and 1724, at the cost of 38,000*l.*

It has been since restored under the fire direction of Mr. Hardwick and Mr. Morris (Messrs. W. Cubitt and Co. being the contractors), and although not finished, is open for service. The endeavour has been, as we understand, to make the interior as nearly like what it was before as possible. The roof is new, of large span, and similar in construction, we are told, to that over the great hall at the Euston Station: the old walls remain standing. Messrs. Cubitt's contract to restore the church as it was previous to the fire is 11,000*l.*, exclusive of the organ, which was built by Messrs. Gray and Davison, and cost 800*l.* The chancel window is filled with stained glass representing the Crucifixion, executed by Mr. Clutterbuck, of Stratford, at the cost of 200*l.*, which was raised by subscription. This window, by the way, is a curious defiance of perspective, and can give little pleasure to those who are forced to gaze upon it. Indeed, to tell the truth, and without meaning discredit to any of the parties concerned, we could find little to admire in the new works. The enormous circle of ornamental work in the ceiling is distressingly heavy, and as for the large flat flowers, east and west of this, we should certainly advise a subscription to effect the erasure of them.

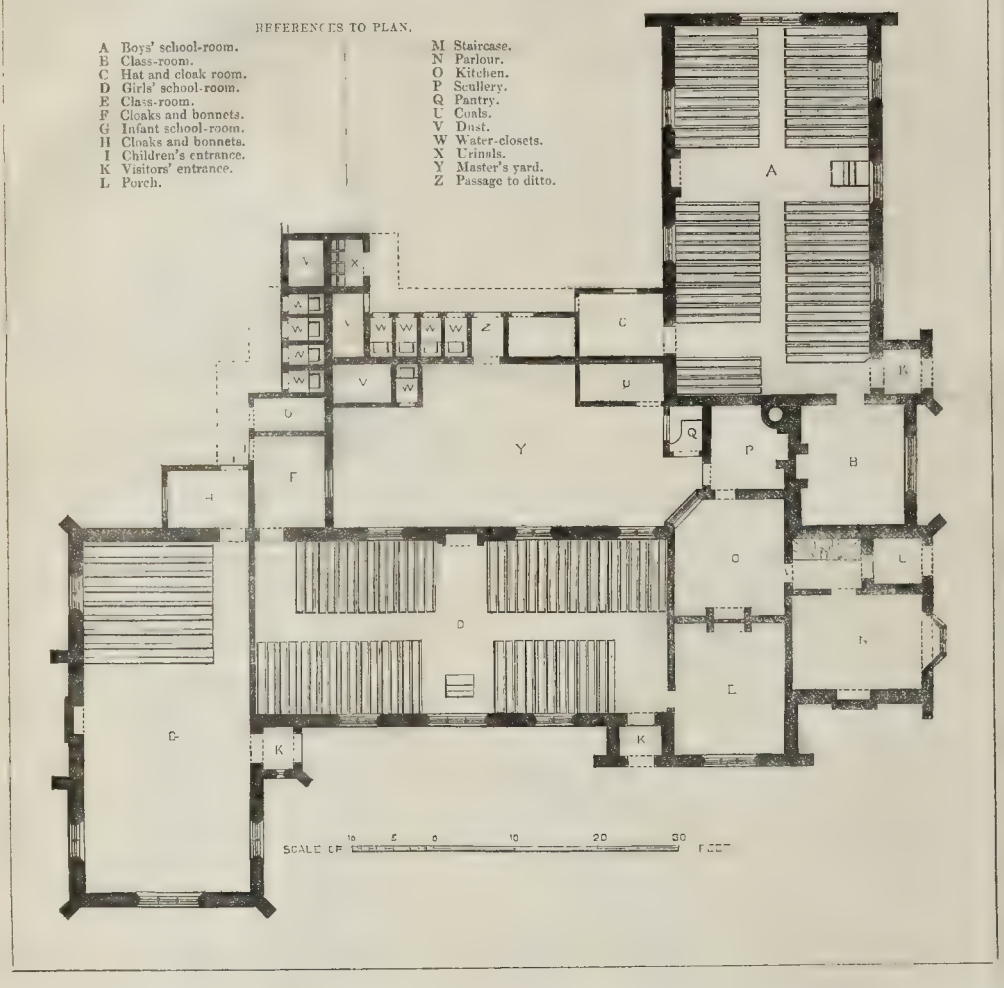
The permanent seats and other wood fittings are not yet up.

* A view and details are given in Examples of Architectural Art in Italy and Spain, by Messrs. Waring and M'Quoid.

† To be continued.

‡ See vol. viii., p. 157.

PLAN OF NATIONAL SCHOOLS, HYTHE.



NEW NATIONAL SCHOOLS, HYTHE.

WE this week give a View and Ground Plan of the New National Schools, Hythe, which were opened by the Archbishop of Canterbury, on the 2nd December last. They are a creditable addition to the groups of buildings which have been erected of late years to promote the cause of national education. The poorer class of the community have thus the opportunity of developing any innate aptitude which would else be withered or perverted through want of proper training, and the more favoured class can, in the erection of similar buildings, show at once their benevolence and their desire to remove the slur upon the ignorance of the "bold peasantry," and the toiling units who form the bulk of the population of our towns. And surely benevolence is linked to the highest wisdom, when children are furnished with weapons that never tarnish, to fight the "battle of life," instead of growing in ignorance, to live, perchance, upon the charity of the generous, to swell the list of criminals, and to leave a disgraceful mark—"his mark"—behind them.

As associated with the church, the group of buildings now under notice have somewhat of an ecclesiastical character. They are built of the Kentish rag, the stone found in the vicinity, which was presented to the committee by Mr. W. Deedes, M.P. The dressings are all of Caen stone, together with the angles, internal and external. They consist of three schools, to contain 160 boys, 160 girls, and 160 infants. To these are attached distinct class rooms and rooms for hats, cloaks, bonnets, &c.; and a master's residence, situated at the angle dividing the male from the female and infant scholars. The residence commands, in the rear, a view of all the play-grounds, and is distinguished, as a domestic residence, from the educational buildings, by the introduction of barge-boards to the gables. The gable to the left is hipped, to give prominence to the principal one, adjoining the angle of the building. As may be seen from the plan, each school is furnished with a separate porch to the visitors' entrances. In the gables of these porches are shields, with carved ribands suitably inscribed, and over them respectively monograms of the mayor, Mr. Jas. Watts; the Rev. F. T. Scott, the rector; and the date of their erection, 1851. The chimneys are built of a combination of red and white brick, and three or four courses of red brick are laid on the tops of the walls to receive the feet of the rafters. The small gablettes shown in the roofs are for the egress of the vitiated air from the schools, and provision has been made for the ingress and regulation of fresh air to all parts of the building.

The minor arrangements are shown on the plan.

The contract was taken by Messrs. Horton for 1,270*l.*: the architect was Mr. J. Messenger.

As may be perceived the roofs are covered with alternate layers of plain and ornamental tiling, crested by ornamental ridge tiles. The Arms of Hythe are introduced in a square panel over the window in the principal gable. Inside, the roofs are open to the collar, the rafters being chamfered, and, together with the boarding, stained and varnished.*

The funds for the erection of these schools sprang from the generosity of the neighbourhood, stimulated by the exertions of the Rev. F. T. Scott, the rector, aided by grant from one or two societies.

Our view is copied from a drawing by Mr. Wm. Boutcher.

* The schools are situated in a healthy position facing the Green: commodious play-grounds, with gymnasium, &c. for the boys, are likewise provided in the rear of the buildings.



VIEW OF THE NATIONAL SCHOOLS, HYTHE.—Mr. Joseph Messenger, Architect.

ON WHAT CONSTITUTES A CONSTRUCTIVE ARCH IN ARCHITECTURE.*

I WAS led to put these observations together from some remarks in a paper by Mr. Edmeston,† wherein, while suggesting how an architect should construct an iron church, if he were called upon to do so, he makes these observations—"But the thought of piers and arches to divide his nave from his aisles occurs to" the architect: "no, so far as the arches at least, he rejects that at once." And further he says,—"that the arch, the principles of which are the tendency of wedge-like *voussoirs* to bear towards a common centre, can have no place under the circumstances with which he has to deal."

I suggested at the time that, on the contrary, the arch could be applied to great advantage in such a structure, and that I considered *the arch to be the best and safest principle upon which to use cast iron;* and I instanced Southwark-bridge as a large and fine example of the application of the iron arch. Mr. Edmeston was of opinion that this was not an arch at all,—or at least that it was not upon the same principle as a stone arch, which consisted of a series of wedge-like stones called voussoirs. The same opinion, in different forms, was expressed by other members who spoke at the time; and it appeared to be pretty generally considered that if a cast-iron arch consisted of one or only a few parts, it was not then upon the principle of the arch as usually constructed in stone. I however consider such opinions to be entirely erroneous, and that the principle of the arch is precisely the same in stone and in iron, whether it be made with or without voussoirs. I will, therefore, to the best of my ability, endeavour to elucidate the principle upon which arches are usually constructed.

An arch, then, may consist of one piece as well as a hundred: it is not the joints which form an arch or the wedge-like form of the voussoirs. These alter according to the nature of the material of which the arch is to be constructed.

The principle of an arch is that of a bow, or a bent piece of wood, the abutments or supports of which are at right angles to the curve; or the feet are tied together by a tension rod or other means. Every particle of the bow, be it of wood, stone, or iron, must be in a state of compression, all tending in the direction of the curve towards the abutments: the abutments must, therefore, be at right angles to such curve. This must also be the case with every transverse joint in the arch: it must be at right angles to the curve,—that is, in the direction of the centre; and if each joint be looked at in the light of an abutment, which it really is, instead of looking at the material itself in the shape of a voussoir the principle will appear clearer. Every transverse joint acts in the manner of an abutment to carry the pressure from the crown towards the extreme abutments at the foot of the arch. Now it must be evident that if from the nature of the material used it can with propriety be made all in one piece, the pressure is carried to the abutments precisely in the same manner by the material itself, but without any transverse or butting joints. If on the contrary, in the case of an iron girder, for instance, the lower side of which consists of a segment of a circle, the supports are horizontal instead of being at right angles to the curve, we lose the principle—we have only the arch form,—but, put the abutments at the proper angle to resist pressure, and we immediately get a true arch. Every particle of the metal is in compression. In different materials the *manner* of constructing an arch may be different, but the *principle* is the same in all. Before the principle was known as in an example found at Mycenæ, called the treasury of Atreus, the courses were laid horizontally, each projecting beyond the others, with the lower angles cut away to the form of an arch. Here we lose the principle: the joints are not at right angles to the pressure. Voussoirs, properly so called, are perhaps only used in stone arches, but to show that arches may be constructed without voussoirs, I will instance a few examples. Arches may be successfully turned with three or four courses of plain tiles laid in cement, the joints of each course alternating with those below. In a somewhat similar manner arches may be formed with several thicknesses of timber bent to the curve, the butting joints of the timbers alternating with each other, and the whole bolted together at intervals. The semi-circular ribs of the transept roof of the Exhibition building, 72 feet span, were formed upon this principle by three thicknesses of timber, and external and internal rings of wrought-iron, the whole bolted together at intervals. Ribs of the same kind are also used at the King's Cross station of the Great Northern Railway, and consists of sixteen thicknesses of 1½ inch each. Another mode of forming wooden arched ribs is to place the wood side by side, and consist of two or more thicknesses, which are cut to the curve in lengths not so great as to weaken the timber, and securing these well together by bolts or keys, and observing especially to break the joints of the several thicknesses. This method is said to be the invention of Delorme, about the year 1561, and was applied to the formation of domes.

Palladio has given a design for a timber bridge, which, in the words of Gwilt, "is remarkable as having been the earliest that has come to our knowledge wherein the arrangement is in what may be called framed voussoirs, like the arch stones of a bridge, a principle in later days carried out to a great extent, and with success, in iron as well as timber bridges."

Bows, or bent pieces of wood, are sometimes applied to stiffen ordinary beams, and form a very simple manner of increasing their strength.

Cast iron arches have been used to a very great extent in roofs and bridges, and are often of a very light and elegant character. They appear, from the illustrations given of them in THE BUILDER,* to have a very excellent effect in the roof of the Diana Baths at Vienna. A roof of a similar character was put up to form a new sorting room at the Post-office, by Mr. Sydney Smirke.† This is an excellent example and possesses some peculiar features. It was erected without disturbing the ceilings of the rooms below. It consists of a semicircular arch, the feet of which are tied in by horizontal cast-iron girders, which carry the floor, and are suspended by wrought-iron rods, at two points, to the arch above. The arch is in four parts, the external form being that of the roof, which gives an increased depth where it is most wanted—at the haunches. In consequence of so much weight being brought upon the centre of the arch, cross bolts are also added at the haunches, to resist any tendency there might be to give at this point. This is an illustration of the value of metal. All tendency to thrust at the feet is counteracted by the horizontal girders, and instead of weighting the haunches, as would be obliged to be the case with stone, the parts are tied and kept in their places by cross bolts. As to its being upon the same principle as a stone arch, there can, I think, be no doubt: the three joints answer to the joints of voussoirs.

The arch of Southwark-bridge consists of six or eight ribs, placed parallel to each other, and divided into a certain number of equal parts, I do not know how many, and at each joint a transverse plate crosses the whole, and forms a complete iron framework: besides this, there are diagonal ties to prevent racking. This is precisely upon the same principle as the framed ribs in Palladio's wooden bridge.

Southwark-bridge is as large and fine an arch as has yet been erected—but we do not yet know the capabilities of cast-iron in the formation of large arches. I believe it possible to construct an arch that would bear all the weight that bridges are required to bear, and to be a perfectly firm structure, of at least a thousand feet span, or equal to striding the whole width of the river Thames in one arch.* Now this, or any thing like it, could not be attempted in stone, *principally* from the difficulty of preserving its equilibrium.

Some years ago I made working drawings for a bridge upon the same principle as Southwark—but it was only 60 feet span—the centre arch of Southwark is 250 feet—it had six ribs, and each rib was divided into five parts, therefore there were five transverse plates. After this bridge had been executed about six months or thereabouts, one winter night when the mail coach was passing over, it failed. The bolts and flanges burst asunder with a noise resembling a charge of artillery. Engineers were had down to see it (it was in the country): it was examined in every part, but no one could say why it failed. It was thought that the abutments must have given way, for nothing was to be seen the matter with the iron work. However, when it was taken down, previous to putting to rights, it was found that the contractors had cast the ribs too short. They met each other *only at the top*, and the joints were filled up with wooden plugs from below. Instead, therefore, of being supported upon the principle of the arch, that is, one continuous bow from abutment to abutment, the bridge was supported by the flanges and bolts. Now, if the contractors or their men had only known upon what principle they were working, how easily might their mistake have been remedied! A cast-iron voussoir might have been introduced to make up for the deficiency of length in the ribs, and all would have been right. In restoring the bridge the centre portion of each rib was cast a little longer than the others.

In arches of roofs or girders the thrust may be often very advantageously taken by tie bolts, upon the principle of the bow being confined by its string.

In a horizontal beam the upper portion is in compression while the lower is in tension.

In an arch, as I have already said, every particle of the material *must* be in compression.

In an inverted arch, as in the suspension bridge, the action is directly reversed: every portion of the arch is then in a state of tension. Now, as a general rule, wrought-iron should be used when required to be in a state of tension, and cast-iron when in compression.

Wrought-iron is of a fibrous nature, and, consequently, highly cohesive, and as, of course, it will also bear a great amount of compression, it appears very applicable, if it could be easily rolled into the necessary forms, for horizontal girders, in place of cast-iron.

Cast-iron being of a crystalline nature, with minute spaces between the crystals, its cohesive property is low: it should be used, therefore, only in compression, and never, to any great extent, in tension. Now, as the lower portion of a horizontal beam is always in a state of tension, it appears highly desirable that such girders should be either of rolled wrought-iron or upon the principle of the arch. If used quite horizontal, a wrought-iron bar in a groove on the under side, and bolted to flanges at each end, would be an improvement. But to use cast-iron in horizontal beams for long bearings, as is very commonly the case in the present day, trusting to the cohesive quality of the iron, appears to me a very dangerous practice, and is the cause of most of the accidents which occur in the use of this metal.

JAMES K. COLLING.

ISLINGTON. — A correspondent says, — Knowing that your publication has been the means of much improvement to our city and suburbs, I beg to call your attention to the range of some twenty or thirty houses immediately opposite and facing the Angel and Peacock inns in the High-street, Islington. I wish much to see the whole of this worn-out and crumbling block, with the dreadful hovels at the back, rased to the ground, and a neat square of good, but not large, built houses on the site: the contiguity to town would ensure good tenants.

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* Read at the ordinary meeting of the Architectural Association on Friday, Jan. 2.
† See THE BUILDER, p. 781, vol. ix.

* See vol. ix. pp. 138, 186.
† See THE BUILDER, vol. iv., p. 42.

* It was mentioned at the meeting that such a bridge had been proposed by Telford, instead of the present London bridge.

REPORTS AS TO THE KING'S-CROSS TERMINUS.

SOME exaggerated rumours as to a probable failure of part of the works at the King's-cross Station of the Great Northern Railway, have been extensively circulated, and a malicious statement, which looked like truth, was sent us for publication. Inquiry on the spot, however, leads us to believe that what is being done there is simply by way of precaution. We found that the vibration of fixing the carpentry on the ribs required the precaution of temporary shores whilst such work was in execution, and these have been fixed, which greatly lessens the tremor upon the works. Without them there was a tendency to move the green brickwork outwards. To make the piers more secure they are adding brickwork in cement, and so obtaining immediate rigidity. The piers were certainly small, considering their office, and the time of year.

ROME.—ARTISTIC INTELLIGENCE.

Examination of the Bed of the Tiber.—There can be no doubt, that the bottom of the Tiber conceals great archæological treasures, which the statue of the adoring lad of the Berlin museum, dragged thither, amply proves. Hence, therefore, the exploring of the Tiber has been always matter of considerable speculation, to be accomplished even by dragging-machines, which method, however, could not have been but injurious to delicate art-works. Others projected digging for the Roman river a temporary new bed, and to lay thus the old one dry for research and excavation. The recent discovery of the diving-bell, by which a person may remain for hours at the bottom of water, has again resuscitated this idea. An offer, not merely speculative and monetary, has been made to the Roman Government, according to which the half of the antiquities found should belong to the enterpriser, and the other to the public collections of Rome. The secretary of state, however, adds another stipulation, by which the existing privilege of prohibiting the exportation of art-works of great value is to be revived.

Latest Excavations.—The secretary of state, M. Jacobini, assisted by the architect Canina, is engaged in ordering large excavations in and near Rome. Besides the large works on the Via Appia, where many interesting researches are in progress, the Forum Romanum also is matter of thorough examination. The pavement of the Basilica Julia has been so far uncovered, that the plan of this edifice lies now clear before the eyes of the modern beholder.. Its longitudinal front was turned towards the Forum, and consisted of five naves, of which, however, only the foundations of the pillars have remained intact. The next research will be proceeded with in the direction of the three columns (now called the temple of Castor), which lie very close to the walls of the Basilica Julia.—As the best preserved front of the Coliseum is only divided by one street from the adjacent vineyards, which rise there towards the Viminal hills, but which obstruct any view of the huge edifice, it is intended to level these declivities, and to gain thus an open space, which would also afford a view of the Termes of Titus, and the other buildings connected therewith. Some of the houses which have hitherto covered the apsis of the basilica of Constantine are to be demolished, by which alone the plan and intention of this gorgeous building will become conspicuous. It is also spoken of that Rome shall once more obtain a public park, as some vineyards at the foot of the Palatine, where formerly some unsuccessful excavations had been carried on by the Emperor of Russia, have been appropriated for that use. Since the shadowy *allées* on the Forum have disappeared, Rome has lost one of its principal natural ornaments.

Archæological Society of Rome.—On the 13th of December, this society celebrated its usual commemoration of Winckelmann. The sculptor, E. Wolff, of Berlin, who had been engaged for some time past in the modelling of a bust of the great German art-philosopher, had of late obtained from M. Visconti the original portrait of Winckelmann, drawn by Angelica Kaufmann, after life, according to which M. Wolff has improved his work. A copy of the bust thus perfected was presented to the society on this occasion. Amongst the works exhibited were those of the architect, M. Canina, on the parts of Etruria belonging to the Papal dominions, printed by order of Government, and now concluded by the second volume. Of the same author, the second part of the "Ancient Buildings of Rome," was lying on the table, both of costly execution. The first six sheets of an accurate survey of the Via Appia were further shown: it extends from Rome to Aricia, and has been made at the expense of the society by the architect and engraver, M. Rosa. Vice-President Dr. Kestner opened the meeting with a commemoration of the works and exertions of Winckelmann, after which Dr. Brown spoke on polychrome architecture with reference to the work of Hittorff. The Prussian Ambassador, M. Usedom, regaled the members of the society and a number of guests and foreign *savans* and artists with a tasteful dinner, at which toasts for the mutual co-operation of Italian and German art were brought out.

NOTES IN THE PROVINCES.

Bishop Stortford. — All Saints Church, Hockerill, was consecrated on Wednesday in week before last. It is in the early English style. The ground plan comprises a nave 61 ft. long by 26 ft. wide, of four bays, with a south aisle 17 ft. wide; a south porch; a chancel 29 ft. by 20 ft., with a vestry on the north side. The pillars of the nave are clustered with moulded bases, caps, and arches, and the roofs are all of open timber. The chancel is fitted with four longitudinal benches. The sittings in the nave and aisle are all open, of stained deal. The church is paved with Minton's tiles. The east window is filled with stained glass, by O'Connor, and was presented to the Rev. J. Menet, the first incumbent of the church, by the congregation of St. James Birch, in the parish of Manchester, on the occasion of his leaving the curacy. The twelve apostles are represented in the three lights, and our Saviour is seated in glory, as the king of saints, in the head of the centre light. The height of the church to the ridge of the roof is 50 ft., and to the top of the bell turret, 66 ft. The materials of which the structure is built are Caen stone dressings and Kentish ragstone walls, random ranged. The church is heated with hot water by Mr. Cook, of London. Some slight decoration to the interior face of the walls is contemplated, when it is sufficiently hardened. The edifice is constructed to accommodate 500 persons, and of this number of seats, 388 are free and unappropriated. The total cost of the building, including fittings, has been about 2,500*l.* The architect is Mr. G. E. Pritchett, of Bishop Stortford; and the builder, Mr. J. L. Glasscock, of same place.

Sherborne.—The parish church, which has for a length of time been undergoing necessary repairs, is now, it is said, about to receive a full and complete restoration. A contract has been entered into for the completion of all the unfinished portion of the church down to the choir; and the commencement of the work will take place in a short time. The completed repairs and restorations are contracted for 2,000*l.*

Worcester.—It is intended, if the decorations and erection of the orchestra can be completed by that day, to open the new Music Hall in the Corn-market on the 29th of this month, by the performance of Haydn's "Seasons." The panels of the dome are coloured pink, and the mouldings fawn and white. The walls are painted green, the pilasters stone colour, the wainscot a dark red granite, and the plinth deeper in tone. The scroll work, which supplies the place of a cornice, is picked out in white upon a pink ground. The orchestra, which occupies a good deal of space at the upper end of the room, will be semi-circular, and contain five or six tiers of seats, capable of seating 150 vocalists and 35 instrumental performers. The organ is not yet built. At the other end—over the entrance screen—dark crimson draperies are suspended, capable of being drawn to the ceiling or let down completely over the recess, and it is believed that this will go far to remedy any acoustic defect observable in the room. The centre plate of glass in the dome has been raised so as to admit of the escape of heated air at the apex of the building through small louvre boards.

Torquay.—The ground for a new cemetery is nearly inclosed, the lodge is commenced, and the formation of the walk and laying out of the grounds are progressing.——The Taunton Local Board of Health have received a communication from the General Board, stating that local boards have no power to interfere in the formation of public cemeteries by companies.

Cardiff.—It is contemplated to erect a church at Canton, a very populous and improving suburb of Cardiff, towards which Mr. J. Homfray, has offered a site. As a clergyman has been appointed, and service is now held in a room hired for the purpose, it may be supposed that it will not be long before it is carried into effect.

Llandaff.—The second contract for the restoration of Llandaff Cathedral has just been settled, and given, without competition, to Messrs. James and Price, of Cardiff, who were the contractors for the portion already restored, namely, the presbytery. The architect is Mr. John Prichard. The nave is the part now to be restored: it is to have an open timber roof of English oak (to correspond with that already completed), covered with 8-lb. cast lead. The amount of contract is 2,300*l.* This is the fifth contract Messrs. James and Price have had without competition in a twelvemonth, which, says our informant, seems complimentary in these days.

Willenhall.—The inhabitants of this town are laudably exerting themselves to obtain a supply of water for the use of its inhabitants. An inexhaustible supply, it is stated, has been found a short distance from the town; and, by the liberality of Mr. Gittins, of Bilston, it is offered for the use of this town. At a meeting of inhabitants on 29th ult., it was resolved that a company should be formed. The capital is nearly subscribed for.

Bradford.—Several builders of this town, says the local *Observer*, having neglected to comply with the Act 3 & 4 Vict. c. 85, so far as regards the construction of their chimneys, were summoned to appear at the Borough Court. The penalty for the offence is not less than 10*l.* nor more than 50*l.* It appeared that the defendants had laboured under the impression that their plan having been passed by the Building and Improvement Committee of the Town-council, they were, in common parlance, "all right." The informant on whose evidence conviction was sought, however, after stating that the angles of the chimneys were less than 120 degrees, was asked how many degrees there were in a circle, and replied that he had never studied pneumatics, and was therefore not prepared to answer the question. His evidence was accordingly regarded as nil, and the cases dismissed; but the informant intimated that he would immediately lay fresh informations, and the magistrates declared that on sufficient evidence they were determined to enforce the law. In one of the cases, the openings or doors, not less than 6 inches square, required by the Act in such circumstances, were inserted before the houses were occupied, and this the magistrates regarded as sufficient.

Edinburgh.—The new free church at the Nether Bow is now assuming architectural form. The rear part is completed to the desired elevation, while the front to the main street is making rapid progress. It stands immediately to the east of and supports John Knox's house, and will likely bear the name of the great reformer.——A tenement of houses for the working classes has just been roofed in at the Pleasance, to the south of Arthur-street. They are said to contain all the conveniences desiderated in these dwellings, according to the plans and execution of Mr. Beattie.——Notwithstanding that the Police Act recently obtained contains ample powers for carrying

the drainage of the city into effect, yet, from the complicated nature of the subject, involving excavations of great extent and expense, the commissioners, after beginning with vigour, have stopped short. The reason is said to be that numerous private drains are found to exist, unknown to the authorities, and which even the best survey that can be made will very imperfectly discover and point out. An attempt, however, is being made to produce such a survey.

Glasgow.—The *Constitutional*, a local paper, says that "A large proportion even of the newly-constructed houses in Glasgow are very unfit for human residence, and are a direct cause of the diseases which are constantly sweeping families to the grave."

Selkirk.—Arrangements are in contemplation to erect baths in this town.

THE OPERATIVE ENGINEERS AND THEIR EMPLOYERS.

The masters, we regret to say, have already carried out their threat to dismiss their workmen in the mass, retaining, of course, apprentices and foremen, the former, it is said, as one to four of the workmen. It seems to be expected, however, that the employers will gradually or shortly recall all who have not cast their lot with the workmen's association. It is surely a hard case for the non unionists. We are quite aware that in many cases there remained no work for certain workmen to do, unless those unavoidably dismissed were at once replaced by others; but the dismissal, it appears, has been wholesale, no attempt being made to palliate its results by at least retaining some portion of the thousands employed. We earnestly trust that some understanding will be come to speedily on the whole question.

That this is a contest, however, such as has never, perhaps, occurred till now between employer and employed, and that it is a most formidable one, and likely to shake the long-standing relations between them, if not to form a critical link between these and some new and as yet untried "organization" of industry, whether successfully or not, we are led strongly to suspect. The body of operatives now at war with the heretofore dispensers of their livelihoods ranks very high in general ability and intelligence. They appear to be in extensive combination. Moreover, they are evidently strongly imbued with ideas of industrial association. Much, as we have already said, *may* be done by industrial association under proper management, but the operative engineers will find the whole of their 25,000*l.* a paltry amount to begin with *under present circumstances*, although, under peaceable relations with their present capitalist-employers, much might have been done with such a sum. Should they borrow they may not find their new capitalists much less "masters" or much more profitable ones than their old.

In respect to the demand of the men that piece-work should be abolished, it is an instructive circumstance that the Parisian associations of workmen, who began with equal wages and profits, were at length obliged to graduate these according to the labour and skill of the operatives. What our own workmen, therefore, demand of their employers, namely, equal wages to the slow and the quick, the skilful and the unskilful, is what workmen in association will not and cannot give to one another. As to over-time, we earnestly wish that it could be abolished, but is not the demand that it be so, as a general rule, suicidal? Over-work can only be abolished, consistently with prosperity to the trade itself, if even then, by the institution of a distinct class of supernumerary workmen, to be called in only on occasions of temporary hurry and necessity, and cast off or paid off on the instant that the occasion ceases. Would such a class of workmen submit to vicissitudes like these without competing with their fellows for permanent employment and pulling down wages in the attempt? There may be a superabundance of workmen even now, but if there be, this is certainly but a lame way of meeting the difficulty. Better far that any such superabundance be drafted off, or even induced, by despair, to draft themselves off, into other businesses or other countries, than that such a system should become normal to the prejudice of all. When men are out of work entirely, and cease to hope for it in one business, they turn to some other; but a system of perpetual increase and decrease, taking on and paying off, by the week or by the day, according to the fluctuating amount of orders on hand, would assuredly tempt more than now are tempted to persist in hoping for permanent employment so long as they could have even a chance of temporary.

NOTES ON A MURAL PAINTING OF THE THIRTEENTH CENTURY, FOUND IN THE SAINTE-CHAPELLE, PARIS.

The careful researches to which the execution of the works of restoration in the Sainte-Chapelle has given rise, led to the discovery of an Annunciation painted on the bare wall, in a false window, on the north side of the lower chapel. This painting of the thirteenth century is in the most perfect preservation: it was evidently conceived *in imitation of a painted window*, the style and arrangements of which are copied in it. Being covered with plaster, it was easily restored by careful cleaning.

The Minister of Public Works having instructed M. Dumas and M. Persoz to examine this painting, and to communicate to him the nature of the colours used in its execution, as well as that of the excipients which had served for fixing them; they have done so; and in *The Chemist* of this month* the substance of their report is given:—

A fat and resinous *stucco*, analogous to that which MM. Thenard and D'Arcet have devised, to place hot and bare on the cupola of the Pantheon, had been similarly applied on the stone which bears the picture in the Sainte-Chapelle.

On this resinous stucco, the painter of the Sainte-Chapelle had fixed gold leaf, which formed the under part of almost the whole of the painting.

But these gold leaves are not applied immediately on the resinous stucco. As a medium, and perhaps with the view of heightening or sustaining the colour of the gold, an orange red cement was made use of, formed probably of emplastrum diapalmæ, malaxated in the soft state with minium.

When powdered, it gave out a rancid odour, exactly resembling that of emplastrum diapalmæ. On being heated, it turned black: treated by hydrochloric acid and alcohol, chloride of lead was obtained, and a mixture of fatty acids which presented the properties of a mixture of oleïc and margaric acids.

100 parts of this cement contain:—

Protoxide of lead	81
Fatty acids..	19
	100

It is probable that the whites were obtained with a preparation of lead analogous to, or even identical with, white lead.

The blues of the draperies were obtained with phosphate of iron, and probably with the native phosphate of iron.

This second blue was obtained by means of ultramarine.

The bright red, by means of which the halo surrounding the head of the angel is painted, consists of vermillion. Indeed, distilled with lime, it furnished metallic mercury. Under the painting, it was easy to recognise the presence of the leaves of gold, which were found almost every where, but which, in this particular case, seem to contribute to giving still more brilliancy to the vermillion tint.

All the browns and yellows were painted with ochres. The greens result from the admixture of these same ochres with the phosphate of iron.

The rose and violet colours had for an excipient, carbonate of lime mixed with a small quantity of phosphate of lime.

According to all appearance, the rose powder employed in the thirteenth century, was obtained by pulverising the rose shells of the *tellina fragilis*, which are found on our shores in great abundance, and the violet colour from portions of the shells of the *neretina fluviatilis*.

Their preservation will attract attention; more especially since attempts have recently been made, and not without success, to prepare, with the remains of sea-shells, whites which, with regard to brilliancy and pearly lustre, had a real value, and which, in their resistance to the action of sulphuretted gases, left nothing to be desired.

They conjecture that after the application of the gold, the artist covered the place to be painted with a mordant of drying oil, and that this oil, being brought to a suitable consistence, was sprinkled with the colour in dry powder, by a process analogous to that which is used for making velvet papers.

The pulverulent colours were fixed on places in a similar manner in the manufacture of painted glass, in that of certain kinds of pottery, whether the colour were projected in powder on the place covered with varnish, or deposited on it dry with a badger.

Moreover, the whole picture had received a final preparation. A stucco of wax, which covers the whole of the painting, and whose effect is still very happy, gives to the colours a slightly brilliant appearance at the same time that it must have contributed to preserve them from the action of humidity.

* Piper, Paternoster-row.

BELLS OF LONDON AND ITS NEIGHBOURHOOD.

I have just read, with much interest, "J. D. P.'s" letter on the bells of London and its neighbourhood, and add the following peals, not included in his list:—

Peals of Eight.—West Ham, Essex; Enfield, Hillingdon, Harrow, Edgeware, Twickenham, Staines, Middlesex; Mortlake, Surrey.

Peals of Six.—Hammersmith, St. Paul, 1680; Chiswick, Old; New Brentford; Ealing; Acton; West Drayton, 1710; Edmonton; Harmondsworth; Hayes; Hendon; Hornsey; Pinner; Great Stanmore; Stoke Newington; Edmonton; Tottenham; Willesden; Clapham, St. Mary (R. C.); Bermondsey Old Church; Wimbledon, Surrey; Finchley, Middlesex.

A new peal of eight (tenor, 23 cwt.) by Taylor, of Loughborough, has just been placed in Trinity Church, by Vauxhall-bridge. Also, a peal of five, tenor 11 cwt., is now putting up in the new church at Ealing; these are by Mears.

Aliquis.

WHAT STATISTICS TEACH AS TO EDUCATION.

A HINT TO WORKMEN.

We translate the following judicious remark from a German contemporary.*

It seems not to be yet quite understood, far less practised by parents of the *humbler* classes of society, that by giving instruction to their offspring, they not only place a capital at their disposal, available for their whole lives, but endow them with *a charm*, which will *protect* them against evil of all sorts. If we classify the wages of the working classes into *three* categories, say in the proportion of one, two, three; viz., the weekly wages of seven, fifteen, or thirty, and so on, francs (or shillings), the *first*, least, category is earned by people who can, generally speaking, neither read nor write. It is not, that we intend to say, that a person thus deficient may not be (by way of exception) still very good, intelligent—nay, wise; but it seems that these conventional abilities entail on their owners a certain ability for better managing the conventionalities of present social life, &c. Thus, reading and writing acquired (in early youth), lead to the acquirement of a higher sort of occupation, trade, or otherwise; *because* there can be no doubt that the proportions of general intellect are the *same* as those of wages. So, *the* journeyman or labourer, *the* bricklayer and stonecutter—in fine, *the* overseer and clerk, have wages in the proportion of one, two, three; while also their mental acquirements

* "A New Year's Gift to the Working Men of Europe."

are surely bearing the same ratio. By parents enjoining, and in some cases forcing, upon their children the thorough acquisition of reading and writing, they exclude them, as it were, from the *first* (the meanest) category, and place them, at least, in the *second*. It is an averred statistical fact, as it is surely a curious psychological problem, that amongst 1,000 journeymen and labourers, there is not one who can read and write well. The social remedy in this case is obvious: if parents do not wish their children to belong to (remain in) the meanest category of wages, they must push them out of the meanest category of abilities.—The charming (!) influence of reading and writing is yet to be adverted to. If the grand total of *all* transgressors of the law in Germany, France, and England, be taken into account, of 1,000 such, upwards of 400 cannot *read*; 400 can somewhat read; 100 can somewhat read and write; while there are only 50 who *can* read and write; and only 50 of the more or less educated classes of society. This, surely, is a very striking and telling proportion, informing parents that instruction, as it is a guarantee for higher wages—viz., a guarantee of a human-worthy material life—is also, at the same time, a *preventive* against the consequences of ignorance;—brutality, sensuality, meanness, schemingness, untrustworthiness, dishonesty, &c. But, as man has "not to live on bread alone," the *arts* also claim their share in the beatification (*Beglückung*) of man; the arts, placed now in most countries of Europe within the reach of the poorest. Persons practising any of the branches of art (either professionally or for amusement) are amongst the rarest cases of law-transgressors, while the statistics of the English penal colonies prove that never yet any *musician* has been convicted and sent thither. How things ultimately will be managed, when *all* men will be more or less educated, lies beyond the limits of statistical science, being one of retrospective, not *prospective*, facts. Still, if every one does his *duty* now, any after-time, being only the sequel of the now, can also be but a cheering one.

THE METROPOLITAN BUILDINGS ACT.

AN article headed "Revision of Buildings Act" having appeared in your journal of the 3rd inst., in which the district of Greenwich is mentioned, I am induced, as the surveyor, to complain of the unfair inference that may be drawn, not by builders in the locality, but by persons who do not know the party who has put his name to the article alluded to. The scale of fees imposed by the Act does not average certainly 10s. per cent., and, in Mr. Parker's "own experience," he has met with the most liberal treatment at my hands. It is true I have had to summon him for what he calls "praiseworthy endeavours to evade the Act," before a magistrate, after warnings repeated, and he has been fined treble fees and a penalty; and although the infliction of the fees was well deserved, I forgave it; the magistrate publicly remarking that my conduct had been "characterised by gentlemanlike forbearance." The observations on the defective construction of the Buildings Act are now, I believe, patent, and its harassing and perplexing duties on those who have to administer officially to its provisions severely felt. It is certainly doing, in its present form, far more mischief than good, setting people by the ears, and holding up present day legislation to ridicule. There is no reason why a Buildings Act should not be simple: the present Act is certainly the very reverse of simplicity. Returns, notices, arbitrations, requisitions, awards, hearings, certificates, summonses before magistrates, committals, appeals to Quarter Sessions, and proceedings in the Queen's Bench—four different Courts of Justice to go to, if any one were indiscreet enough to desire it. I am certain an Act could be constructed that would be at once simple, useful, and practical. The district surveyor should be paid by salary like other officials, the principle involved in fees has long ago been condemned in our courts and in all public offices as vexatious and partial.

The present useless complication and returns produced by the system of fees would perfectly astonish any clear-minded man of business, and the remedy here is also more simple than may be imagined. I do, indeed, Mr. Editor, hope most sincerely, in common justice to every party concerned, that the present Metropolitan Buildings Act may not exist over another session to disgrace the legislation of the country, and I still more anxiously hope that the Bill printed last session may not be its successor. I should indeed pity the public and the district surveyors if it were. What is wanted is, public utility consulted on rational, simple principles, and I pledge myself, after many years of active experience, this can be easily and satisfactorily worked out, and I think the public and the builders should not rest till it is.

ROBERT PALMER BROWNE,
District Surveyor of Greenwich.

P.S.—Parliament is shortly to meet, and the public should exert themselves.

ARTISTIC AND RAILWAY MEMS. IN IRELAND.

A NEW building intended for the purposes of the harbour commissioners, is about to be erected at Belfast, and the improvement committee of the corporation have approved of a design submitted by their engineer, and have ordered the immediate preparation of the necessary plans, &c., to facilitate the commencement of the works. The style of architecture chosen is Italian. In the centre of the principal front towards the dock, which will be 102 feet in length, is a clock-tower and belfry about 80 feet high. The entrance elevation will face Corporation-square, and have a frontage of 51 feet. Another front will command a view of the "graving docks." A basement story of fire-proof construction is intended to contain the requisite stores for harbour purposes. On the principal floor will be a large apartment to be used as a general room, and the secretary's and accountant's offices will communicate therewith. A private entrance to engineer's offices, and the various workshops, is provided on the same floor, also apartments for accommodation of police superintendent and other officers. A spacious staircase ascends to first floor, which is occupied by a large room for meetings of rate-payers, electors, &c., also by a board-room and several committee-rooms. The site for the proposed building is on the west side of Clarendon dock, formerly known as Ritchie's ship-yard.

A new Roman Catholic church is about to be erected at Ardfert, Tralee: the foundations and portion of the superstructure were in progress, but, owing to a deficiency of funds, the works were suspended. A subscription list has been set on foot.

A new barrack entrance and block-house are in course of erection at Athlone. A large number of loop-holes on an improved principle command the approaches. The contract has been taken by Messrs. Cockburn and Son, of Dublin, and the expenditure on the works will exceed 4,000*l*.

A new church is to be erected at Derryvullan, County Fermanagh, according to the drawings furnished by the architect to the ecclesiastical commissioners, and the primate has subscribed 135*l*. towards defraying the expenses.

The Lords of the Treasury have granted a loan of 50,000*l*. to the Londonderry and Enniskillen Railway Company for the extension of their line. The contract from Newtownstewart to Omagh will be advertised immediately.

The Great Southern and Western, and the Midland Great Western Railway Companies have made arrangements for the construction of the electric telegraph on their respective lines.

An exhibition of arts and manufactures is to take place in Cork on the 1st of May, 1852, and remain open to the 15th of July. Immediate steps for the furtherance of the design are being taken by influential parties in the city.

A line of railway, entitled the Ulster a Midland Great Western Junction, is projecte to extend from Armagh to Cavan, connecti the Ulster railway, at the former place, wi the Midland Great Western, and forming wi the Cavan junction from Mullingar a part the great line connecting the towns of Belfa and Galway. The capital is 400,000*l*.

The Royal Dublin Society purpose havi model lodging-houses established at Dubli and a paper descriptive of the general arrang ments and details of construction of tho erected at Hyde-park by his Royal Highne Prince Albert has been read at a section meeting of the society by Mr. Dunc Ferguson, architect.

The directors of the Midland Great Weste have decided upon the erection of a four story to the extensive Transatlantic Hot which is being built in connection with the terminal buildings at Galway. By this arrang ment twenty-three additional bed-rooms, tw ante-rooms, and five water-closets are pr vided. The amount of expenditure on hot will be about 12,000*l*.

The annual exhibition of the Dublin Scho of Design was opened during the Christm recess: the number of specimens far exceede those of last year, and the spacious sculptu gallery of the Royal Dublin Society w thrown open for their reception. In the arch tectural department several drawings of me were contributed. The landscapes and pain ings of flowers from nature were very nume ous, and many handsome designs for er broidery were exhibited by the fema pupils. Prizes have been liberally distribut to the students.

ELECTRO-TELEGRAPHIC PROGRESS.

IN a month or two there will be an unbrok range of telegraphic communication from Lo don to the Land's End. The wires have be completed on the Great Western Railway fro Paddington to Slough, and are being carrie to the palace at Windsor. In another wee they will be finished up to Reading, and son hundreds of men are now employed in runnin them on between Reading, Bristol, and Exete where they will unite with those already existence between Exeter and Plymouth. It also intended to establish the telegraph in co nexion with this line over the whole of Sou Wales.——Measures, it is said, are in progre for establishing the submarine telegraph cable between Dublin and Holyhead. M Jacob Brett has had an interview, it is r ported, with the Lord-Lieutenant on the su ject.——The Glasgow Exchange directo offered the Electric Telegraph Company 40 per annum (or 300*l*., with accommodation f the company, in the Exchange-buildings, equ in value to 100*l*.) for intelligence, on conditio that similar news should not be supplied any other public subscription-room in Glasgo at less than 300*l*. per annum. The Telegrap Company was ready to accept of this sum 400*l*. for their news, but they declined accede to the other part of the arrangemen The directors next made an offer of 200*l*. p annum for the news, leaving the Company u fettered as to others. This offer was also d clined. Matters, however, were subsequent arranged, and the electric news will now supplied to the Exchange.——The *Bost Chronotype* has the following allusion to Mors and his telegraph:—

"The steed call'd Lightning (say the Fates)
Is own'd in the United States:
'Twas Franklin's hand that caught the horse:
'Twas harnessed by Professor Morse."

CHESTER ARCHITECTURAL, ARCHA OLOGICAL, AND HISTORIC SOCIETY.—Th monthly meeting of this society was held o Monday week, in the City Library. D R. P. Jones was in the chair. Mr. Hicklin editor of the *Chester Courant*, delivered lecture on the "History of the Art of Prin ing," with illustrations of various kinds, in cluding two compositors and a press, at wo on "copy" by the editor, and some curiou block-work and bills collected by Mr. Cook of the *Morning Post*.

Books.

The Builders' Price Book, for 1852. By W. LAXTON, Architect.

THE new edition of Mr. Laxton's Price Book, of which there have now been twenty-nine issues, contains a large amount of indispensable information, comprising upwards of 8,000 prices, and 3,000 useful memoranda. It is necessary always to remember in referring to it, that the prices allowed are for materials and workmanship of the best description. The modifications of the Buildings Act are given.

The Dictionary of Domestic Medicine. By Dr. SPENCER THOMPSON. London, Groombridge. Part I.

THIS promises to be a very useful work. *Sanitary* information is very properly included.

Post Magazine Almanac, 1852. Pateman, Fleet-street.

THIS almanac is especially noticeable for the extent of its references to assurance companies. The number of *new* companies given is very extraordinary.

Amboglanna: Papers communicated to the Society of Antiquaries of Newcastle-on-Tyne. By H. GLASFORD POTTER, F.L.S., F.G.S., &c. 1851.

THESE papers contain an account of some interesting discoveries of gateways, &c. recently made at Birdoswald, the Amboglanna of the Romans, and the twelfth city or station on the great wall. They are illustrated by sketches, and a restoration of the Decuman-gate, which, however, we would not like to be called upon to swear to as an exact representation.

The History of the Church of England from the Revolution to the last Acts of Convocation, A.D. 1688—1717. By the Rev. WILLIAM PALIN, M.A. (Trin. Coll. Cam.), Rector of Stifford, Essex. Rivington, St. Paul's Churchyard. 1851.

EVERY student of architecture ought to make himself acquainted with the history of the church, whose edifices he may be called upon to restore or to design. The present volume is, moreover, additionally interesting to the architectural student, since it comprises the reign of that renowned builder of churches Queen Anne. The author intends, should the present volume meet with the patronage which it merits, to continue the work down to the present time, a desideratum still in ecclesiastical history.

Miscellanea.

STOKE ATHENÆUM.—The members of the Stoke Athenæum had their fifth annual *conversazione* on Tuesday in last week, when about 800 persons met, including the Duchess of Sutherland, who is the patroness of the institution, the Marchioness of Stafford, Lady Constance Gower, Earls Grosvenor and Harrowby, and other persons of note. Several hundreds were refused tickets from want of room in the town hall, where the *converzatione* was held. The chair was occupied by Mr. Smith Child, who addressed the meeting in an appropriate speech, at the close of which he contrasted the advantages and comforts of modern times with the state of things a few centuries ago. "If any evidence," said the speaker, "be asked for as a proof that man is better from acquiring knowledge, we can show man's progress, his advance in all the arts and sciences of life, and, what comes home to all, the increase of his comforts, the improvement in his physical condition, consequent upon the cultivation of his intellect. How superior is the condition of a working man of the present day, as compared not merely with that of a peasant, but with that of a noble of a few centuries ago. How many luxuries can he cheaply purchase, which the noble then could not procure at all, or only at great cost. How superior is his dwelling, in all essential comforts. How many foreign productions are enjoyed by him without a thought, which would have been wonders to the ancient noble. Above all, how is he raised in the social scale by the advancement of knowledge: the peasant's son, without any qualification, but education, mental power, and character, may raise himself to sit side by side with nobles as their honoured equal; and being duly qualified, may guide the senate, or dispense the laws. How many intellectual resources, how many opportunities for gaining knowledge does the working man now enjoy, which the illiterate noble of ancient days could neither appreciate nor obtain: books were a mystery to him, and none but written books were in existence, and only purchasable at a high price: now, thanks to printing, they are plentiful and cheap."

RAILWAY JOTTINGS.—The bridge, on the Great Northern, that crosses the Witham at Little Ponton, was discovered to have given way on Saturday week. It is high, and consists of three arches, and is built on ground on the west of the natural course of the river, a new channel for which was cut to bring it under the bridge. It is supposed the damage has been occasioned by the sinking of an abutment at the end of the bridge nearest Grantham, and it has accordingly been propped up.——The influence of railways on the value of property has been well exemplified at Preston. According to the local *Guardian*, previous to the North Union Railway Company adopting Butler-street as the entrance to the booking office for the south trains, property situate there was not of the most valuable description. Owing to the above arrangement, combined with the erection of the East Lancashire Station at the foot of Butler-street, it has rapidly increased in value, a house having been sold by auction for 600*l.* the value of which some years ago was set down at 210*l.*——The North Western and the South Eastern are at length trying experiments with carriages 40 to 44 feet in length, such as we long since urged the adoption of, especially on account of the facility they would afford for guard superintendence. That curves on railways are no obstacle to the running of these carriages has been long since proved in America. The companies have at length discovered the advantages of such carriages, mounted on two four-wheeled pivoted trucks, in place of the present ones, with their disproportionate dead weight. We trust they will at the same time look to the free transit of guards along the line of trains made up of these carriages, so as to obviate accidents, &c., of various kinds.——The railway round Paris, which is to unite all the stations, has already been begun between La Villette and La Chapelle. Although the concession of this portion to the Strasbourg Company allows a year for its completion, the contractor has engaged to finish it before the end of January.

STEAM ANTICIPATED.—"Bridges," said Friar Bacon, "unsupported by arches, can be made to span the foaming current: man shall descend to the bottom of the ocean safely breathing and treading with firm step on the golden sands never brightened by the light of day. Call but the secret powers of Sol and Luna [Heat and Cold? or Hydrogen and Oxygen?] into action, and behold a single steersman, sitting at the helm, guiding the vessel which divides the waves with greater rapidity than if she had been filled with a crew of mariners toiling at the oars. And the loaded chariot, no longer encumbered by the panting steeds, darts on its course with relentless force and rapidity. Let the pure and simple elements do thy labour: bind the eternal elements, and yoke them to the same plough." Here, says a writer in *Blackwood's Magazine*, is poetry and philosophy wound together, making a wondrous chain of prophecy.

THE ROYAL SCOTTISH SOCIETY OF ARTS held their third meeting, thirty-first session, in their Hall, George-street, Edinburgh, on Monday, 8th inst., George Lees, LL.D., president, in the chair. The first of the communications read to the society was a description, accompanied with drawings, of public baths and wash-houses, established at Hawick by Mr. John Goodfellow.

THE IRON TRADE.—It is scarcely credible that the quantity of iron made at present is said to be greater than during the great railway operations. The superfluous number of makers throughout the country are therefore yet far from being swept off either by bankruptcy or otherwise. They are gradually decreasing, however, and tripping up banking and other establishments as they tumble down themselves. The great masters, it appears, have resolved to swallow up the small at once by underselling them, as they have so usually undersold the great masters. They trust thus to "render it impossible for small capitalists to continue selling at such a reduction." The meetings of the past week are admitted by the *Times* to "have imparted a very dubious tone to the market," so much so, indeed, that the *Times* now admits that "the faith formerly placed in quarterly meetings has become questionable, and every manufacturer, except of the higher class, is careless of trade regulations as to price, and does the best he can for himself." The *Birmingham Journal* is of opinion that till the enormous overproduction is lowered, either voluntarily or of necessity, no permanent rise of prices need be looked for. Meanwhile, however, instead of blowing out furnaces, new ones are actually in course of erection!

PRECAUTION AGAINST SACRIFICE OF LIFE BY FIRE AT SEA.—How strange it is that the over-and-over recurrence of such dreadful calamities as the destruction of the *Amazon* by fire, and the awful loss of life usually consequent on them, produce still no legislative interposition to remedy or abate the evil. Still no rafts of mattresses, sofa-cushions, bolsters, pillows, squabs stuffed with cork fibre! Why should not only ships' beams and hulls, but their decks, doors, furniture, everything be framed of iron? We have seen that the material is susceptible of the most tasteful art-treatment in enamel, gilding, and inlaying. But, at least, why should not every ship carry (and be bound to do so) as many annular life-buoys—stowed on deck, say, after the manner of ledgers in a counting-house—as there are passengers and crew on board? It is high time the subject were taken up in earnest.

"STEAM SUPERSEDED."—The Swedish Chargé d'Affaires in North America, says the *Edinburgh Post*, has officially announced to his government that Captain Ericsson, the distinguished Swedish engineer, has at last succeeded in solving the problem of the caloric engine. He has already constructed two, the one of 100 horse-power, and the other of 10. The large one is charged with air in 1 minute and 45 seconds, consumes scarcely any fuel, is proof against any possibility of accident, and requires only one man to attend it. The air is drawn in and expelled again, deprived of its warmth, which remains in the "regenerator." The next time Captain Ericsson visits England, he intends doing so in a caloric steamer.

A DIFFERENCE.—Please insert the following tenders for pulling down and rebuilding the Salmon and Ball public-house, Bethnal-green-road, for Mr. J. W. Cathie. Mr. J. Harrison, architect.

Wills	£1,889
Woodward	1,720
Pickford	1,597
Starkey	1,525
Day	1,518
Livermore	1,444
Perry	1,368
Higgs and Case	1,357
Bethell	1,250

—Z. Z.

TENDERS FOR CHURCH AT RUGBY.—What say you, Mr. Editor, to these tenders for a new church at Rugby: Mr. G. G. Scott, architect?—

Beckensall, Steventon	£11,446	0
Green, Northampton	9,450	0
Godfrey and Green, Birmingham	9,348	10
Hadden and Hull, Rugby	8,445	5
Dunkley, Blisworth	8,380	0
Cooper, Derby	8,324	10
Broadbent and Hawley, Leicester	7,370	0
Ireson, Northampton	7,355	0
Hall, Nottingham	7,267	0
*Heratage, Warwick	6,566	0
Watson, Whitacre	6,052	0

* Accepted on certain conditions.

THE NEW CHURCH AT HAMPSTEAD.—We understand that on Thursday night week the vane and about 16 feet of the apex of the steeple of the new church at Hampstead was blown down, doing comparatively little injury. It appears that an iron bolt which supported the vane passed through a socket formed in the stone-work, and this displaced the stones.

TO CORRESPONDENTS.

"Concert-rooms"—Q. P. H. asks, "How much space should be allowed each individual in a concert-room," "A Young Mechanic (we are forced uniformly to decline)," "F. B.," (ditto), "F. S. S." "Z.," "H. K." "C. S." "R. R." "C. T." "E. G. G." "I. J. M." "J. R." (thanks: we shall use the sketch), "C. R. S." "H. T. E.," "J. T." "J. L." "Mr. A." "H. H." (we shall be glad to hear from him), "J. U." Woolwich (cannot say), "G. J. R." "E. P." "H. S." (there would be no difficulty in making the tube sufficiently rigid), "R. K." "O. M." "W. F. P." (the conditions would then be contradictory), "Mr. M." (we do not intend engraving view, but shall be happy to receive particulars), "J. B." Liverpool, "W. G." "S. C. D." (we have no recollection of the communications referred to. If not inserted, it was because we did not think it desirable), "H. R." (is our correspondent certain his inference follows? We have not yet referred to the Act), "H. G." "M. MacD." (send us address, that a proof may be forwarded), "Lady D." "Fidus" (the custom varies, and is not to be depended on. More generally, the point of the nails is driven towards the owner's side), "W. S." (the fault rests with the newsvendor), "C. P." (The BUILDER is to be found in the majority of reading-rooms), "E. E."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.—Instituted 1824.
FIFTH DIVISION OF PROFITS

An Extraordinary General Meeting of the Proprietors of this Society will be held at the Office, on WEDNESDAY, the 28th inst., at One o'clock precisely, for the purpose of confirming the resolutions passed at an Extraordinary General Meeting held on Thursday, the 1st inst., for the purpose of declaring a Bonus, when the persons assured have the right of time present. The report, just printed, and the new prospectus, may be had

GEO. H. PINCKARD, Secretary.

99, Great Russell-street, Bloomsbury, London,
January 13, 1852

THE SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY (by special Act of Parliament), an institution specially adapted to afford pecuniary assistance to families. It is purely Mutual Assurance Society. The whole profits are all and divided among the assured, and are of more than FIFTEEN PER CENT. No shares to any one, the sole property of a proprietary company, diverted from those who are assured and paid away to share holders. The whole profits which have already been paid to policies at the first and second Division of Profits of the Institution, and the great advantages derived by its members.

Since the Society was instituted in 1831, the additions to policies have been at the rate of two pounds per cent per annum added to the sums assured, but also on all the additions accumulated from time to time, so that the bonus of two pounds per cent. declared at 1st March, 1851 was equal to about two pounds fourteen shillings per cent. per annum on the sums originally assured by the earlier policies.

The total additions to policies made at the preceding 1st March, 1850, amounted to Four Hundred and Fifty Thousand Six Hundred and Sixty-five Pounds.

EFFECT OF ADDITIONS.

On a policy for 1,000*l.*, dated 1st March, 1831, 1,486*l.* 7*s.* 8*d.* will be payable if it become a claim during the current year, after payment of this year's premium. This is an addition of nearly 49 per cent. on the sum assured. Supposing a policy to have been effected at the age of 30, the additions, if now applied in reduction of the future premium, would reduce the premium from 25*l.* 10*s.* 10*d.* to 8*l.* 18*s.* 8*d.*, being 17*s.* 6*d.*, or seven-eighths of a pound, per cent. only on the sum assured; and even this small payment must be reduced every three years during the subsistence of the policy, and may not only ultimately be extinguished, but leave further additions to be afterwards made to the policy.

The ADDITIONS or BONUSES may, in the option of the Assured, be applied thus:—

1. They may be added to the sum payable at death;
2. They may be commuted into a present payment; or,
3. They may be applied in reduction of the future premiums.

Amount assured	£3,000
Annual Revenue	130,000
Accumulated Fund	600,000

Tables of Rates and Form of Proposal may be had (free) on application at the Society's office, 61a, Moorgate-street, City.

WILLIAM COOK, Agent.

*** Medical referees paid by the Society

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000*l.*

Trustees.

Lord Wenlock, Escrick Park.
G. L. Thompson, Esq., Sheriff Hutton Park.
Robt. Swann, Esq., York.

BANKERS.—Messrs. Swann, Clough, and Co., York.

ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100*l.*

Age next birthday.	A MALE. Whole Life Premiums			A FEMALE Whole Life Premiums			Age next birthday.	A MALE. Whole Life Premiums			A FEMALE. Whole Life Premiums		
16	1	7	6	1	8	4	46	3	11	6	3	3	2
18	1	9	3	1	10	2	50	4	4	9	4	5	3
16	1	11	3	1	8	10	53	4	11	6	4	2	6
20	1	14	4	1	11	6	56	5	4	0	4	14	0
23	1	17	0	1	13	6	60	6	6	0	5	12	6
26	2	0	3	1	16	3	64	7	4	0	6	9	6
*30	2	5	0	1	19	9	66	8	4	0	7	10	8
38	2	8	6	2	2	10	70	10	0	4	9	7	6
36	2	13	0	2	6	4	73	11	16	2	11	2	6
40	2	19	9	2	12	0	76				13	1	8
43	3	6	3	2	17	9	80				15	12	10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000*l.*, payable on his decease, for an annual payment of 22*l.* 10*s.*; and a lady of the same age can secure the same sum, for an annual payment of 19*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to

Mr. RICH. WOOD, Solicitor, 12, John street, Bedford-row, Agent for London.

BRITISH ASSURANCE COMPANY, 2, KING STREET, CHEAPSIDE.
Chairman.—SYDNEY SMIRKE, Esq., R.A.,

The rates for both Fire and Life Assurance are as low as can with safety be taken. The premiums for Life Assurance made payable to suit the convenience of the assured. Prospectuses and all particulars may be had at the head office or of any of the agents.

JOHN REDDISH, Manager.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 16, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.

Capital £500,000

This Company assures disease as well as healthy lives for sums of from 25*l.* to 5,000*l.*

The annual income is nearly 4,000*l.*

Is conducted by other Roman Catholics accepted at equitable rates.

Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.

WILLIAM HENRY ARCHER, Actuary
WILLIAM NORRIS Secretary

LIFE ASSURANCE for the WORKING-CLASSES

BRANCH OFFICE, 2, EXETER 'CHANGE, WELLINGTON-STREET NORTH opposite Waterloo Bridge, STRAND.

Open every Evening from Six till Eight o'clock.

Subscription for sickness payments of 2*d.* and upwards, and payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—

Weekly Contributions for payment of Full Weekly Allowance.

Healthy persons may become subscribers under ages as follows, and shall be—

From	to	30 years, to pay the Penny per Week.	
"	30 to 45	"	Twopence "
"	45 to 55	"	Threepence "

Collectors call at the houses of Subscribers for these weekly subscriptions.

The rate of subscription will not increase as the contributor grows in age, but the same weekly amount paid at the commencement will be continued the highest life.

Subscribers may also from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.

N.B. No communications relative to the assurance of sums from 5*l.* to 50*l.* can be attended to unless addressed to Mr. JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

UNDER THE SPECIAL PATRONAGE OF
HER MOST GRACIOUS MAJESTY THE QUEEN
AND
FIELD MARSHAL
HIS ROYAL HIGHNESS PRINCE ALBERT, K.G., K.T., K.P., G.C.B., and G.C.M.G.

THE ROYAL NAVAL, MILITARY, AND EAST-INDIA LIFE ASSURANCE SOCIETY, Established in 1837,
FOR GENERAL ASSURANCE ON LIVES, 13, Waterloo-place, London.

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Colonel Sir Frederick Smith, K.H., F.R.S., R.E., Chairman.
James Pearson, Esq., Royal Dockyards, Deptford.
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Major-Gen. Sir J. Cockburn, Bt. G.C.H.
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Capt. Sir Geo. Back, R.N., F.R.S.
Lieut.-Gen. Taylor, C.B., E.I.C.S.
Captain William Cappage, R.N.
Captain Michael Quin, R.N.

BANKERS.—Messrs. Coutts and Co., 59, Strand.

PHYSICIAN.—Sir Charles Locock, Bart., M.D., F.R.C.P., F.L.S.

COUNSEL.—J. Measure, Esq., Cecil-street, Lincoln's-inn-fields.

SOLICITOR.—Stephen Geary, Esq., 13, Suffolk-street.

ACTUARY.—John Finlaison, Esq., President of the Institute of Actuaries.

Assurances are granted on the lives of persons in every profession and station in life, and for every part of the world, with the exception of the West and South Coast of Africa and Turkey.

The Rates of Premiums are constructed upon Sound Principles with reference to every Colony, and, by payment of a moderate additional annual Premium, in case of increase of risk, persons assured in this office may change from one climate to another, without forfeiting their Policies.

Four-Fifths of the Profits are divided amongst the Assured.

The accumulated fund of the Society, on the occasion of the Second Septennial Division of Profits, in the present year (1851), have warranted the appointment of a very large Bonus.

The additions to various Policies are shown in the following examples:—

Age when Assured.	Policy effected in	Sum Assured	Total Additions in 1851	
		£.	£ s. d.	
25	1838	1,000	194 19 2	Participators in Two Septennial Divisions of Profits.
35	1838	1,000	276 10 8	
45	1838	1,000	419 0 6	
54	1838	1,000	585 18 8	
64	1838	1,000	808 1 3	
26	1844	1,000	49 12 0	Participators in One Septennial Division of Profits.
36	1844	1,000	69 4 9	
46	1844	1,000	77 13 0	
55	1844	1,000	89 12 7	
66	1844	1,000	94 19 8	

JOSEPH CARTWRIGHT BRETTELL, Secretary.

SPECIAL NOTICE TO INTENDING ASSURERS.

INTENDING LIFE ASSURERS ARE RESPECTFULLY INVITED TO COMPARE THE PRINCIPLES, RATES, AND WHOLE PROVISIONS OF THE

SCOTTISH PROVIDENT INSTITUTION WITH THOSE OF ANY EXISTING COMPANY

In this Society the whole profits are divisible among the policyholders, who are at the same time exempt from liability. It claims superiority, however, over other mutual offices in the following particulars:—

1. Premiums at early and middle ages about a fourth lower. See specimen below.*

2. A more accurate adjustment of the rates of premium to the several ages.

3. A principle in the division of the surplus more safe, equitable, and favourable to good lives.

4. Exemption from entry money.

All policies indisputable unless obtained by fraud.

* Annual Premiums for 100*l.* with Whole Profits.

Age 20	25	30	35	40	45	50	55
£1 15 8	1 18 0	2 2 1	2 6 10	2 14 8	3 3 5	4 1 7	5 1 11

* Annual Premiums for 100*l.*, with Whole Profits, payable for 21 years only.

Age 20	25	30	35	40	45	50
£2 7 10	2 10 8	2 14 6	2 19 8	3 6 4	3 14 9	4 7 2

Forms of proposal, prospectus containing full Tables, copies of the Twelfth Annual Report, and every information, will be forwarded gratis on application at the London office, 12, Moorgate-street.

GEORGE GRANT, Agent and Secretary for London.

*** Since the institution of the Society in 1837, upwards of 5,250 policies have been issued, averting Assurances amounting to upwards of Two Millions and a Quarter.

IMPERIAL LIFE INSURANCE COMPANY, 1, OLD BROAD-STREET, LONDON.
CHARLES CAVE, Esq., CHAIRMAN.
THOMAS NEWMAN HUNT, Esq., DEPUTY-CHAIRMAN.

A NEW SCALE OF PREMIUMS, by which the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 50 years.

For 21 years, or 50 per cent of the profits, are assigned to policies every fifth year; and may be applied to increase the sum insured; to an immediate payment in cash; or to the reduction and ultimate extinction of future premiums.

ONE-THIRD of the premium on Insurances of 200*l.* and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at any time, or the whole premium may be insured for the present outlay otherwise required for 1,000*l.*

LOANS.—To Proprietors will be advanced sums of 50*l.* and upwards on the security of policies effected with the Company for the whole term of life when they have not less than 4 years to run.

SHARE OF PROFITS.—The Assurances in this Company are protected by its large subscribed capital from the risk incurred by members of Mutual Societies.

ASSURANCES without participation in profits may be effected at reduced rates.

POLICIES effected before the first January, 1852, will have Five Years' Bonus assigned to them from the Profits to be declared in 1856.

PARTICIPATION IN PROFITS.

GLOBE INSURANCE, CORNHILL, and PALL MALL, LONDON.
ESTABLISHED 1803

Empowered by Special Act of Parliament.

For FIRE, LIFE, ANNUITIES, and the PURCHASE of REVERSIONS and LIFE CONTINGENCIES.

James Wm. Freshfield, Esq., F.R.S., *Chairman.*
Fowler Newsam, Esq., *Deputy-Chairman.*
George Carr Glyn, Esq., M.P., *Treasurer*

CAPITAL: ONE MILLION, Sterling, the Whole Paid up and Invested.

NEW TABLES of Life Premiums, on a just and liberal basis, have been adopted by the Directors for the Year 1852, combining the Plan of Participation with those principles of Solidity and Security which have distinguished the Company from its Establishment.

TWO SCALES of Premiums, Participating and Non-Participating.

TWO THIRDS of Profits divided as BONUS every Seven Years.

ONE-THIRD of the Premium may remain unpaid as a debt upon the Policy, and other facilities afforded to Insurers.

Assurances taken to the extent of 5,000*l.* on a single Life.

Every class of FIRE and LIFE Insurance business transacted.

PROSPECTUSES with full Tables and Reports may be had at the offices of the Company; or of any of the Agents.

By order of the Board,
WILLIAM NEWMARCH, Secretary.
January, 1852.

LIFE AND FIRE ASSURANCE FOR ALL CLASSES.

LONDON and COUNTY ASSURANCE COMPANY, Chief Office, 454, Oxford-street, London, Near the British Museum. Incorporated by Act of Parliament.

TRUSTEES.

W. C. Carbonell, Esq., Manor House, Westbourne.
S. Betteley, Esq., Tottenham.
L. Jessop, Esq., Salden House, Fenny Stratford, Bucks.

DIRECTORS.

W. Irving Hare, Esq., We tbourne Green.
Henry Nichols, Esq., Lincoln's Inn.

BANKERS.—Messrs. Jones and Bolitho, 129, Brunswick-square.

PHYSICIANS.—Dr. F. R. Manson, 33, Park-street, Grosvenor-square.

SURGEON.—W. Bowman, Esq., F.R.S., 52, Berners-street, Broadstreet.

SOLICITORS.

Richard Moss, Esq., 56, Bread-street, Cheapside.
John Tarrant, Esq., 6, Chandos-street, Berners-street.

Policies not payable and not liable to forfeiture.

Credit given for payment of premiums.

Policy duty paid by the Company.

Unhealthy lives accepted.

Commissions made, by which expenses of probate or administration are saved.

Assistance to one life for another, or parent for child.

Members of Building Societies assured for payments.

Leasehold and Church property rendered equal to Freehold and annuities granted for purchases &c.

Ordinary Fire Insurance Premium at 1*s.* 6*d.* per cent., and loss of rent and loss of profits by Fire insured against.

Agents and Medical Referees wanted.

A liberal commission allowed to all who introduce business.

Prospectuses and every information may be obtained by letter or otherwise.

By order of the Board,
W. EWTON Secretary

TO DRAUGHTSMEN AND CIVIL ENGINEERS.

H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.

These Pencils are prepared in various degrees of hardness and shades

HHHH for drawing on wood.	FF light and shading.
H for architectural use.	F for general use.
H H for engineering.	B black for shading.
H for sketching.	BB ditto ditto.
H B hard and black for drawing.	BBB ditto ditto.
M medium.	BBBB ditto ditto.

Sold by all the principal Stationers in town or country.

IMPROVEMENTS in SPEAKING PIPES.—By means of WHISHAWS REGISTERED IMPROVED TELEKOUPH NON, speaking pipes may be rendered more generally available for Public Buildings, Club Houses, Gentlemen's Mansions, City Warehouses, Offices, &c. &c. It consists of a whistle-mouthpiece of ivory, wood, or metal, with an indicator attached, by means of which, in case of two or more speaking tubes being carried into one room, the mouthpiece from which a whistle proceeds is readily ascertained. The newly-registered invention also enhances a plan to supersede the necessity of blowing into a speaking pipe when the whistle at the further end is required to be sounded.—Manufactured wholly by KEPP and COMPANY, 30, 31, and 49, Chandos-street, Charing-cross: and to be had retail of all respectable ironmongers.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 48, Parkes-street, Drury-lane. A splendid Assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually averaging 1,000, or the average of three per day. This result affords strong corroboration of a fact stated upon high authority, that no building in which timber joists are used, can be considered secure from the danger of fire; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the main-floor or roof of any kind of building will be sufficiently apparent in progress in London on this system is the new Guy's Hospital, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for private dwelling houses, offices, workhouses, &c., it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent, Mr. BARRETT, 7, Plate Fox and Barrett, 12, York-buildings, Adelphi, whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen

The Builder.

No. CCCCLXVIII.

SATURDAY, JANUARY 24, 1852.

THE antiquities of the City of London are so little known to many of its inhabitants, notwithstanding numerous published accounts of them, that we think it cannot be otherwise than useful and entertaining to follow the "British Archæological Association" in their examination of them, which they have wisely begun. Notwithstanding bad weather, they mustered strongly on the 14th, in *Barber Surgeon's Hall*, Monkwell-street, and found all the archives and curious plate of the company spread out for their examination. Many of our readers have noticed the curiously carved 17th century doorway, guarded by a projecting hood, belonging to the Hall. To remind them of it we re-insert a sketch given in one of our early volumes, where, too, there is some account of the building, and its contents.* The very names of half the streets in the city are full of information, but we are all in too much hurry to remember it. They are repeated by rote and lose their significance. Dwell for an instant, for example, on the name of the street we are in, Monkwell-street,—*monk's well*,—and it will be found to lead us to an Abbot's house, and a hermitage, the crypt of which remains and was visited on this occasion, as we shall presently have to tell;—and a very curious crypt it is. Amongst the plate on the table was the silver gilt cup and cover, with bells, presented to the company by King Henry VIII.; and we remembered what Pepys had written, 1622-3:—"To Chyrurgeons' Hall, where we had a fine dinner and good learned company, many doctors of physique, and we used with extraordinary great respect. Among other observables, we drank the King's health out of a gilt cup given by King Henry VIII. to this company, with bells hanging at it, which every man is to ring by shaking after he hath drank up the whole cup." The company sold this cup with other plate in the 17th century to build their hall, but, as Mr. Pettigrew pointed out in a paper read by him to the meeting in the court-room, it was purchased by Edward Arris (master of the company in 1651), whose portrait is in the court-room, and presented by him again to the company. They have also a handsome cup with pendant acorns, presented by Charles II.; and four ancient crowns, worn by the master and wardens on their installation. The latter, as we understand, were recovered from cobwebs and obscurity about thirty years ago, when Mr. Anthony Lyon was master.

The paper to which we have alluded was a history of the Barber-Surgeons' Company, preceded by an inquiry into the history of "Barbery and Surgery" from the earliest times. It was an exceedingly appropriate and interesting disquisition, and will doubtless be printed in full. We shall avail ourselves of it chiefly for some information respecting the building and pictures, but will first make two or three notes on the subject of which it more particularly treats. The conjunction of two such opposite functions as shaving and surgery may appear to us in the present day as a remarkable incongruity, but recourse to the records of former times enables us to perceive the reasons which led to the union, especially when we remember that the operations of both are manual. In the twelfth century the ignorance and cupidity of the monks, who chiefly practised medicine, caused the Lateran Council to forbid their attendance at the bedside of the sick other than as ministers of religion, and in 1139 to prohibit the regular clergy in like manner; the result of which canon was to throw the composition of medicines and the performance of surgical operations into the hands of the servants of the priests or others.

Charlemagne established many schools in various places where medicine was taught, and amongst the rules at that time laid down was this, that the physician could not claim his fee *when the patient died*. The first surgeon regularly appointed to attend an English monarch, so far as the reader could ascertain, was Richard de Wy, in 1360. For a long time there was a great scarcity of properly taught surgeons; but many, still acting as surgeons and barbers, came over from France, and, in 1461-2, Edward IV. granted a patent of incorporation to the company of which we have been speaking. At this time men allowed their beards to grow, and shaving was an operation of rare performance unless for surgical purposes, and there is reason to believe the surgeons of this period practised as barbers. In the 32nd of Henry VIII. an act was passed to incorporate the barbers and surgeons into one body; and they were not separated till the 18th of George II. (1745). Guy's Hospital, due to the beneficence of a bookseller of that name, was established in 1721, St. George's in 1734, the London in 1740, and the Middlesex in 1745. We must not, however, longer follow this part of the subject. The original theatre at Barber-Surgeons' Hall, which escaped the fire of London, was built by Inigo Jones, and is called by Walpole one of the best of his works. It is described by Hatton, in his "New View of London," as of "an elliptical form and commodiously fitted up with four degrees of seats of cedar wood, and adorned with the figures of the seven liberal sciences and the twelve signs of the zodiac; also containing the skeleton of an ostrich put up by Dr. Hobbs, 1682, with a bust of King Charles I." and other matters. "The theatre was finished with an elliptical cupola, and in the reign of George I. the hall and theatre were repaired and beautified under the direction and at the expense of Lord Burlington, in compliment to the architect." It was pulled down about the year 1782, the materials sold, and three houses erected on its site. It is remarkable that there exists no engraving of it; but Mr. Peter Cunningham acquaints us that "the design of the Chirurgeons' Theatre," an oval, dated 1636, is preserved in the portfolio of Jones's drawings at Worcester College, Oxford.*

The minute of the Court ordering the erection of the theatre is dated Feb. 11, 1635, and provides that it shall be "executed under his Majesty's surveyor" (Inigo Jones). A previous minute, dated Sept. 27, 1626, orders that the governors "shall take advice of workmen concerning the new building of their parlour and lecture-house," to proceed as shall seem meet. We must suppose that the part of this relating to the theatre was allowed to remain in abeyance.

The hall was built after the fire, and has no point of interest beyond this, that the semicircular end of it occupies one of the bastions of the ancient London wall,—or, what is more likely, occupies the site of it.

The Court Room has an elaborate ceiling of elegant design, in the centre of which an octagonal cupola was introduced in 1733. Mr. Pettigrew attributed this ceiling to Inigo Jones; but this we should doubt, unless there be actual evidence of the fact. In this room there is a portrait of Inigo, attributed to Vandyke, and a plaster bust: we did not notice, when there, if the latter be the one referred to in the following minute:—

"August 9, 1750.—The master informed the Court that Mr. Gheys, statuary, had attended the governors at the last monthly meeting, and requested to have the skeleton that used to hang up in the theatre, for which he offered to present this company with some ornamental figure in plaster of Paris, which request being now taken into consideration,—It is ordered that the said skeleton be delivered to the said Mr. Gheys, on his presenting the company with the head of Inigo Jones, fixed upon a pedestal, and bronzed, and with such inscription as the governors shall direct."

Holbein's celebrated picture here, representing Henry VIII. presenting to the Barber Surgeons the charter by which they were incorporated in 1541, is a wonderful piece of painting, full of character,—although not at this time exactly as it left the painter's studio. It was engraved by Baron; and the minutes of the company have the following entry concerning the occurrence:—

"27th August, 1734.—Copper plate of Holbein's picture ordered of Mr. Baron, for 150 guineas,—50 guineas on finishing the drawing, 50 guineas on delivery of the plate, and 50 guineas on 100 prints."

As an evidence of the estimation in which the picture was held by contemporaries, Mr. Pettigrew quoted a letter from King James to the company which runs thus:—

"JAMES R.—Trusty and wellbeloved, we greet you well. Whereas we are informed of a table of painting in your hall, wherein is the picture of our predecessor of famous memory, King Henry VIII., together with divers of your company, *which being very like him, and well done*, we are desirous to have copied: wherefore our pleasure is that you presently deliver it unto this bearer, our wellbeloved servant Sir Lionel Cranfield, Knight, one of our masters of requests, whom we have commanded to receive it of you, and to see it with all expedition copied, and redelivered safely; and so we bid you farewell.—Given at our court at Newmarket the 13th day of January, 1617."

It is interesting to know that the original cartoons from which this picture was painted are in existence. The portraits were taken on four portions of paper, which have luckily fallen into the possession of the Royal College of Surgeons, and have been put together and made to form a picture.

We must away, however, to St. James's

* Vol. III. p. 19. Under the arms in the doorway is the date 1671, with the words *De Prescientia Dei*.

* Life of Inigo Jones, printed for the Shakspeare Society, 1848, p. 34.

DOORWAY, BARBER SURGEONS' HALL.



C.D.LANG Sc.

"called in the wall neare Cripplegate," a cell anciently belonging to the abbot of Garandon. From the monks here, and a well belonging to them, the street took its name. This hermitage was purchased from King Edward VI. by William Lambe, who dying in 1577, gave it with other property, to the clothworkers, "to the intent they shall hire a minister to say divine service there." Mr. White read a brief paper on the history of the foundation, dating from Henry I., in the course of which he pointed out that the old building being decayed, it was pulled down in 1825, and a new chapel erected from the design of Mr. Angell. The crypt of the old building was left, and although interfered with by modern brickwork, is eminently deserving of a visit.* In the centre of this crypt is probably the well: the sound, on striking the ground, justifies the belief. Over it is a column, and on each side of the crypt, and in each angle, except at the north-west, is an attached column: from all these the ribs of the vaulting spring, and thus form four compartments. The columns are very short, the capitals peculiar in shape: the groining is semicircular, and is ornamented with a bold zigzag: the date of the crypt may be the beginning of the twelfth century. Mr. White first pointing out the importance which attached to Wells in London before the city was otherwise supplied with water, made a suggestion which is, at all events, very ingenious. Stow, he said, tells us the postern of Cripplegate was so called, long before the Conquest, of cripples begging there; but it occurred to him that the name might have been given from this being near to the *Crypt Well*, in which case there would be good reason to believe that the structure is of an older date than the Norman conquest; and he thought his view was strengthened by the fact, that the Anglo-Saxon w so much resembled p that it might be taken for that letter. We may mention that this gate was anciently called *Porta Contractorum*; still this would not be conclusive against the theory.

The next place visited was the Church of St. Giles, by the gate in question, which was founded as early as 1090 by Alfune, the colleague of Rahere, who built the church of St. Bartholomew the Great, in Smithfield. It was burnt and restored in 1545, and now presents but a sad jumble of ancient and modern work. It has been recently "beautified" without much advantage beyond cleanliness. Here lie three famous Johns,—John Fox, John Speed, and John Milton. In the register this is the entry against the name of the first, "John ffox, householder, preachar," April 20, 1587. And against Milton's name appears the word "consumpcon."* Here, too, a memorable man was married, August 22nd, 1620; the register book thus records it:—"Oliver Crumwell and Elizabeth Bourch'." Carpenters' Hall, one of the few ancient buildings in the City that escaped the Great Fire of 1666,—it did so narrowly,—was the last stopping place in the day's tour. It has been already so fully described in our pages, together with the curious and interesting wall paintings discovered there in 1845, that we need say nothing now about it.† The company's books and charters, of which, too, we have spoken,‡ are very curious. There is distinct notice of a guild of carpentry in 1421, but the earliest entry in the company's books is dated 1438, and commences thus:—"Jhû and hes moder dêr haue mercy on Croffton the carpen(ter) he zyffe zou this boke to all ye companye." We must not stay longer, however, amongst the old things of the City, and we can end with nothing better than the motto of the guild:—

Honour God.

* Malcolm, in *Londinium Redivivum*, says, erroneously, that no portion of the old building remains.

* Godwin's "London Churches," vol. i.
† See vol. iv. p. 87.
‡ See vol. vii. p. 121.

TO THE LADIES OF ENGLAND AND THOSE UNLEARNED IN ARCHITECTURE.—We propose to commence, in an early number of THE BUILDER, and to continue until completed, a popular sketch of the history of architecture from the earliest times to the present day, in the shape of a series of Letters to a Lady, giving the characteristics and dates of the various styles, with occasional illustrations, references to existing examples, and brief notices of eminent architects structure-raisers. Our object will be to make these letters interesting as well as instructive, and to give a stock of useful knowledge in a pleasant form to some who would be otherwise deterred from acquiring it.

ARCHITECTURUS TO HIS SON.

THE LAMPS OF LEARNING AND TEACHING.

IN the questions of art, delineation, science, and building, we have overtaken the entire realm of our professional knowledge. The master of building,—first as artist, secondly as draughtsman, thirdly as mechanical constructor, and fourthly as practical supervisor,—this is the man of business designated an architect. Were he no more than this mere man of business, I should have no more to examine concerning him, except the last and universal question of housekeeping,—no other lamp to search out for your journey, my son, except the last lamp of making a living; but inasmuch as there is comprehended in this realm of his a certain province which among its fellows is distinct from all—subtle, refined, poetical, while its associates are but as arithmetic and tool-handling—we take him into a sanctuary where he must put off these his slippers at the door—a chamber where even Science and Philosophy do not come,—where Galileo and Newton, Bacon and Watt, may not enter at all; but where poor poets and painters and musicians and such like sit, in what grosser men deem to be visionary enthusiasm and selfdenial, as the administrators of Heaven's own beautiful in the world of men. He is in the sanctuary of ART, and there shine upon him new lamps.

The architect has now to look to two questions more: first, if he is to be a worthy artist,

w he shall take up his art; and secondly, e is to be a worthy artist, how he shall hand vn his art;—first, as the follower of teachers o have gone before, how he shall so learn to be a brother worthy of their fellowship; l secondly, as a predecessor of learners in turn, how he shall so perform his part in drama of progress as to become a master honourable renown. These, then, are my nps of Learning and Teaching, and their ht is for the architect as artist alone.

I would not have you endeavour to believe at in architecture we have the noblest of s; I am rather of opinion that it is one of somewhat humble class. Poetry, as the *scription* of all beautiful that words can ich, reaches from a picture of the little wayside wer to visions of the unseen mysteries of eaven itself—dreams of the music of the raphim and the very speech of Deity. inting and statuary, as the *delineation* of all autiful that is visible, overtake the whole of at exquisiteness with which is endowed all tural and human expression,—the nobleness great men; the loveliness of woman, the andeur of the storm, the freshness of the rning, the gloom of the grave, almost the lendour of the sun. Architecture being but e *decoration* of a manufacture, can claim no ch excellence as either of these; and even usic, more *sensual* (if I may so use the word) an intellectual, as I conceive it is, takes such hold upon our sympathies, and is so en- ancing, enthralling, electrical, magical, a ing, that I can scarcely refuse, if art is to be easured by enjoyment, to accord even to it a gher place than to any work of mere decora- on, although it should be the noblest effort the noblest decorative skill—"the Parthenon Athens, the Pantheon of Rome, or the inster of York."

I have here incidentally indicated in some anner the four departments in which, accord- g to the constitution of our nature, art is eveloped; the *decorative* being the depart- ent which comprehends architecture. In her words, decorative art being the fine art beauty-work of *manufacture*, building, as ne branch of manufacture, originates archi- cture as its fine art or beauty-work. "Cot- ons" are another branch of manufacture, and ne beauty-work of the printer's pattern-drawer fine art no less. Dressmaking and tailoring re manufacture again, and their beauty-work ne art too. The plain truth goes farthest, y son, all the world over; the tailor at his utting-table, and the *modiste* at hers, are own rother and sister to the architect over his rawing-board: and if those artists are suffi- iently humble to give great precedence to the ther, they might decide differently, if they new better,—in so far that at no time have ailors and dressmakers acknowledged "the uthority of antiquity," or advocated a "rigid dherence to the examples," except for fancy alls and foolery.

But do not imagine all this while that in rchitecture we have no better a thing than ery common-place effort of the mind. If Michelangelo, as architect, is identified with, s it were, Messrs. Moses and Son, so is Milton with the "poets" whom those worthies keep;" and the great Florentine, again, as ainter and sculptor, with him who daubs a arrot on a tea-tray, or carves a hound's head n a gent's cane. Such is art; and it is its xcellent mission that it not only soars with he loftiest intellect into the sky, but creeps vith the humblest upon the humblest ground, o beautify and bless both high and low. And f in other arts there may be greater loftiness f aim, still in those whose province is but the lecorative, the summit of endeavour is fre- quently by no means other than a most noble eight; and in architecture, which is the grandest of all decorative arts (because build- ng is the grandest of all manufactures), the ummit of endeavour is never unworthy of noble minds, but offers a prize of very lofty pleasure and very honourable fame.

Thus, then, stands the position of the artist- architect,—second, certainly, but no more, to he highest artists, inasmuch as Michelangelo stooped a little, but very little, when he laid aside the pencil of the painter and the chisel of the statuary to be the master of the builder at St. Peter's. And such is the nature of architecture-art,—the highest art of the decorator,—perhaps so much the highest, in respect of the extensive and intricate knowledges it involves, and the costly, laborious, and noble works in which its principles operate, that all other arts of its class are left so far behind as to appear of inferior class, but for theoretical identity of fundamental purpose.

The man of business, following the long list of those who, as men of business, have gone before, needs but to acquire in the most efficient manner the mastership of his business, whereby to earn a creditable livelihood, and take the position, according to his capacity, of a meritorious member of society. By far the great majority of men in any sphere can attain to no more than this, and if a man attains to no less he does well. But the question with the artist is based on another foundation,—it commences with an entirely different idea. It is no such matter as business, or personal profit, or selling one's labour for a price. Every artist must attend to all this in his separate capacity of a man of business; for every one must look to the lamp of making a living, of necessity; but his artist's mission and art-fellowship, as a follower of those artists who have gone before, are a question of fascination and devotion. There is some element in the artist's mind which constrains him to own spontaneous and anxious allegiance to art; the hand that made him made him a priest of this mission (and the world would be a joyless world, I say, without such mission); it is not by choice of his, but by constraint, by fascination, by tie of nature, by spiritual patriotism. History records the living of a succession of these art-priests,—art the one aim of their living, and art their glory now that they are long dead. History records their names as a special and recognised priesthood, honoured among men; and time hands down their works among the world's treasures, long after their own poor hands have crumbled into dust, and long after the very traditions of their ordinary lives, their friends and enemies, their joys and sorrows, have been lost in oblivion. These men have, step by step, carried on all through the ages this increasing purpose,—the embodiment of those beautiful thoughts which are playing in the souls of men all the world through, the reflections of the beautiful things of Nature's teeming picture. It is surely an exquisite mission, this, of the artist, and men of the rudest and most sordid own it and honour it. How, then, shall the novice assume the vestment as a worthy follower of those who have gone before, and proceed to minister as a worthy priest of so excellent a mission?

Now I have been speaking of the *artist* without naming the *architect*, for I could scarcely venture to say all this of him specially. I could say it all of the poet, the painter, and even the musician, and meet universal sympathy with my earnestness; but to speak of the architect so would provoke the smile of derision, and I should be but called upon to include in my enthusiasm my artists the tailor and dressmaker as well. In fact, I should at once be met with the assertion that however truthfully I may be speaking of the poet, the painter, or the musician, the architect must be excluded entirely, having no more these lamps of Learning and Teaching to look to than the tailor has. And true it is with regard to the afflatus of the art-energy, that just as the great poet, or painter, or musician is always inspired with it as the essence of his vocation, so the great tailor has never any of it at all, for with him it would be but a travesty; while in the great architect the amount of it is seldom more than very little indeed. This is all true assuredly, and it is but evidence of the order of precedence of the arts,—first, the high arts, with poetry at the summit; and last the low arts, graduating down to such a thing as the beauty-work of the *modiste*, and even lower still, and midway the better arts of decoration, with architecture at their head. But I would have you know that the architect is not always devoid of this afflatus, but that many a one in the ages can be named whose life was devoted to the art-mission with a constancy which leaves the uninitiated to wonder how so much poetry could come out of building, and the initiated to admire the earnestness with which the depth of that poetry was fathomed.

The fine art architecture being the decorative art of building—the beauty-work of that one among the "manufactures" of our hands,—the principles of its administration are of course these—preliminarily, the principles of building-work itself, and then the principles of beautifying building-work, and the principles of ornamenting or enriching building-work; or the objects of the art are—first, to form or outline any given scientific features of building with grace and expression or emphasis intrinsically; secondly, to govern the origination of those very features with subjection to a desire for such grace and emphasis as themselves first principles; and, thirdly, to enhance the effect by appropriate embellishments, ornamentation, enrichment, extrinsically. The fundamentals of criticism and the fundamentals of composition are, therefore, first, the principles of *manufacture* (which govern all decorative arts, or arts of manufacture, but no others); and, secondly, those of *sense-beauty*, as I may call it (or that system of melody and harmony in forms, colours, and tones, which is the sole authority in music, and partially more or less in all decorative and delineative arts): and the only remaining fundamental of criticism and composition in art—the principles of *nature*—(which govern solely in poetry or descriptive art, jointly with those of sense-beauty, in the delineative, painting and sculpture, and not at all in music) does not enter into decorative art in any form, except inasmuch as delineative art, used in decorative ornament, must be subject to its own laws. Here, then, is the course of study for the artist-architect,—first, the principles of building; secondly, those of sense-beauty of form and colour; and, thirdly, those of nature, so far as delineative art is made an accessory to his decoration. Take these as the guiding stars of your endeavour, the roots of your fancy, the standards of your judgment: for as we sow we must reap, and these only are the seeds of art; all other system is fallacious, barren, and destructive. These are the principles which, from the infancy of building-beauty, the minds of the fathers in our fellowship have searched for and striven to embody in their works: the beginnings were small, very small; frequently has the course had to be recommenced; the deviations, and errors, and failures, have been numerous; the progress, compared with other progresses, has been slow; but the noble history of a noble art has flowed on all through the generations of the past, and it can be pleasurably traced, with but few gaps now, and these decreasing daily, and the names of its succession of kings are registered for our hero-worship, and for the admiration of enlightened man at large, although they and we are but architects and no more. And if we, as true followers in this fellowship, would take our place worthily, we must indoctrinate ourselves with their laws; and if we would hand down our mission to our followers in their turn we must preserve those laws intact. We must progress from their progression, and in the right line. And we must leave behind us a clear path for our sons to follow, to progress from our progression without a check. As men of business our duty is to look to ourselves; but as artists, it is our duty to look to our art.

Now the idea which seems to have been in late ages chiefly entertained on these questions of our learning and teaching is that we shall worship old doings and imitate them. And I hesitate not to say that the old doers of those old doings, if they could rise from the dust, or their spirits look down upon us from their hoary works, would feel less pride of flattery than shame and reproach. They would give us but little thanks for our honour and fidelity to themselves, and much upbraiding for our infidelity and dishonour to their and our art. A very bad system of learning and teaching is this. Its admirers cannot pretend that the fathers learned and taught so themselves,

except it be the old Romans, whom they avowedly despise for the very fact of their so doing. And how we can, with one breath, despise the system in others which with the next we openly advocate for ourselves, is more than I can find a ready reason for. And here let it be understood that I do not blame the Classicists of our time, and let the Gothicists go free, but almost the reverse; it is the entire principle of copying, following, imitating, adopting, adapting, or whatever form it takes for the occasion, which I denounce in every respect in which it is made a fundamental element of thought in architectural art, whether with reference to copying a certain design in whole or part, following a period, imitating a master, or adopting a style and adapting it (of necessity) to the requirements of a different age from its own. Answer me this question: why is it that we nowadays build in all manner of imitations—in all styles but our own?

The originator of this very singular system I designate, for want of an accepted name, the archæologian. It is not the archæologist, the honourable antiquary, at all. I am, so far, archæologist myself; my taste does not lead me to enthusiasm in respect of it,—it is not especially my mission,—but, of all discourse possible, "discourse on antiquity" that enlightened visiting of the past which gratifies one of the most interesting forms of educated curiosity in the human mind, is to me among the most entertaining and pleasurable of discourse. I am never at a loss in that best appreciation of archæology by which one can place himself in the very past itself,—not merely registering dry forms and facts as such, but reverting in fancy to the very scenes of old time themselves, and dreaming day-dreams of those that are gone, till they come forth from the tomb again, and walk and talk as men and women, with all their strange old-fashioned ways about them as they seem to us now, but with the same blood in their veins and the same light in their eyes, the same anxieties in their thoughts, and the same joys and sorrows, hopes and fears, in their lives, that we have. This is what I hold to be the enjoyment of archæology, and so do I enjoy the archæologist's discourse. But the discourse of the archæologian—the painstaking resurrection of minutiæ of fact as matter, not of curiosity for inquisitiveness, but of revelation and authority for present avail,—I will not use hard words, my son, but I will say that I deplore this exceedingly. Suppose, say I, that history were to become deranged in this manner, like archæology—that historians were to take to this resurrectionism, and delineate the actions of men and women of old, not for the gratification of enlightened curiosity, but for the use and authority of persons whose pride it was to copy, imitate, adopt, and adapt to themselves, the characters of these men and women of old—one "adopting" the idiosyncracy of Julius Cæsar, another that of Peter the Hermit, another that of Queen Elizabeth, another that of Tippoo Saib, another that of the poor high-priestess of Amen-Ra in the Mummy-room; and another that of Abraham, Isaac, or Jacob, Tiglathpileser, Robin Hood, Dr. Johnson, or the Caliph Omar, or whomsoever else might take his fancy,—suppose we were to walk about every day in all manner of guises, and perform all manner of appropriate action, according to these precedents of history,—where would it end? Suppose some of us were to become crazy with a resolve to "imitate" the politics, laws, and social institutions of some fashionable "period," and advocate a reversion bodily to the feudal system, and tournaments, and trial by ordeal, and ships like large nautilus-shells with cross-bowmen in them, and tough beef and ale for breakfast, with fresh rushes on the floor, how would the world receive our arguments? and where would they put us?

Archæology in architecture will be cultivated no less than now, when the present mistaken application of it has been long forgotten. I do not care to hesitate in predicting that its reign is now nearly over. It has reigned long—ever since the fourteenth century, more or less; and it has run through a great deal of matter in one way or another; there is not much left for it now to overtake, and therefore we may fairly look for the end, and hope for better days. The error originated in a very excusable manner, at the period of the general revival of ancient letters. Everything of the authentic classic Roman remains became eagerly sought for, anxiously studied, and adopted with filial confidence, — and the Roman architecture among the rest. The principle of copyism was introduced for perhaps the first time in the history of the world; and I say it was excusable, and all of us who appreciate the position of the time will excuse it, although it is now excusable no longer. In most matters of learning, literature, art, and social doctrine (though not in all), the principle has by this time exhausted itself and died away piecemeal; in architecture, however, it has scarcely yet completed its appointed course. Under what is called the Palladian School, Roman architecture, "adapted" to the modern time, enjoyed a long and uninterrupted career. In every style of copyism there arises a conflict of two principles,—the one carrying "adaptation" into "abuse," the other reverting to "purity" and gradually repudiating "adaptation:" and the reversion to purity inevitably conquers its rival as a matter of principle, and then conquers itself, making way for experiments in another style; for the result of this gradual repudiation of adaptation is simply the gradual abandonment of the one condition on which the exotic style was adopted, and the gradual development of its unfitness in requirements foreign to its origin. Thus the Palladian pursued purity at length into the Greek style, and at last to such an extent of repudiation of adaptation there as to make way for the palatial Italian and the Gothic styles (not to speak of erratic and frantic efforts in the way of Egyptian, Moorish, Chinese, and so on) to tempt the dissatisfied copyist. This they did successfully, so that Mr. Hosking tells us "it is an argument in proof of the classical beauty of the Pointed style that when the eyes of men were opened to the perfections of Greek architecture they began to discern *its* merits also." My explanation of the circumstance alluded to rather is that men discovered the inappropriateness of Greek "perfections," and turned their attention gradually to another style (from mere habit) to try what would come of that. During the past half of the nineteenth century we have been pursuing Gothic copyism into purity, and its unfitness for modern purposes is now being rapidly developed. Of the Italian style I can only say that, being so much more appropriate for our purposes than any other, it wears well and gives occasion for much promising originality, which will presently expand into the means of our acquiring a knowledge of our own strength; whereupon, the purity of the Gothic having by that time defeated itself, it is to be hoped that the true lamps of learning and teaching will be lighted again, and these false lamps, whereby art-learning has been made parrot-rote, and art-teaching the systematic overthrow of liberty and genius, extinguished and broken up for ever, to be dug out of deep dust in due time by the healthful archæologist and held up for the wonder of a better age, and for the warning of all well-meaning inquirers into antiquity to avoid the errors of the archæologian, whether Greek or Goth, and of all brethren in our art-fellowship to keep to the healthy first principles of their art as they would be worthy followers of those who have gone before, and worthy leaders of those who come after.

K.

ST. BOTOLPH'S WITHOUT, ALDERSGATE.—The parish church of St. Botolph Without, Aldersgate, was opened on the 4th inst., after having been repaired under the direction of Mr. John Blyth, architect. Our informant states that the coved ceiling over the altar is painted tints of drab, the whole of the ornaments enriched with gold. The wall under the string course is finished verd antique. The six upper panels are filled in with arabesques, and the four lower with figures representing the four evangelists, painted by Mr. Frederick Sang. The marbling and gilding were executed by Mr. Sewell.

SMOKE NUISANCE.

THE prevention of smoke is a desiderat which has, more or less, engaged public att tion for many years; and individual enterp has from time to time effected considera results towards its accomplishment. Unti comparatively recent period, however, it not fallen within the scope of legislative int ference; and, indeed, such was not likely take place before scientific investigation proved that it was a thing not more desira than practicable. Now, it is a requirem positively within the pale of the law; and anticipate a near time when the manufacturi cities and towns of the United Kingdom no longer be characterised by heavy canop of blackening vapour, but present their smokeless chimneys to a cloudless sky; a when the overt act of belching forth "volun of smoke" will provoke prompt and condi penalties. Luckily, it happens that the intere of the owners of these tall fumiducts (lo motive, by the way, as well as stationary), on the side of prevention; and it will be wh neglecting their own good, that they become amenable to the laws which enforce

Already "the City" is within the scop an enactment such as we refer to; as witn the following clause (xlviii), from the amend City of London Sewers Act:—

"That from and after the first day of Janua one thousand eight hundred and fifty-two, eve furnace employed or to be employed in the wor ing of engines by steam, and every furnace e ployed or to be employed in any mill, facto printing house, dyehouse, iron foundry, glasshou distillery, brewhouse, bakehouse, gasworks, wat works, and other buildings used for the purpose trade or manufacture within the City (although steam engine be not used or employed therein shall in all cases be constructed or altered so as consume the smoke arising from such a furnac and if any person shall, after the first day January, one thousand eight hundred and fifty-tw use any such furnace which shall not be construct so as to consume or burn its own smoke, or sh so negligently use any such furnace as that t smoke arising therefrom shall not be effectual consumed or burnt, or shall carry on any trade business which shall occasion any noxious or offe sive effluvia, or otherwise annoy the neighbourhoo or inhabitants, without using, to the satisfactio of the commissioners, the best practicable mea for preventing or counteracting such annoyanc every person so offending shall forfeit and pay sum of not more than five pounds nor less than fort shillings, for and in respect of every day durin which or any part of which such furnace or annoy ance shall be so used or continued."

Here is something active and positive; an although, within Temple-bar, the *dictum* "No smoking allowed" does not extend t kitchen chimneys, it may yet not be unin teresting if we examine the subject in its lead ing phases, to the end that the idea of smok prevention may become, popularly, more fami liar and less misty.

A very brief reference will suffice, to tha transitional period when, through the deca dence of the forests, the innovation of sea coal, otherwise coal brought by sea all the wa from Newcastle, had disturbed the ancien arrangements of the hearth, and interfere with the vested prerogatives of hand-irons an fire-dogs, superinducing "cradles" and such like contrivances. It is so amusing, nay edifying, to contemplate the disgust wit which the refined and sensitive author o "Sylva" regarded the new fuel, or, at least the effects of its extensive use in manufactorie within the walls, that we are tempted to le him speak for himself,—showing how ancien is the outcry raised against the sooty product of coal combustion, although not accompanied with the demand that its consumers should burn their own smoke:—

"That this glorious and ancient city, which commands the proud ocean to the farthest anti-podes, should wrap her stately head in clouds o smoke and sulphur, I deplore with just indigna-tion. What darkens all her other attributes except that hellish and dismal cloud of sea-coal, which is not only perpetually over our head, but mixed with the otherwise wholesome and excellent air; and that not from culinary fires, which being weak and less often fed below, is easily dispersed; but from some few funnels belonging only to brewers, dyers, lime-

burners, and soap-boilers, one of whose spiracles alone does manifestly infect the air more than all the chimneys of London put together. Whilst these are belching from their sooty jaws, the city of London resembles the face rather of Mount Etna, or the suburbs of hell, than an assemblage of rational creatures, and the imperial seat of our incomparable monarch. These foul-mouthed issues, and curls of smoke do draw a sable curtain over heaven. The columns and clouds belched forth are so thick and plentiful, and rushing out with great impetuosity, they are capable of resisting the fiercest winds, and fall down upon the houses before they can be dissipated; so as two or three of these fumid vortices are able to whirl it about the whole city, rendering it in a few moments like the picture of Troy sacked by the Greeks, or the approaches of Mount Hecla. When the air in all other places is serene and pure, it is here eclipsed with such a cloud of sulphur that the sun itself, which gives day to all the world besides, is hardly able to penetrate and impart it to London; and the weary traveller at many miles' distance sooner smells than sees the city to which he repairs. It is that pernicious smoke which superinduces a sooty crust or fur upon all that it touches, spoiling the moveables, tarnishing the plate, gilding, and furniture, and corroding the very iron bars and stones. It is this horrid smoke which obscures our churches, and makes our palaces look old. How it sticks on the hands and faces and linen of our fair ladies and nicer dames who reside constantly in London, especially during winter, the prodigious waste of almond powder for the one, and soap and wearing out the other, do sufficiently manifest. It scatters and strews about those black and smutty atoms upon all things where it comes, insinuating itself into our very secret cabinets and most precious repositories, which diffuses and spreads a yellowness upon our choicest pictures and hangings; is avernus to fowl, and kills our bees and flowers, abroad suffering nothing to bud, display themselves, or ripen. The air of London is never clear of this smoke, which is a plague so many other ways, and indeed intolerable, because it kills not all at once, but always; for is there under heaven such coughing and snuffing as in the London churches and assemblies of people, where the barking and spitting is most incessant and unfortunate; and what may be the cause but the inspiration of this infernal vapour?

Shade of Evelyn! with what satisfaction must thou regard the lofty growth of the "spiracles" of these our days; but much more so, the pains and penalties now suspended over the heads of refractory brewers and soap-boilers.

Smoke is the compound body arising from the combustion of substances; and it is the presence of carbonaceous matters that renders it opaque and visible. Were it not for these dark particles of unconsumed carbon, the products properly composing it—carbonic-acid and nitrogen—would be insensible to the sight. An analysis of London blacks or smuts, by Mr. Solly, jun., gave as follows:—

Salts of ammonia	426
Combustible matter	371
Silica	65
Oxide of iron	50
Alumina	31
Sulphate of lime	31
Salts of potash and soda	24
Carbonate of magnesia	2
	1,000

Imperfect combustion, from which thus proceeds opaque smoke, is commonly caused by the forcing the furnace to consume a greater quantity of fuel than it is calculated for; the object being the evaporation of the greatest possible quantity of water. The maximum of effect is obtained by certain ascertained relations amongst the parts of the furnace, the combustion, and boiler, a departure from which produces waste: these circumstances we shall briefly and severally point out.

The nature of the fuel—its kind and quality—are necessary to be well understood. The kinds employed may be classified as the anthracite, the bituminous, and the splint and Cannel coals. *Anthracite coal* is of a peculiarly hard, tenacious, and stubborn nature, requiring that it should be broken up into minute pieces, and largely, and even forcibly, supplied with oxygen, to procure the volatilisation of its products: this fuel, being smokeless, we have hardly to do with in this inquiry, beyond recognition. *Bituminous coal*, that which is most commonly used, is of a more friable nature, splitting up into fragments, as its gaseous components are evolved in combustion: in this process, a certain quantity of atmospheric air is essential. *Splint* and *slaty coal* burn more freely, and require less air than the preceding.

The air required for perfect combustion is not simply such as passes up between the bars of the fire-grate; but the efficacy of admitting a supply beyond, at the bridge, over which the flames pass into the flue, has been established; it being there prepared to admix advantageously with the uninflamed carbonaceous gases, rendering them capable of combustion on passing in contact over the more incandescent fuel on the rear portion of the grate. The quantity of air necessary, with bituminous coal, is found to be as much as ten times the volume of the gases; but as it will vary with the quality of the fuel, and the effect of supplying more than a sufficiency is an additional consumption of the latter—to make up for loss of heat, the apertures, in the first place ample in capacity, should be constructed so as to admit of regulation, till a close approximate to the maximum effect is obtained. This largeness of supply is owing to the fact of the presence, with the oxygen, of twice its volume of nitrogen, a gas which is neither combustible, nor an agent of combustion, and not being conveniently separable, is just so much worse-than-useless matter, the passage of which has to be provided for.

Fuel of the caking description is liable, by the vitrifying of its earthy particles, and forming clinkers on the top of the grate-bars, to close the openings between these, and thus prevent the admission of a portion of the air necessary for its combustion: with such fuel it is obvious the openings near the bridge are especially of importance.*

* To be continued.

ON POLYCHROMATIC EMBELLISHMENTS IN GREEK ARCHITECTURE.

At a meeting of the Institute of British Architects, on the 12th, Professor Donaldson gave an explanation of the system, as illustrated in the recent work "On the Polychromy of the Ancients," by M. Hittorff. He commenced his remarks by a tribute to the liberality of the foreign correspondents of the Institute, who, in the valuable works they presented to the Library, set a noble example to the members generally. The subject of Polychromy had occupied attention for more than thirty years. Even Stuart had intimated that some portions of the edifices of Athens, carved and uncarved, were embellished by colour; but this fact was only considered generally, and not as a principle in the architecture of the Greeks. About the year 1830, M. Hittorff read a paper on the subject before the Institute of France, which was published in the annals of the Archæological Institute of Rome. That gentleman had been so much struck with the results of his observation of the remarkable ancient monuments of Sicily, as to arrive at the conclusion that it was necessary, for the full effect of these works, that the whole of the buildings should be painted. This principle, broadly and unreservedly advanced, was attacked by M. Raoul Rochette, then Professor of Archæology at Paris, a learned archæologist, but neither an architect nor an artist. In two articles on mural painting among the Greeks, M. Rochette endeavoured to prove that these works were executed simply on tablets, and not upon the walls of the temples. The subject then seemed to slumber, though M. Hittorff and others continued their investigations. He (Mr. Donaldson) had himself been quoted by many authors, as the first to observe that the walls of the Theseum at Athens had been worked with a point, to receive a coating of plaster or stucco, enabling the whole surface to be painted. He had, in fact, brought to this country fragments from the Parthenon, the Propylæa, and the Theseum, which, on being analysed by Professor Faraday, gave ample evidence that painting did exist on these buildings, and showed what materials were employed for that purpose. The subject was forcibly brought before the attention of learned Europe by an important series of illustrations, published in Germany, by a gentleman then present, Herr Semper, some of whose drawings were displayed upon the walls of the room. Among these were restorations of a part of the Parthenon, a building at Pompeii, an Etruscan tomb, and a representation of the remains of colour visible on the Temple of Theseus. Mr. Donaldson also referred to a restoration of the façade of the Parthenon by Mr. Owen Jones, which he characterised as more ideal than that of Herr Semper, although displaying much study and ability. The work of Semper (in 1834) was followed in 1835 by another from the pen of Dr. Franz Kugler, "On the Polychromy and Sculpture of the Greeks, and its limits." The latter branch of the question was a most important one, for the restorations of both Hittorff and Semper were unlimited in their application of colour, and he believed the meeting would be disposed to concur with them. Following, however, in the steps of M. Raoul Rochette, Dr. Kugler was of opinion that polychromy in ancient art was limited in its application.

The Institute of British Architects had appointed a committee to examine the traces of colour on the Elgin marbles, and the results of their researches, and the accompanying analyses of Mr. Faraday, were not only important in themselves, but agreed with those arising from similar investigations, subsequently undertaken by scientific men at Athens.

Proceeding to notice M. Hittorff's work, Mr. Donaldson explained that the first part of it took a general view of polychromy, considered historically, and the second part discussed it practically. It appeared that M. Hittorff had especially directed his attention to the remains of the small tetrastyle temple of Empedocles, at Selinus, in Sicily, which edifice he had restored, with polychromatic decorations throughout, his illustrations of that building being exhibited and referred to by Mr. Donaldson. The plan of this temple showed a portico of four columns in front, and behind them the walls of the pronaos and cella, measuring only 20 feet by 16. It appeared, from the porous nature of the stone, that it required to be covered with stucco, and M. Hittorff, from his examination of the fragments, came to the conclusion that the whole building so stuccoed was elaborately covered with painting. The floor, or pavement, of the cella and pronaos was represented in the drawing as executed in mosaic work. There was, however, no such mosaic work found, but, on the contrary, there were traces of a floor of plaster. M. Hittorff found, by researches in other temples, an instance of a floor of painted stucco, and such floors were also found at Pompeii, Rome, and Olympia. The author accordingly restored the pavement of the Temple of Selinus in painted stucco, adopting forms and patterns similar to those of ancient mosaic floors. M. Hittorff, in conjunction with M. Zanth, his fellow traveller, found some fragments of a fluted shaft on the site of the temple, with portions of a Doric entablature and an Ionic capital, and formed their restoration of the building by a combination of these discoveries. This combination of the parts of two orders was not uncommon in Sicily, Magna Græcia, and the East. At Agrigentum the tomb of Theron had a Doric entablature, while the capital of the columns was Ionic. In the remains at Pæstum, in the tomb of Absolom, near Jerusalem, and in the remarkable buildings at Petra, similar instances were to be found; while the arch at Aosta, near Turin, presented even a Corinthian capital supporting a Doric entablature. Some of these examples were of later epochs, but there was more than one such example furnished by the truly classic period of ancient art. M. Hittorff also adverted in his work to many examples of the same practice, as being represented on the vases of the ancients. It was also shown on some frescoes at Pompeii. M. Raoul Rochette, ignorant of this admixture of two orders, objected on that ground to M. Hittorff's restoration; but it was evident, from the instances referred to, that the ancients did not confine

themselves to the strict rules and limits of art, but allowed themselves, on the contrary, considerable licence. Mr. Donaldson here referred to a restoration of the temple in question made by himself, from M. Hittorff's descriptions, &c., before he had seen the drawings of that gentleman; and although there were some discrepancies in respect to the colours in the two restorations, a strong general resemblance was, on the whole, observable. Mr. Donaldson then pointed out in detail (referring to the engravings), the application of colour to the various parts of the temple.

The torus of the base was ornamented, in conformity with an authority found at Pompeii. The shafts of the columns had a general tone of yellow, which M. Hittorff conceived to have been the prevailing colour of the building, relieved by picking out several parts in different colours. The capital was modestly picked out, and the order generally, as restored by M. Hittorff, was less bold and positive in colour than in that restored by Mr. Donaldson. Reference was here made to the drawing of an Ionic capital, restored in colours, the original of which had been brought from Athens by Mr. Inwood. Even if it had been necessary to employ a Doric capital, that might have been coloured in the manner shown in the drawings, in which Mr. Semper decorated the abacus of the capital of the Doric column of the Parthenon, as well as the echinus, the latter with egg-and-tongue ornaments. Mr. Donaldson, without any conference with him, had applied the same mode of decoration; for it was not to be supposed that so important a member as the echinus, in the façade of the Parthenon, would be left plain, between the fluted columns below and the rich frieze above. M. Semper stopped at the echinus, but Mr. Donaldson was inclined to think that some small ornament was also introduced upon the hypotrachelium, to give greater height and importance to the capital. In the Roman Doric, and in some examples of the Doric in Asia Minor of a late period, there was actually a sculptured ornament in the necking of the Doric capital. Mr. Donaldson thought, therefore, there was, very possibly, some ornamentation on this member of the order. What, indeed, was its use? In some instances, its lower boundary was formed by a mere line,—in the Theseum not one-eighth of an inch deep,—and therefore it was highly probable that, as a division between the capital and the shaft, it had some decoration to give it emphasis and expression.

In noticing the decoration of the entablature, Mr. Donaldson adverted to the statement of Vitruvius, that the ends of the beams (represented by the triglyphs) were painted with a blue wax. At Pompeii, instances were found where the triglyphs were blue, and the metopes of a lighter colour; and there was an indication of blue paint on the triglyphs of an Etruscan tomb, engraved in M. Semper's work. In reference to the tympanum, Mr. Donaldson expressed a general opinion that sculpture was freely and even lavishly employed by the Greeks as a necessary adjunct to their temples, to impress upon the mind of the beholder the purpose and object of the building. The fronts of the Parthenon strikingly exemplified this view, and it was ably enforced in Mr. Penrose's recent work. Although there was not a fragment of sculpture left in the tympana of the Theseum, Mr. Penrose had discovered the holes by which the figures had been attached to the building. In restoring the tympanum of the pediment of the Sicilian temple, M. Hittorff finding no traces of sculpture, had adopted a foliated ornament, based upon fragments of terra-cotta found in the same island. The metopes were also ornamented with a foliated pattern, on similar authority. It was well known that the friezes of temples were richly decorated, often with figures and representations of processions; and although the frieze of the Erectheum, at present, was of a plain dark-coloured marble, it was originally ornamented with figures in white marble. In the Theseum, only a few of the metopes on the return were sculptured, and by some it has been supposed that the rest were painted. M. Von Klenze, in examining the fragments of the Propylæa, found that some of the blocks, which he supposed to belong to the metopes, were sunk to receive sculpture, whilst others had a perfectly plain face, and were incapable of receiving any, and he therefore thought they were intended to be decorated by painting. Mr. Donaldson, however, did not think there was sufficient authority for that opinion, because it would be an arrangement not only inconsistent in itself, but difficult to carry out satisfactorily, as it would involve the necessity of placing a triglyph, instead of a metope, in the centre, under the pediment on either front. With reference to the background of the tympanum, M. Hittorff had coloured it red in his restoration. Undoubtedly that surface generally bore colour of considerable depth, in order to throw out the sculpture, because the figures themselves, and the draperies, were painted, and consequently rendered a coloured ground necessary. Some fragments of the Parthenon had been thought to show traces of a red ground, and that colour had been adopted by M. Semper in his restoration of the Parthenon. The more general opinion, however, and that adopted by Mr. Owen Jones, was that the ground of the tympanum had been blue. Mr. Donaldson next referred to a running ornament introduced by M. Hittorff on the architrave. The application of colour, by M. Hittorff, to the mouldings of the pediment, was sanctioned by the authority of M. Semper, Mr. Owen Jones, and Dr. Kugler, though each of these gentlemen applied different colours. Mr. Penrose had found traces of the design of an ornament on the crowning ovolo of the Parthenon.

It was to be observed that the forms of decorative art were to be traced by progressive steps: what was at first a mere superficial delineation of ornament, afterwards became a substantial embodiment in sculpture. A question had been raised whether these ornaments were not the production of a later period, and of a less refined and more voluptuous taste; but, in fact, the design of the ornaments was of the same style, in purity of conception, as the monument itself. The fragments in the British Museum had the outlines of the ornaments deeply engraved upon the face of the mouldings, which it was not likely would have been so treated, if the ornaments painted on them were a subsequent addition. The system, moreover, was not one of mere occasional introduction, but was generally adopted. The acroteria and antefixæ were introduced in M. Hittorff's restoration; and their importance, in adding to the effect of the elevation, must be admitted. There was ample authority for them, for they were actually discovered among the remains of the Temple at Egina, and the blocks for their reception still remain on the Parthenon. The question of the mode of covering the temple had been carefully studied by M. Hittorff. Byzes of Naxos was the first to introduce tiles of marble, common tiles having previously been employed. The refined taste of the Greeks led them from an early period to apply ornament to their roof-tiles. By putting together the fragments found in other places, M. Hittorff had restored the roof of the Sicilian temple at Selinus, in the manner shown in the drawing. The tiles were often painted on the inside as well as outside, because they sometimes formed the whole covering of the temple, and were visible from the interior. In other cases, as in the Parthenon, horizontal beams were used, dividing the roof into caissons.

Before proceeding to the interior of the building, the wall of the pronaos was described. The whole of this was coloured: first, there was a dado of dark colour, and of considerable height: this dado was a remarkable and effective feature in the Greek temples: sometimes it projected slightly: above that were panels of lighter colour. All these decorations were authorised by paintings discovered at Pompeii, drawings of which were referred to. The door-cases of the temples were of stone, marble, or bronze. From his own examination of the Parthenon and the Propylæa, Mr. Donaldson was of opinion that bronze had been so employed in both these edifices: they were probably gilt, and emb lished with a great variety of beautiful colou The doors themselves were formed either marble, wood, bronze, or mixed materi Cicero, in his oration against Verres for m administration in Sicily, referred to the beau ful doors of the temple of Minerva, wh were enriched with panels of ivory. T bronze doors of the Pantheon were illustra in the work of Messrs. Taylor and Cre In M. Hittorff's restoration, the doors w supposed to be of bronze of various tones tints. Of course, the colours of the Florenti the Venetian, and other bronzes, might introduced, to relieve and add to the effe The upper panel was open to admit air, a light, which was more necessary, for th temples were very dark, and chiefly lighted lamps perpetually burning, as was still case in the modern Greek church.*

A GRAVE QUESTION, IN WHICH DOCTORS DIFFER.

DOES LEAD POISON WITH HARD WATER, OR WI SOFT, OR WITH BOTH?

HAVING, of course, a strong preference f soft water rather than hard for culinary a other domestic use, and being anxious that t metropolitan multitude should be provid with pure soft water, not only for econor and cleanliness in washing, but for health a freedom from painful and fatal complain which there is but too good reason to belie are generated, or at least promoted, apt altogether from lead, by the continual use hard water,—there is one question relative to t substitution of soft water for hard as well as pu for impure, which ought not to be allowed remain longer in its present unsettled, contr dictory, and dangerous position,—namely, t question relative to the poisonous influence leaden pipes and cisterns on water, soft hard, pure or impure, or on both.

Until lately, it has been an axiom with o standard chemical writers on toxicology a medical police and jurisprudence, that t softer and purer the water, the more likely it to act on lead, and to be thereby poisonous impregnated; and that the harder the wate the more likely is it to remain pure and unin pregnated by the lead.

True, these hitherto accredited authors ha admitted or declared, on the one hand, th perfectly pure soft water, *per se*, will not a on lead, and, on the other hand, that ha water will. But then they have explained th apparent inconsistency of such a declaratio with their own prudential and most importa axiom, by alleging that, on the one hand, lea with pure soft water is liable to be so in fluenced by the air, and by carbonic acid ga dissolved in the water, as to become corrode and then to impregnate and poison the wate continually; while, on the other hand, lea with hard water, and especially with neutr sulphates, such as that of lime so usual i hard water, is so acted on by the salts co tained in hard water, as to become incruste with its own corrosion, and thus protecte either from farther waste in itself, or fro contributing any continued poisonous impreg nation to the water.

Since the agitation of the metropolitan sup ply question, however, and the prevalence of very general desire to substitute pure so water for the hard and otherwise shockingl impure supply at present in use, evidence ha been adduced which, *ex facie*, appears ex pressly to contradict these heretofore establishe axioms. We feel it therefore absolutely neces sary to insist that this vital and most import ant subject shall be forthwith fully examined discussed, and settled; so that, if it, on th one hand, shall indeed be found that the de sired supply of pure soft water is not attainabl with safety so long as leaden pipes and cis terns shall continue to be used, the public an the profession shall be timeously warned, and in the event of such a supply being provided measures of an effectual nature be taken t obviate the anticipated mischief; or, on th

* On the 26th Mr. Donaldson will give a genera *résumé* of the subject, in order that it may be discussed h the meeting.

other hand, if soft pure water be the only safe supply, that its substitution may be hastened with the utmost rapidity, or means at once resorted to for the palliation or prevention of mischief, not merely future, but at this moment in active force.

For our own part we cannot bring this grave question again under consideration more effectually than by eiting the conflicting, or at least apparently conflicting, evidence, *pro* and *con*, leaving it especially to those professional chemical authorities who seem to be at variance, to come to a right understanding, and hence to unanimity, on the subject, as best they may.

And, first, in support of the assertion that danger is not to be feared from soft water, but from hard. In favour of this view, a view which we hope will be found correct, although we confess that our fears are still at loggerheads with our hopes, the most influential evidence we have yet seen is that of Dr. Lyon Playfair. On the 6th ulto. we inserted in our columns a report of a lecture by this gentlemen at the Museum of Practical Geology, on water-supply, from which we quote the following passage:—

"It has been asserted that soft water acts injuriously upon lead, and that the presence of lead can be detected in soft water which has been kept in leaden cisterns by the addition of sulphate of ammonia. This latter is a delicate test for lead, throwing it down in a faint black precipitate. In order to test the truth of this assertion, Dr. Playfair had prepared a number of bottles, each containing a piece of lead immersed in water containing specimens of all the salts found in the London water, and also in water free from these salts, or perfectly soft. These bottles were sealed up in January last, and the action of all the water containing salts was very apparent, while the soft water had not acted on the lead at all. As an example of those which had no action on the lead, the lecturer specially alluded to the Wandle water, one of those proposed to be brought into London, and well known for its remarkable softness. Where common salt is present in water, the action on lead is considerable. *All his experiments tend to prove that perfectly soft water has no action on lead, and that all the solid ingredients of water* [constituting *hard* water] *tend to produce and increase the action of lead.*"

Before proceeding to quote any other evidence, we must here remark, that so far as regards Dr. Playfair's experiments with perfectly soft water, the plain inference which the public must inevitably draw from a set of experiments so exhibited at such a time, is, that it is perfectly safe to pass pure soft water through leaden pipes, and to keep it in leaden cisterns. This, we have no doubt, is the lecturer's own conclusion; but it is necessary to point attention to it, in order to remark that, while there is a singular coincidence, in *fact*, between the result of such experiments, and the assertion of Dr. Paris, in his Treatise on Medical Jurisprudence, that "pure water, *provided the air be excluded*, does not appear to exert any sensible action upon lead," and of Christison, in his Treatise on Poisons, that "distilled water (that is, chemically *pure* and soft water), *deprived of its gases by ebullition, and excluded from contact with the air*, has no action whatever on lead;" still there is a mighty difference indeed, as will be afterwards clearly shown, in ultimate results.

Dr. Playfair's conclusion appears to be supported by practical evidence. Thus, in the appendices to "The Report on the Supply of Water to the Metropolis," issued by the General Board of Health, and already quoted at p. 169 of vol. ix. of our journal, a working plumber, William Millard, gives the following evidence:—

"What is your observation of the different action of hard and soft water on leaden cisterns?—The hard water eats the cistern away: the soft water (that is, rain water) does not sensibly touch it at all. The hard water of Highgate will, in a few years, eat the bottom of a leaden cistern entirely away, so that it will be useless.

In how many years?—In about three or four years.

Does not a leaden cistern usually last longer than that in Highgate?—No; it eats holes in the bottom, particularly at the places where there is solder, giving it a honey-combed appearance. This is so much the case, that it is a common custom here for the people to have their cisterns painted.

Is that a protection?—Yes, if the paint be allowed time to get thoroughly dry before the water is let into the cistern, the water does not act upon dry lead, and the cisterns will then last for years."

This evidence, we say, *appears* to support that already adduced. As to the safety of soft water it decidedly does so; but it may be a question, whether it really were the hard water itself that here was in fault, so much as the galvanic action of the solder, and some intermittent exposure to air while moist, from want of constant supply, and of consequent quiet and continued deposition of protective crust.*

That other practical men, however, have come to a like conclusion, so far as regards the influence of hard water, appears from the evidence of Mr. Spencer, of Liverpool (the discoverer of the electrotype, if we mistake not, and hence a most competent authority). He says,—

"Those who have observed the destructive effects of hard water on cisterns, especially in Liverpool, where the water is pre-eminently hard, but who have not studied the matter chemically, have been at a loss to account for some of the scientific opinions so much at variance with their daily observation. In a word, the closet experimenter has usually come to the conclusion, that *soft water only* acts upon lead, while the practical observer finds that cisterns are more rapidly corroded by hard water; hence has arisen so much conflicting opinion. A little reflection, however, will render it obvious that the effects of practice can scarcely be observed by the mere immersion of slips of brightened lead into glass vessels containing either hard or soft water, and there suffering them to remain for a few weeks, perhaps only so far covered as to prevent evaporation or the accession of dust.

It must be recollected also that, as cisterns are constructed, lead is not the only metal which has to be dealt with; there being the solder which is used for the joints. Now this substance, which is an admixture of lead and tin, will, when immersed in water along with lead, act as a distinct metal, and give rise to a voltaic action between the lead, the solder, and the water. This will cause a rapid corrosion at the joints, but it will be more or less active *in proportion to the hardness or chemical impurity of the water.*"

Here, indeed, the evidence is not only in favour of Dr. Playfair's experiments and conclusions in some respects, but in others something more: in fact, it strikes both ways, and increases the critical interest of the question.

Dr. R. Angus, in the following evidence, also corroborates the truth of the idea that hard water is dangerous in lead, while at the same time, however, asserting that soft water is still more so:—

"The use of lead pipes is common enough; and although the danger from lead has often been pointed out, there is no diminution in the amount used. It is acknowledged that with soft water lead is very dangerous; but I am disposed to think that it is dangerous even with hard, except when a crust forms upon it. When a lead pump is used, no matter how hard the water is, there is still lead to be found in it. In one case I found lead where there were 62 grains of lime salts in a gallon: the family filtered the water, but that did not quite remove it, although it was much improved. This shows the lead to have been in complete solution although the water was hard. The pump was made of lead, so that there was a constant friction preserving the surface clean and assisting commination."

Here, however, it is obvious that the hard water had no opportunity of forming the protective crust, so that this evidence rather militates in favour of the comparative safety of hard water in lead cisterns, explaining, by inference, why it is so, as well as one way in which it may nevertheless be dangerous to use either hard or soft water, viz. in association with a leaden pump.

Again: we find a correspondent of our own, Mr. H. Osborn, of Southampton, a practical chemist, while corroborating the truth of some previous remarks by us on the mutual influence of lead and water, stating that he

"Examined some water a few months since, which contained lead in solution, and the pipe had been laid down about fifteen years; but, notwithstanding that the solid contents contained in a pint of the water amounted to ten grains, and were composed of chlorides and sulphates, *they afforded no protection by forming an insoluble crust*, otherwise the lead would not have been found in solution."

It so happens that Mr. Osborn also makes some remarks on experiments with slips of lead in glasses of water, which not only corroborate the truth of Dr. Playfair's experiments, but, in fact, seem to show how they may be reconciled with the opposite conclusion. We shall quote them here, although they might, with equal propriety (perhaps even greater), have been reserved to strengthen the adverse view:—

"There is less danger in drinking water when kept in leaden tanks, than when it has passed through pipes, because the gases which usually form the most soluble corrosive matter are confined within the pipe, whereas, in open cisterns, the gas is more liable to escape. I have found carbonic acid in water which corroded lead rapidly when corked up in a bottle or confined in a pipe (the pipe leading from the pump to the well is of course always full of water), but when a slip of lead is introduced into a glass of the same water, the metal is scarcely acted upon, owing to the gas escaping."*

NOTES IN THE PROVINCES.

Windsor.—The Castle approaches seem to make but slow progress towards completion. "A fresh difficulty," says the *Windsor Express*, "has arisen with respect to the boundary of the fence at the turning into High-street. The line was laid out in conformity with the directions of his Royal Highness Prince Albert, and so perfectly satisfied were the authorities of the town with it, that they resolved to erect a handsome pedestal lamp in the centre of the opening caused by the junction of High-street, Castle-street, and Peascod-street. Much to the surprise and disappointment of the inhabitants the curve of the pavement has again been altered so as to encroach six feet more into the carriage-way, and thus render the erection of a large public lamp at the junction entirely out of the question. The Mayor and Mr. Bedborough have been re-appointed to arrange the matter with the Commissioners of Woods and Forests," who appear to be considered as exclusively responsible for the alteration made.

Portsmouth.—Messrs. Fox and Henderson, who have the Government contract for the erection of a new smithy in Portsmouth yard, have commenced their work. The old buildings have been cleared away. The smithy will stand between the new factory and the building slips, and will take in Nasmith's patent steam hammer. The *Hampshire Guardian* says "it is to be constructed of glass and iron, and a part of the late building in Hyde-park will, in all probability, form the structure."

Portland.—The breakwater works are making progress, and already afford shelter to shipping. The works are carried out to a distance of 7,750 feet from the original line of shore into about nine and a quarter fathoms of water. Notwithstanding the damage done on 1st October last, when upwards of 300 feet of the

* A witness from Paisley, where soft water has been introduced, says that corrosion in pipes takes place only under the intermittent supply, by the action of the atmosphere on the pipe in a damp state; and that an iron pipe constantly charged will not corrode at all, whether the water be hard or soft, and will last at least four times as long as a pipe where the air is admitted into it. Other witnesses corroborate the fact that, with some waters, the wear of pipes by the intermittent supplies is frequently very rapid, the rationale being, that oxidation takes place whilst the pipe is empty, and that the oxide is swept away by the return of the water. As to galvanic action, Christison, in his treatise on Poisons, ed. 1845, p. 536, says,—"I have seen pipes deeply corroded externally, when made of sheets of lead rolled and soldered; and the action was deepest on each side of the solder, which had itself entirely escaped corrosion. *Even inequalities in the composition of the lead may have the same effect.* Sheet lead, long exposed to air or water, is sometimes observed to be corroded in particular spots, and these will always be found in the neighbourhood of parts of the metal differing in colour, hardness, or texture from the general mass." Similar effects, he remarks, may arise simply from fragments of other metals lying along in contact with the lead. They may also, he thinks, arise even from portions of mortar being allowed to lie on the lead; but the action here, of course, is not galvanic. He has no doubt that many of the instances of unusually rapid corrosion of lead by water are really owing, not to the simple action of the water, but to an action excited, obscurely, in one or other of the ways now mentioned.

* To be continued.

staging was swept away, the contractor, Mr. J. T. Leather, with his agent, Mr. E. P. Smith, under the superintendence of Mr. Coode, the resident engineer, have made all secure again.

Compton Greenfield (Bristol).—The dilapidated and dangerous condition of the ancient church of Compton Greenfield, near this city, says the *Bristol Journal*, having rendered it necessary to take down and rebuild nearly the whole of the external walls of the structure, it was deemed proper to have the church reconsecrated. This ceremony was performed on Tuesday last. The church, upon the foundation of which the new building is erected, was an ancient Norman structure, of which the porch door, the tower, and the chancel arch are incorporated in the new edifice. The newly-erected building consists of a nave, 30 feet by 20; chancel, 20 feet by 11; a small arched recess on the north side (an addition made to the new building, which is otherwise similar to the old structure), 9 feet by 6; and tower about 11 feet square. It provides sitting accommodation for 110 persons. The ancient tower is of Perpendicular style; the nave and chancel of Norman, with high-pitched open roofs of Perpendicular character, as is all the wood furniture. All the windows are filled with painted and diapered glass. The west window was presented by Sir J. F. Davie, Bart. Arrangements have been made for lighting the church by night, by camphine burners, attached to the walls by ornamental wrought-iron work. The architect is Mr. Fripp, of Bristol. The whole expense of the alterations and enlargement, estimated at fully 1,000*l.*, has (with the exception of 50*l.* paid by the parishioners for the carriage of materials) been borne by Mr. R. C. Lippincott, of Over Park.

Torquay.—A new Wesleyan Chapel is about to be erected under the superintendence of Mr. E. Appleton, architect. It is situated on a platform cut out of the side of the Waldon Hill, and is approached by a public road, with a gradient of 1·15, and a private road within the chapel ground of 1·10, in order to raise the building up as high as possible. It will be built of the limestone of the neighbourhood, and will have an open timber roof: the style is early English.

Birmingham.—New offices for the Board of Poor Law Guardians are about to be erected in a central position, on a plan by Mr. Bateman, architect, on condition that the cost does not exceed 2,900*l.* Two different modes of construction, according to the local *Journal*, have been recommended by the architect, involving the use of different materials, the one of red brick with stone facings, and the other of cement. The style of architecture selected is Italian, and the appearance is plain and unpretending. The basement throughout will be rusticated, and the windows and principal door, the arches of which are semicircular, dressed with stone or cement. The building presents two stories towards Paradise-street, to which thoroughfare the front rears itself, but the abrupt fall in the level of Suffolk-street admits of another in the basement, with an entrance from the last-mentioned street. The front will be surmounted by mouldings, a consoled cornice, and a parapet and balustrade, which will be partially continued along the side, the insignia of the board being displayed in a block ornament in the centre. The basement story is devoted to the relief department, and contains a relief board-room, pay-clerk's and relieving-officers' rooms, porter's lodge, and waiting-hall for paupers. The first floor is appropriated to the levy department, and includes collector's room, levy-clerk's office, overseers'-room, and record-room, of fire-proof materials. From the lobby a staircase will lead to the general offices, including those for the clerk and assistant-clerks, a committee-room, and a board-room at the rear and lighted from the roof. It is intended to heat a portion of the premises by hot air, and the remainder in the ordinary manner.

Wolverhampton.—The opening of the new Exchange here was inaugurated by an entertainment given by the mayor on 5th instant. The great hall, which is 100 feet long, 50 feet wide, and 50 feet high, is intended for the meetings of ironmasters and farmers, and also for public meetings, concerts, &c. In its present state, it is said to be not very well adapted for hearing or speaking in. Besides its original design, four columns, with Corinthian capitals, have been added in the interior as supports to the glass dome which lights it. Objections have been taken to the effect which this new edifice produces on the very different style of the old Collegiate Church adjoining it.

Loughborough.—Several influential gentlemen in this town and neighbourhood contemplate erecting an assembly-room, in which meetings and balls may be held, lectures given, and other business of a similar nature transacted.

Rotherham.—A large Gothic monument has been erected by Mr. Edwin Smith, of Sheffield, sculptor, in Rotherham Church, to the memory of the late Mr. Bentley. It is executed in Caen stone, with a statuary marble tablet in the Decorated style.

Doncaster.—A project being on foot for the erection of a stained-glass window in the west end of the parish church, to the memory of the late Sir William Cooke, Bart., a local worthy to whose honour dissenters as well as churchmen are likely to subscribe for a fitting memorial, a correspondent of the *Doncaster Gazette*, while remarking that the church ought to be decorated as desired, suggests that for this particular purpose all parties would be more likely to unite in subscribing towards the erection of a statue or some charitable asylum. Taking, he remarks, into consideration the expense of the east window (1,000*l.*) and the alterations that would be required to give full effect to the beautiful tracery of the west window—the removal of the organ would be necessary, the possible lowering of the west gallery, and the taking down the gallery in the north transept for the organ: with these alterations and the stained window, the cost could not be much less than 2,000*l.*; and for such a sum an asylum might be built with an endowment for several worthy objects of charity.

Alnwick.—It is proposed to adorn St. Paul's Church, Alnwick, with stained glass, as a monument in honour of the late Duke of Northumberland.

Glasgow.—This city is about to have the benefit of another charitable institution for the education of children belonging to the humbler classes. By the will of the late Mr. Allen Glen, for many years a joiner in Glasgow, the sum of 16,000*l.* was left to found a school or schools to bear his name, and to be erected on his property between Hanover-street and Frederick-street. The work was commenced some weeks ago, and is expected to be finished some time in the course of the summer months. The front of the building faces Cathedral-street. The institution is intended to furnish education, clothing, and probably boarding, to about fifty boys, sons of tradesmen, or of parents belonging to the industrial classes.

Forfar.—The monument to the late Sir R. Peel has been erected and is the first permanent memorial in Scotland of Sir Robert. The monument occupies a very commanding site on an acclivity to the south of the town, and is built entirely of ashlar, from St. Andrews. It consists of eight Corinthian columns of the Tivoli example, disposed round four central piers, and showing four pediments to the cardinal points. Over the piers a square portion rises considerably above the ordonnance, and terminates with a balustrade and vase. The west front of the basement contains the inscription tablet, and is flanked by two sphinxes. The whole height of the structure is forty-two feet, and it has been executed by Mr. David Barry for about 280*l.* The architect is Mr. Maclaren, of Dundee, whose design, according to the *Northern Warder*, was selected by the committee from among thirty-four submitted in competition.

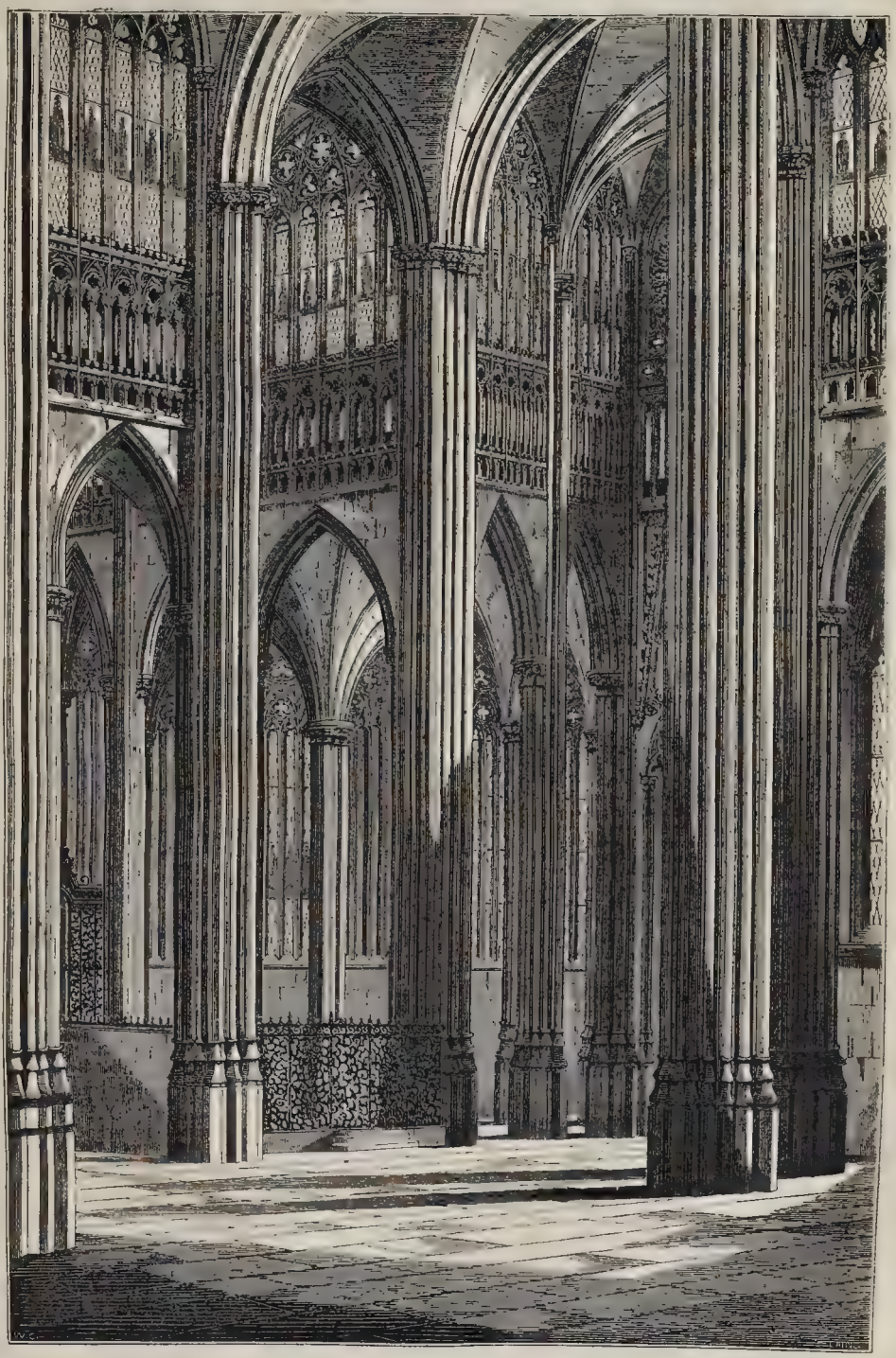
Surrey Tidal Dock. — Amongst other measures proposed for the improvement of the Thames navigation, a plan is announced for the construction of a large tidal dock on the Surrey side.

THE CHURCH OF ST. OUEN, ROUEN.

Few cities enjoy a more wide-spread reputation for ecclesiastical antiquities than Rouen. That this celebrity is well deserved, none who have once visited it will be inclined to dispute. There are still remaining fifteen churches (exclusive of those which were closed in 1791, and which have since been put to most base uses). All of these have some particular beauties which render them worthy of the most attentive examination. Of these churches, the Cathedral, St. Ouen, and St. Maclou are by far the most important, and we propose from time to time to give some few illustrations of these buildings. That which we now present to our readers is an interior view of the Church of St. Ouen, taken from the north transept. The Abbey of St. Ouen, the most ancient in Normandy, was founded in 533, and in 841 it was destroyed by the Normans, who had just landed at Rouen. The mischief thus committed by his followers was in part repaired by Rollo, who commenced the rebuilding of the abbey, and his example was followed by the dukes who succeeded him; but in the time of William the Conqueror, the building was again demolished, and the first stone of a new church laid in 1046. The whole work was not completed until 1126, and in 1136, only ten years after its completion, the work of eighty years was in one day destroyed by fire. Through the liberality of the Empress Matilda and her son, Henry II. of England, who was also Duke of Normandy, the monks of St. Ouen succeeded once more in rebuilding their abbey; but even this edifice, which had been raised with great care, and was in every way far superior to its predecessor, was destined to share a like fate. In 1248 fire again did its work, and the destruction of the immense pile was complete. At length a building was commenced that was destined to endure for centuries. In 1318 the first stone of the present magnificent edifice was laid by John, the twenty-fourth abbot. In twenty-one years, during which the works proceeded without interruption, the choir, with its chapels, the piers which support the central tower, and the greater part of the transept were finished. These portions cost about 110,000*l.* of our money. The completion of the transept was deferred till 1439. The central tower was completed before the end of the fifteenth century, and the whole work, with the exception of the west front, which was left unfinished, was brought to a conclusion about the year 1540. The entire length of the building within the walls is 450 feet, which is thus made up:—the nave 264, the choir 110, the remaining portion extending to the end of the Chapel of the Virgin, 76 feet. The height of the choir is 108 feet, and the entire breadth 78 feet. The length of the transept 143 feet by 38 in width.

Our engraving is from a drawing made on the spot, by Mr. Caveler.

Profit of High Farming.—Mr. Mechi, who, as every one knows, has been laying out a good deal of money in the improvement of his farm of Tiptree, at Kelvedon, Essex, has published a sheet of explanation as to an alleged loss in place of a gain on his balance-sheet for last year. From Mr. Mechi's explanation, it appears that in place of being a loser he is even already a gainer, with a prospect of increasing income with decreasing outlay. The alleged loss consisted simply of a sum of 600*l.* minus on 1,600*l.* of purchased food for live stock kept mainly or exclusively for their produce of manure, which latter he regards as more cheaply obtained in this way, for the 600*l.* in question, than if directly purchased as manure. Moreover, he calculates that for the future he will not require to buy any more artificial food, or manures either, although still able to keep plenty of stock from the produce of half of his farm. There is here, he says, a clear and permanent profit in place of even a temporary loss. The boarded floor system he anticipates will shortly be generally adopted (we scarcely think so), and straw be consumed as food.



INTERIOR OF THE CHURCH OF ST. OUEN, ROUEN.

VALUE OF THE "SUDATORIUM."

I OBSERVED lately a letter in your pages pointing out some of the advantages of fire-proof houses: there is one important benefit, of a sanitary character, which they would confer,—that is, a small room might be constructed below ground, in private houses, both in town and country, heated to the degree of an oriental hummaum, without incurring danger. In the East they have been universal from time immemorial. In ancient Rome, and over her wide dominions, the *sudatorium* was considered indispensable as a preservative of health: in many of the remains of Roman villas discovered in this country, the tile flues by which such rooms were heated are still visible. The Danes introduced the practice again into England, for it is on record that it was the cause of the preference manifested by the Saxon ladies for the invaders.

Now, in a commercial country like this, a hot room would be peculiarly desirable: the merchant sits all day at his desk: he cannot afford time for out of door exercise; but his daily task being terminated, he thinks he is fairly entitled to a good dinner: down goes the turtle, followed by the punch: here is a lamentable excess of imports over exports: the stomach does much, the pores nothing; hence gout, apoplexy, and a legion of ills. The citizen in consternation asks,—"What! am I to work hard and live on gruel?" No, good sir, let your house be fire-proof: employ an architect, acquainted with the mode of heating adopted at Smyrna or Constantinople, to build you a subterraneous room, say 9 feet square, with a dressing-room adjoining at a lower temperature, and thus the depletion rendered necessary by the counting-house and the good cook will be effected periodically by the enjoyment of a luxury without loss of time, without trouble, but with cheering gain of appetite. Just try. T. R. Y.

THE DRAINAGE OF TOWNS AND ITS DISTRIBUTION.

I WAS much struck with your recent powerful appeal on the subject of metropolitan drainage, and preserving the river from pollution. It is positively disgraceful that the present state of things should still go on without any hopeful prospect of amendment. The quotation from the Report of the Select Committee of the House of Commons as to effecting a remedy through the agency of a "Company," although just to a certain extent, is likely to mislead; as may be shown by the experience of the Sewage Manure Company, whose Bill was under the consideration of the Committee alluded to. The experiment, as worked out by that company, proves indeed the *practicability*, but not the *remunerativeness* of the undertaking. The latter, I believe, is mainly owing to the enormous expenses imposed on the promoters by vexatious opposition, and the consequent exhaustion of their funds, which were thus rendered insufficient to carry out their scheme on such a broad scale as would give an adequate return for so much sunken capital; but, so far as it goes, it undoubtedly accomplishes the grand desideratum, of carrying off the foul water from the river, and applying it to fertilize the land. I am induced to refer to this case more particularly as it appears that another company is now proposed, who hold out the expectation that these objects can be effected with profit to the adventurers, and thereby the public will be saved from all charge. This, I feel assured, is too flattering a prospect to be realized; and even to entertain it now will only tend to divert the public attention from the actual requirements of the case, and still further to retard their accomplishment.

The most obvious objections are the enormous expense of carrying deep tunnels along the whole length of the metropolis, with the numerous intercepting sewers and branches to collect the drainage into them, and their liability to silt up and become quite choked, having only an artificial current obtained by pumping, which cannot carry off the heavier matters that will be washed into them. The difficulty or impracticability of efficient cleansing and repair. After all, it appears that the foul contents may be thrown into the river; and though the pollution might not extend to the inhabitants of *Westminster*, yet the consequences must be more or less injurious to many populous districts, in proportion as they approximate to the noxious source. But the projectors say we intend to *manufacture* the sewage into guano: doubtless this might be done, but will it *pay?* And has not the experiment been already tried and proved a failure. Then as to *distributing* the fluid over the country (which has been proved to be the only efficacious and economical mode of dealing with it), such an attempt would be rendered almost abortive by the concentration of the whole at *one spot;* so that in order to embrace an adequate scope for distribution, the cost of transmission will be enhanced beyond what the manure would be worth, and consequently more than the consumers could afford to pay.

I think it must be evident from this general view that these elaborate and costly plans, with their concentrated termini, must certainly fail to accomplish the great object desired; either in a public point of view, or as regards commercial enterprise. I am, therefore, induced to offer some suggestions of a more limited nature, by which I feel assured that the great end might be attained by a combined operation of public and private means, without embarking in any great outlay at one time, and thus avoiding any large risk.

Presuming that the application of the sewage to fertilize the land is one very important object, it is evident that the shorter and more direct the line of transmission, the cheaper it will be supplied, and the more readily the nuisance will be removed; therefore, instead of conveying the whole to one spot, the object should be to throw it off in radiating lines, from all points of the metropolis where it can be most conveniently collected, taking the most direct courses along the principal roads, say to a distance of 10 miles or more, according to the nature and requirements of the country. The pumping stations to be planted at or near the mouths of the principal sewers, with branches or intercepting conduits to collect the whole drainage of the neighbourhood into the well.

The public may be well content to bear the expense of these stations, with the main pipes and the engine power to pump away the fluid, *which is their main object*, as it will be much less than in the plans alluded to; for it will not involve any material alterations in the arrangement or construction of the existing sewers and drains, and when the foul fluid is thus conveyed into the rural districts, there can be no doubt that associations will be readily formed (with the facilities and inducements to be afforded them) to undertake the distribution of it for their own and their neighbours' benefit, to be paid for at a very moderate rate, which, after a sufficient return to the adventurers, might go towards reimbursing the public for their outlay. Even if no such reimbursement should be realised, the public will have effected their object, and at a moderate expense; but from the experience of the Sewage Manure Company, it would appear that the operation might be rendered remunerative, both to the adventurers and the public; inasmuch as all the great charges which have crippled that company will in this case be avoided.

In order to carry this scheme into effect, a general Act should be passed, combining all the requisite powers for local and general purposes, by which the country associations might be severally incorporated without expense, so that their funds may be wholly devoted to providing the distributing pipes and apparatus, with the necessary staff for working and management.

One great advantage of this plan, as compared with the gigantic schemes before alluded to, is, that from its nature it is so arranged as to admit of being carried out progressively, taking up one branch line at a time, the outlay on which will be comparatively small, giving the benefit of experience in the subsequent execution of others, and thus (as already remarked) avoiding any great risk.

The general result will be, that the great *sanitary* object will be attained at a very moderate expense to the public; and the *economical* object, viz., the preventing the annual waste of nearly a million's worth of valuable material, will be effected by private capital and enterprise. Thus these two great ends will be attained, by the joint operation of public and private means, with much greater advantage than either of them can be accomplished separately. CIVIS.

EPITAPHS AND THEIR REFORM.

As your readers seem to be interested in this matter I subjoin you a few remarks on the same with illustrations. The true character of an epitaph is not to cast ridicule, and to provoke the smile of the passer-by, as in the following, copied from a tomb in a country churchyard in Cheshire:—

"Here lies W. W.
Who never more will trouble you, trouble you."

And another from a stone in the beautiful yard of the picturesque village of Gawsworth:—

"Reader, take notice, that on the 12th of February, 1760, Thos. Corbishley, a brave veteran dragoon, here went into his quarters, and remember that when the trumpet calls he'll out and march again."

Nor yet ought it to be so much that of eulogy as instanced in the two following inscriptions from tablets in the cathedral yard of Glasgow, A.D. 1616:—

"Yee gazers on this trophy of a tombe
Send out ane grone
For want of her once born of earth
And now lies in earth's wombe,
Liv'd long a virgin,
Then a spotless wife, here lies enclosed
Man's grief, earth's loss, friend's pain,
Religion's lamp, virtue's light, heaven's gain."

Also the following, which is far better than the last:—

"He lived—nor made himself a single foe—
He died—nor left an enemy below."

But its purport ought to be, and often is, that of leading the listless wanderer (and who that has an hour to spare does not like a stroll through the old churchyard) to think of the scenes around him, and to reflect how soon he may be called to join those who lie there. In conclusion I give you two which are more to my taste, and which speak volumes.

The one from a stone in St. Mary's churchyard, in Stockport:—

"As you are now,
So once was I:
As I am now,
So you must be:
Then remember
That you must die."

The other from a head-stone in that beautiful cemetery of Liverpool, peculiar in the solemnity of its solitude amidst all the bustling scenes of life:—

"What her character was will be known at the day of judgment. Reader, think what thine own will be."

M. B. NEWTON.

MR. EDITOR,—You are doing good by again directing attention to the impropriety of many of the epitaphs which disfigure our churchyards. I send you one from St. Mary's, Islington, which, although it has no evil in it, is wanting in the dignity, earnestness, and solemnity which should mark these compositions:—

"Art thou dead, Thomas?" "Yes, and here I lie."

"Dost thou live, Thomas?" "Yes, with Christ on high.
I lived to die, and died to live on high,
With God and Christ to all eternity."

Will you let me say here how much I liked your few words about flowers. Every artist should love flowers—study flowers. Allan Cunningham has half-a-dozen charming lines upon them:—

"There is a lesson in each flower—
A story in each stream and bower:
On ev'ry herb on which we tread
Are written words which, rightly read,
Will draw us from earth's fragrant sod
To hope, and holiness, and God."

MONS EXIMIUS.

NON-LIABILITY TO THE HOUSE TAX OF DWELLINGS FOR THE LABOURING CLASSES,

WHEN BUILT IN BLOCKS, WITH DISTINCT ACCESS FROM THE OPEN AIR TO EACH TENEMENT.

THE Commissioners of Assessed Taxes for the division of St. Giles-in-the-Fields and St. George's, Bloomsbury, having confirmed an assessment of window-duty, at the rate of 55*l.* 3s. 6d. per annum, made by their surveyor on the model houses built by the Society for improving the Condition of the Labouring Classes, in Streatham-street, Bloomsbury, an appeal was made against the same, on the ground that the building is not one dwelling-house, but that the tenements are distinct and separate dwellings, each having its own outer door, and the only access to them being by galleries or corridors, open to the air, and approached by an open staircase, which is not connected with the separate tenements otherwise than as a roadway to the galleries; that each set of rooms has not more than five windows; that the buildings have been constructed as models of dwellings for the labouring classes, in localities where it is of the utmost importance, from the very high price of land, to economise space, and at the same time to make them separate tenements, and, as such, not liable to the payment of the window-tax.

This appeal made to her Majesty's judges having been considered by them, their opinion has been given that the assessment was wrong, and the amount of the assessment paid by the society is to be repaid forthwith.

The importance of this decision, since the window-tax has been repealed, is, that it must be considered conclusive as to the non-liability to the house tax of dwellings for the labouring classes similarly constructed to those in Streatham-street. It has been apprehended that this tax would bear heavily on all piles of model houses for the labouring classes, even if built on the small scale of those exhibited by H. R. H. Prince Albert at the Great Exhibition: they will now of course be exempt, as their arrangement is similar in principle to these Streatham-street houses.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

National Society of the Antiquaries of France.—This society held its anniversary meeting on the 9th inst., when Messrs. J. H. Vincent, de Lasterey, &c., were elected officers for the ensuing year. Amongst the *foreign corresponding associates* nominated are Messrs. Thomas Wright, of London; Thiersch, of Munich; Zumpft, of Berlin; Delgado, Madrid; Sacchi and Marchi, Rome.

The Château of Ham.—This now noted building was erected in its present state by Odon IV. in 1216, on the place of a castle dating probably from the time of the Romans. The principal tower of this bastille is called "La Tour du Connetable de St. Pol." For the last *thousand* years this castle has served as a state prison, and some of its memorable inhabitants were Charles the Simple, king of France, in 923; Louis XI. king of France, in 1470; Mirabeau, 1782, &c. Its external appearance is quite in keeping with the mediæval period in which it was erected.

Completion and Systematisation of the Telegraphic Lines in France.—The French government have decided on the *completion* of their telegraphic wires not only along the lines of railways, but also on the ordinary roads, so as to make *all* the territory of the republic participate in this new system of communication. Up to the present time *nine* great telegraphic lines have been either completed or are in course of construction.

*The Capitol at Washington.**—"The loss of the library is a catastrophe, as far as America is concerned, — perhaps even so concerning the literature of the world. It is not generally known, that this establishment entertained especial agents in the principal towns of Europe. One of these was our consul, O. Rich, in London, who, for several years past, had purchased books to the amount of 1,000*l.* every year —a large sum to be expended, especially in cheap German and French works! But Mr. Rich went further, and had, a few years before his death, purchased the famous *Bibliotheca Americana* of M. Ternaux, of Paris — a collection unmatched for the completeness and rarity of books of that especial department. Much of it was purchased through Baron Humboldt for the Royal Library of Berlin; another portion went to the collection of the capitol. If this has been burnt, irretrievable loss has been sustained. One thing is certain, that our present luxuriousness (*Verweichligung*), and the construction of our large buildings, are irreconcileable with their safety. A hundred years ago the capitol would have had a number of chimneys—and there the matter rested. Now we must have a temperate temperature all over the building. Hence pipes and flues, and warm air apparatus, &c. Such, however, seems, as their last catastrophe also proves, incompatible with the use of any particle of wood in the construction— an important theme for modern builders."

* From the *Weser Zeitung*—Correspondent from New York.

RECOVERY OF ARCHITECTS' CHARGES.

IN the case of *Abraham* v. *Wyld*, tried some time since, plaintiff, who was the defendant's architect, brought an action to recover 492*l.*, for designing, making estimates for, and superintending the erection of the building recently erected in the area of Leicester-square, for exhibiting the defendant's "Model of the Earth."

The plaintiff, by his particulars, amongst other things, claimed 5*l.* per cent. on the actual outlay, which was computed at 5,500*l.*, and 2½ per cent. upon buildings which had been contemplated, but not carried out.

It appeared, from the statement of the plaintiff's case, that the defendant first applied to Mr. Welsh to supply him with the necessary drawings, &c. This Mr. Welsh did, and proceeded to carry them out, upon the understanding that the building was not to cost more than 1,500*l.* The contract was, however, ultimately taken by Mr. Myers, at 1,888*l.*

In the first instance the plaintiff assisted as a friend, but ultimately Mr. Welsh gave up the matter, and defendant retained the plaintiff as the sole architect, who, with some slight modifications, carried out Welsh's plans, but made a fresh set of drawings: he also superintended the erection of the present building. The plaintiff also designed buildings to cover the whole internal area of the square. The side buildings the defendant proposed to let as theatres; and the plaintiff estimated that the whole of these buildings would cost 11,500*l.*

Edward Welsh proved the employment of the plaintiff; in cross-examination said,—My instructions were not to exceed 1,500*l.*; my commission was calculated on 1,888*l.* which included my charge for all the drawings. I never contemplated the wall surrounding the building; it is of no use to the globe, and is a costly work. My charge was half the usual one. The commission is calculated on the actual cost, notwithstanding the architect is out by 150*l.* per cent. in his estimate. (The learned judge here interfered, and said it was immaterial what the usage of the Profession was as to excess, for the *law* would not sanction an architect's charges of commission upon an excess in the amount of an estimate *arising from incompetence*).

The plaintiff.—I am an architect, carrying on my profession in Great George-street, Westminster. I am the projector, &c. of Victoria-street, Westminster. I was informed by the defendant that he was about to carry out a scientific work, and he showed me the models. I afterwards saw Welsh, and was asked by both to give my opinion. I refused at first, but afterwards gave Welsh a design for a truss which I thought necessary. I furnished it gratuitously. I heard no more of the matter until the defendant informed me he was in a difficulty with Welsh, who could not carry on the work rapidly enough. I said I could not interfere unless I was appointed the consulting architect; this was done by letter (which was read). Welsh afterwards abandoned the work on payment of a sum of money. The business was much pressed upon me. There were to be four theatres, one at each angle; the work was to be done quickly, to cover the whole square, and to proceed so rapidly as to forestall an injunction by the inhabitants of the square. I afterwards made drawings and plans, and prepared the contract, but the haste was so pressing, that I had not time to take out the quantities, so that a schedule of prices was affixed to the specification. A resistance was made by the occupants of the square, and the scheme was partly abandoned. The wall was necessary according to the requirements of the Metropolitan Buildings Act, the theatres being then in contemplation. I have all the drawings for the larger buildings, with an estimate for all, which amounts to 7,000*l.*

At this period of the examination, the defendant's counsel interposed, and said that it might save some trouble if he at this time stated the defendant's points of defence, which were shortly—1st. That the original contract was 2,000*l.*, and that by reason of alterations, &c., it cost 5,500*l.*; 2nd. That no proper working drawings were supplied; 3rd. That no instructions were given for the drawings of the theatres, &c.; 4th. That there was no adequate superintendence by the plaintiff; and, 5th. That certain separate items in the plaintiff's bill of particulars were included in the commission.

In cross-examination plaintiff said—I thought Welsh's plan could be carried out with an addition of 250*l.* The defendant said he would lay out only 2,000*l.*, whereupon I refused to have any thing more to do with the matter. The casing of the globe was of wet timber. Timber always shrinks from plaster. Attended generally three or four times a day, and sometimes up to twelve o'clock at night.

Mrs. Parkes, proprietor of the Panorama of Hindostan, in Baker-street Bazaar, showed she was in treaty for one of the theatres contemplated.

The plaintiff was here further examined, and he stated:—It is a rule among architects that they shall draw on their own account, when the builder draws an instalment; this is, however, seldom pressed. The usual course of practice is, that the quantities are taken out by a competent person for the builder to contract by. The architect does not pay the cost, but the client. The contract in this instance, however, was special, as the defendant employed his own surveyor and an umpire to settle differences between surveyors. Ordinarily, however, a surveyor is not appointed besides the architect.

Mr. Myers.—I am a builder. I made a tender for the defendant's building in Leicester-square. I entered into a contract (contract read) for 2,000*l.* which does not include the whole works; they were to be determined by a schedule of prices. I believe the actual amount will be a little over 6,000*l.* I have been paid 1,500*l.*

Clerks of the plaintiff gave evidence that they attended.

Josiah Hunt.—I am a surveyor. I took out quantities on behalf of Myers. Lansdowne is defendant's surveyor. The amount will come out somewhere about 5,500*l.* The globe is cracked, I have heard. The roof lets water because of broken slates. The work is executed in the very best manner.

The plaintiff then called the two following witnesses to prove that the plaintiff claimed the usual charges.

Mr. Porter, architect, said,—The customary and proper charge is 5*l.* per cent. upon the 5,500*l.* It is the lowest that could possibly be made for such work. Two-and-a-half per cent. is a fair charge upon abandoned plans. The 5*l.* per cent. includes superintendence. The two-and-a-half per cent. does not.

Cross-examined.—The two-and-a-half per cent. includes estimate. It is usual to charge upon the extras—such is the established practice.

Mr. Donaldson was called, and he corroborated the preceding witness.

The plaintiff's case having been concluded, Mr. Phinn, on behalf of the defendant, moved that the plaintiff be nonsuited. His grounds were, that the particulars were for commission, which, according to the usage of the profession, was not payable until the amount of all expended moneys had been ascertained, which was not yet done, and that the money paid into Court amply covered all the contemplated works which were not carried out. Mr. Justice Erle, however, said that the evidence was capable of another construction, and that he should leave alternative propositions to the jury.

Mr. Phinn, when he addressed the jury on behalf of the defendant, urged upon them that the defendant was justified in bringing this matter before a jury, for although the subject of the remuneration of architects had often been discussed, yet the principle was to some extent unjustifiable. That up to the present time it has never been ascertained what is to be paid to the plaintiff, as the surveyors have not yet agreed upon the amount to be paid to Myers. He said that the roof admitted water, that the galleries oscillated in a fearful manner, that the joists were not of sound materials, and that, because of the consequent cracking of the plaster,

rivers appeared twice as wide as they should be; and the Isthmus of Panama had the appearance of being cut through, anticipating that desirable result by some years; the same remark was equally applicable to the Isthmus of Suez.

Mr. William Hosking.—I am one of the official referees. I refused to let the building be opened until it was strengthened. I pointed out the defects, which were the projecting floors of the galleries; they were not secure enough; they were of defective construction; they were afterwards strengthened.

The defendant (Mr. Wyld) said, all my instructions to the plaintiff had as their basis the first contract with Myers, dated the 5th of March, 1851; and also that the works should not cost 100*l.* more than the amount of that contract, which was 1,888*l.* Myers never informed me the cost would exceed 2,000*l.* He, however, said the corridor would be very expensive. I stipulated that the building was to be given up to the modellers by the 29th of March, and they could not get to work till April. I did not order any plans or drawings. The only drawings I have seen are five. Never saw drawings of the interior of the projected plan; in fact, I did not know, until I saw the particulars of demand in the action, that some of the drawings were made; a few came in on the 29th May. The surface of the model is very much cracked. The rain pours in through the roof. The handrail was obliged to be braced, and all the drains were found to be defective, and stopped.

Thomas Holland, carpenter, gave his opinion that some of the work was defective.

Mr. Horatio Miller considered the plaintiff to be greatly to blame for the delay.

Chester Lansdowne deposed that the accounts were not yet completed between him and Mr. Hunt, the surveyor of Myers. That the galleries caused a feeling of sea sickness, and that the view to be obtained from them was far from satisfactory. In cross-examination, said, I think from my survey that the cost of the building will be about 5,000*l.*

The jury returned a verdict for the plaintiff. Damages, 75*l.*, beyond the amount paid into Court, namely, 200*l.* The plaintiff has, therefore, recovered, in the whole, 275*l.* The action was brought for 492*l.*

STUDY OF ART IN ENGLAND.

To advance architecture it is necessary to multiply the critics; for if architects knew that there were chiels among them taking notes, and fully competent to judge of their works, there would be a great stimulus to exertion. Though the minds of the generality of English gentlemen of the present generation are well-informed, there are few of them who can draw a straight line: until lately drawing was not taught at the great public schools, and even now at Harrow, where there are nearly four hundred youths, scions of some of the best families in England, the drawing-master has not more than about forty pupils: at Eton, I believe, the per centage is still lower. No blame is to be attached to the directors of these establishments: the fault lies with the parents, who in an enlightened age are not yet sensible of the value of the accomplishment. It is often pitiable to hear the remarks on works of art hazarded by persons of elevated stations in life. No nation is more prone to travel than the English, yet few of them seem to say,—

> "Quanto mi giovará mostrare altrui
> Le novita vedute, edire io fui:"

if reminiscences are brought back, they are from the print-shop.

When it is suggested to a parent how desirable it is to educate the hand and the eye, the frequent answer is, "My son has no talent for drawing." Of course it is not to be expected that every body's son is to be a Raphael, but many a boy would, in the mechanical part at least, make progress and cultivate his taste if he were allowed to try. T. R. Y.

FIXING BALCONIES.—Two serious accidents having occurred in the neighbourhood of the North-road, Hoxton, one to a painter, the other to a female, in consequence of the falling of balconies, will you do me the favour of calling attention to the subject through your Journal? A few inches of straight iron inserted into the brickwork is altogether insufficient for their security. I can see no really secure method but having arms carried through the walls, and fastened to a plate or bar inside by screw.—J. H.

Books.

A Dictionary of Greek and Roman Geography. By various writers. Edited by WILLIAM SMITH, LL.D., Editor of the Dictionaries of "Greek and Roman Antiquities" and "Biography and Mythology." In Quarterly Parts, of 1 Vol. 8vo. Illustrated with numerous engravings on wood. Part I. Taylor, Walton, and Maberly, Upper Gower-street; and Murray, Albemarle-street. 1st January, 1852.

THE nature of this valuable book is sufficiently explained by its title, and by the dictionaries of "Greek and Roman Antiquities" and of "Greek and Roman Biography and Mythology," to which it will form a companion, written principally by the same contributors. Notwithstanding its title, it will be in reality a Dictionary of Ancient Geography in general, including even scriptural names, and as such cannot but be highly acceptable as a desideratum, from its comprehensiveness as well as its accuracy. The results of the discoveries of modern travellers, as well as of the researches of modern scholars, will be embodied by the editor in this work, which is not merely confined to a barren description of the geography of countries and of the sites of places, but, besides the political history of these, will trace, as far as possible, the history of the more important buildings of the cities, and give an account of their present condition, wherever they still exist, with plans and illustrations; so that, if carried out, as we have no doubt it will be, in all respects, up to the mark of the first part, now issued, such a work specially merits the patronage of the professional and other readers of THE BUILDER. A "Historical Atlas of Ancient Geography," to be issued at the close of the work, will with it complete the series of classical dictionaries, which will form in all a comprehensive and invaluable "Encyclopædia of Classical Antiquity."

Hydraulic Tables, to aid the Calculation of Water and Mill Power, Water Supply, and Drainage of Towns, &c.: with Properties and Strength of Materials, useful Numbers, and Logarithms; also Tide Tables, &c. By Nathaniel BEARDMORE, C.E., F.G.S., &c. Waterlow, Westminster; and Weale, Holborn. 1852.

MR. BEARDMORE'S very useful tables have not only reached a second edition, but have assumed a new and extended form, so as now to constitute a more complete handbook for engineers in matters relating to hydraulics and hydro-dynamics.

One-half of the work consists of remarks on the use of the tables, so that these latter are not only useful in themselves to experienced engineers, but are completely laid open to the tyro in hydraulic engineering. The remarks, however, are neither limited nor intended to be limited to the use of those seeking instruction in this science, but contain a large mass of important local and other facts, and valuable experience. The work also contains several useful charts and maps, and an appendix. Among the tables will be found calculations as to sluices, weirs, arterial drains, circular and egg-shaped culverts, pipes under pressure, friction of bends bridges and pipes, motion and resistance of water and air, value of water power and steam power, weight of pipes, rainfall and flood discharges, gradients, weights and measures, strength of metals, marine surveying, annuities, &c., &c.

The Claims of Science, especially as founded in its Relations to Human Nature. A Lecture delivered in Queen's College, Cork. By George BOOLE, Professor of Mathematics and Dean of the Faculty of Sciences. Taylor, Walton, and Maberly, Upper Gower-street, London. 1851.

THE purpose of this little pamphlet is to endeavour to form an intelligent conception of what is really implied in the pursuit of science, of the spirit which that pursuit demands, and of the ends to which it points. And we are persuaded that, notwithstanding we have passed the Platonic and Aristotelian era of science, and reached—shall we say transcended—the Baconian, many who boast of their acquisitions, and imagine themselves highly scientific, would be none the worse of a good *lecture* on this subject. The great merit of Bacon consisted in his bringing men back to facts as the materials of science; but many have since, in consequence, gone farther, and mistaken the mere investigation or research into facts for science itself. The prevailing error since Bacon's time is to grovel continually amongst mere facts, without rearing on these facts that goodly, well-proportioned, and truthful as beautiful, superstructure, which alone is true science;—just as, before the time of Bacon, the prevailing error was to float continually in the clouds of speculation without establishing or fixing the "baseless fabric of a vision" on those facts on which alone true science can be reared. It is but too commonly imagined that Bacon was a great fact-monger, who maintained that science merely consisted of a body of facts, whereas he regarded these as but the bricks and stones with which the grand superstructure and design of science was to be built; and he even complained of the hardship that he, an architect and a builder in science, was obliged, from the paucity of facts in his time, to collect these himself, like a mere hodman, while he ought to have had the men of facts as his servants, seeking and finding, fetching and collecting, these, the necessary materials, with which to build up science, or, even, as in his case, to exemplify its principles, and to lay its foundations.

False ideas, such as these, of our plodding, useful hodmen and factmongers of modern times, would be corrected, and overweening vanity a little mortified, by a studious perusal of the lecture under notice.

Annals of the Society of Antiquaries of the Rhine Lands (Jahrbücher, &c.). Bonn, 1851. Part XVII.

THE present number contains a chorographic essay, by Professor Ritter, of Bonn, "On the Origin of the three oldest Rhine Cities, Mayence, Bonn, and Cöln." The professor has collected here all the passages of classic writers relating to the origin of these cities, leading to interesting and new results. Dr. Schneider's essay "On the Roman military Road on the left Bank of the Mosel, from Trier to Metz," demonstrates, from autoptic research and numerous ruins, a road *not marked* on the Peutingerian table, which has only that of the right bank. Dr. Owerbeck's paper "On two bronze Statuettes," describes and depicts the figure of a Zeus Lykoios, the wolf's-skinned Zeus, a rarity amongst the many types of the Greek chief god. The memoir "On the Representations on Roman Coins during and shortly subsequent to the Introduction of Christianity," exhibits the curious fact, that the open assumption of Christianity by Constantine did not change the polytheistic representations on Roman coins, and that even *ten* years afterwards, Zeus and the Sun-god adorned the reverses of this Emperor's coins, and tangibly Christian emblems did not appear before the foundation of Constantinople.

Architectural Publication Society. Part III. for 1850—51.

THE part just now published contains an article by Mr. Healy on Drying Closets, illustrated with two engraved plates and nine woodcuts; a coloured plate in illustration of "Loggia" (from the Palazzo del Tè, Mantua); a plate of circular windows; and the remainder of the list of terms for the Cyclopædia. In the article on Drying Closets the writer has wisely availed himself to a considerable extent of the papers on the subject which appeared in our pages some time ago.

Plain Advice to Landlords and Tenants, including the Law of Distress. A New Edition. London: H. Washbourne.

THIS seems to be a fair abstract of the law on a subject in which most persons are interested, and may be usefully consulted.

The Literary Almanac. J. P. Edwards, Ludgate-hill. 1852.

A GOOD intention, which will doubtless be better carried out next year. The list of publications, showing their *circulation*, is erroneous, and only calculated to mislead. It would seem to be founded on the Stamp-office returns: in our case, and that of others given, only a very small portion of the issue is stamped for post, and the statement, therefore, is altogether wrong.

Miscellanea.

THE RENT GUARANTEE SOCIETY.—The first ordinary general meeting of this society was held at the offices in Charlotte-row, Mansion-house, when the first annual report of the directors was read, from which it appeared that very favourable progress had been made, the income already clearing the expenses, with a prospect of a very extensive business in rents, tithes, &c. In only two cases, it was stated, had law proceedings to be resorted to, —one in which gross dishonesty had been shown on the part of a tenant, and the other at the special request of a landlord himself. Proposals of upwards of 46,000*l.* annual income (representing nearly a million of property) had been submitted for collection or assurance. Only 3,237 out of 10,000 shares had hitherto been issued, but it was now proposed to increase the issue to parties likely to promote the interests of the society. The report was unanimously adopted, and interest at the rate of 5 per cent. per annum on the paid-up capital was ordered to be paid to the shareholders.

CHARCOAL IRON.—A Belgian professes to produce iron by the use of charcoal as fuel, at a price 25 per cent. under what it can be supplied for at present in this country. The superiority of iron smelted by charcoal over that obtained by the use of any other fuel is well known, and for the manufacture of steel such iron is peculiarly adapted. The inventor of this peculiar process is confident that it will prove of immense importance to the British Empire, and particularly to the railway interest,—iron so manufactured being more lasting than the ordinary kind, and less liable to lamination.

RAILWAY JOTTINGS.—An earth-slip lately occurred on the Great Northern works, at the deepest part of a cutting near the bridge at Spittle-gate-hill foot, Lincolnshire. It was reported that 1,000 tons of earth had fallen. ——In the Bankruptcy Court was lately heard the rule to show cause why Mr. Charles Blatchley, a lieutenant in the Royal Navy, and resident engineer of the Oxford, Worcester, and Wolverhampton Railway, at Mickleton Tunnel (Chipping Camden), should not be committed for contempt of Court, in rescuing from Mr. Hamber, the messenger, certain plant, engines, cart horses, &c., the property of William Williams and Richard Mudge Marchant, the contractors for the tunnel, who had failed for between 80,000*l.* and 100,000*l.* It may be recollected that differences existed between the contractors and the company, and that the local magistrates interfered in the disturbances, and read the Riot Act to above 2,000 "navvies." The matters in dispute were then referred; but it was alleged that the company would not suffer the bankrupts to complete the contract, and a bankruptcy took place. Mr. Hamber seized the plant and stock on Nov. 29, at one o'clock in the morning. The servants of the company consulted with Messrs. Burchell and Parsons (their solicitors) and Mr. Brunel, who instructed them to retake possession, and they accordingly did so by force on Dec. 1, and set the labourers to work. The judge (Mr. Com. Goulburn) discharged the rule, and was of opinion, if any person had been guilty of contumacious conduct, it was Mr. Brunel, who had given very bad advice to his subordinate officer (Mr. Blatchley) in telling him not to apply to the Court.

GRUNDY'S WINTER EXHIBITION.—Mr. Grundy has again made a very interesting collection of water-colour drawings and sketches in oils, at his rooms in Regent-street, to which we invite our readers to pay an early visit.

ELECTRO-TELEGRAPHIC PROGRESS.—The British Electric Telegraph Company have commenced laying down their system of telegraphic communication, uniting Liverpool and Manchester, and the Yorkshire towns of Halifax, Bradford, Huddersfield, and Leeds, with Hartlepool, Stockton, Hull, and other north-eastern ports. The Magnetic Telegraph Company are said to have laid down their wires between Liverpool and Manchester (taking the line of the London and North-Western Railway, whilst the other new company go by the Lancashire and Yorkshire railway route, taking Bolton and Wigan on their way), and are supposed to be nearly ready for business. The latter company carry their wires under ground, whilst the British Electric Telegraph Company will have them above ground, something like the wires of the old company. Meanwhile, so far as the public are concerned, the advantages of competition are already felt in the reduction of terms by the old company, who some time since lowered their prices nearly one-half, charging for 20 words between Liverpool (or Manchester) and London 5s. instead of 8s. 6d. Between Liverpool and Manchester they have reduced their charges still more materially, conveying messages of 20 words now for a shilling instead of half-a-crown, as formerly. The distance from Manchester to Liverpool is over 30 miles. The old company therefore, as we warned them, have already been compelled to come to our suggested terms, after attempting to write us down as unreasonable in requiring what in this country they unflinchingly alleged to be impracticable. Better for them had they at once taken the advice which we gave, and which our daily contemporaries promulgated and enforced by their potent influence: all necessity and opening for new companies to share their business and their profits would have thus been timeously obviated. The public, however, have no reason to regret their blindness.——The Magnetic telegraph is being brought into use amongst the northern collieries.

LONGTON BRANCH SCHOOL OF DESIGN. —Mr. Hammersley, of the School of Design, Manchester, gave an instructive lecture, on 2nd instant, in the New Town Hall, Longton, on the "Fine Arts, especially as relating to the Staple Trade of the District." The lecturer, bespeaking the indulgence of the audience, gave a short history of his own rise, progress, and present position, as an encouragement to the younger portion of his hearers to study art upon right principles, with a view of cultivating a correct taste, and elevating the staple trade, which admits of great improvement in design and decoration. He then glanced at the state of the fine arts, as connected with manufactures on the continent of Europe, and gave an account of the School of Design at Lyons, which is conducted upon a large scale, having about eleven professors, who deliver lectures, and is supported by a local rate of a halfpenny in the pound on the rental. He strongly advocated the justice and advantage of a similar impost in the manufacturing districts of this country.

THE MARYLEBONE LITERARY INSTITUTION.—Mr. Thackeray has given four of his six lectures, on writers of the last century, including Swift, Congreve, Steele, Addison, Prior, Gay, and Pope. In the third lecture on the 19th, he sketched humourously the manners of society in the time of Addison and genial "Dicky Steele." On the 26th he will speak of Hogarth, and Smollett, and Fielding.

LIVERPOOL ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—The fortnightly meeting of this society was held on Wednesday 14th, Mr. H. P. Horner in the chair. Mr. William Brown, M.P. for the county, attended, and exhibited an ingenious stock lock of his own invention: the idea of its construction he had taken from the letter padlock. A lock of this description Mr. Brown had made twenty-five years ago, and it had been in use ever since, in Brown, Shipley, and Co.'s safe. The lock is constructed on a system of letters, admits of 350,090 changes, and is applicable to every purpose. Mr. Francis Horner read the paper for the evening, on the associations of taste.

ELECTRO-MAGNETIC MOTIVE POWER.— This power, it is said, is being tried in locomotives on the Paris and Lyons railway, and is reported to be quite successful even on the steepest gradient of the line. The smoothness of the wheels on the rail is said to have offered no hindrance to locomotion, as it was feared it would.——In a patent taken out in England by Mr. J. J. Greenhough for the inventor, Professor Page, of New York, has adopted the principle of hollow electro-magnetic coils, using a number of them in juxta position: they are formed of square copper wire, wound round a mandril, which when withdrawn forms a cylinder made up of sections, with about 1,500 yards of wire to each. They are all connected metallically, but are so arranged with the cut-off, or slide, that but three coils are charged at once, and one coil is being continually cut off behind the piston, as the current is applied to a fresh one in front, *in the direction in which the piston is moving*. This is the peculiar feature of the engine: it is a continuous electro-magnetic draught, aided by the secondary current pulling in the same direction. The magnet is a round mass of iron, placed free to move in the centre of the coils, and forming the piston.

DRAINAGE OF HAARLEM LAKE.—The drainage of the lake, begun in 1846, is likely, it is feared, to be delayed two or three years more, before the 50,000 acres covered can be laid bare. The engines have not been proof against accidents arising from the severe work they have had to perform. The boilers are leaky and out of order, and have been sent to Amsterdam for repairs, while several portions of the machinery have become unfit for service, and will have to be replaced. A storm has recently caused considerable injury to some of the dams, and great exertions were required to prevent the breaking in of the sea, and the consequent destruction of the labour of three or four years.

GASWORKS.—In the United Kingdom, says a contemporary, 855 cities and towns are supplied with gas. Twenty gasworks belong to municipal corporations, or commissioners, and thirty-three to private individuals. 151 companies possess Parliamentary powers, while 682 carry on their business without such powers(?). The capital invested is 12,300,000*l.*, and the quantity of gas annually manufactured exceeds twelve thousand millions of cubic feet.

VALUE OF LONDON SOOT.—In *London Labour and the London Poor*, we find the following statistics as to metropolitan soot:—

	Bushels of Soot per Annum.
53,840 houses, at a yearly rental above 50*l.* producing six bushels of soot each per annum	323,040
90,002 houses, at a yearly rental above 30*l.* and below 50*l.* producing five bushels of soot each per annum	450,010
163,880 houses, at a yearly rental below 30*l.* producing two bushels of soot each per annum	327,760
Total number of bushels of soot annually produced throughout London	1,100,810

The price of soot per bushel is but 5d. and sometimes 4½d., but 5d. may be taken as an average. Now, 1,000,000 bushels of soot, at 5d., will be found to yield 20,833*l.* 6s. 8d. per annum.

BODY FOUND AT THE HOUSES OF PARLIAMENT.—Our readers will have observed by the daily papers that a body has been found in St. Stephen's Chapel,—not, however, imbedded in the wall behind the high altar as stated, but under the cill of a window in the wall on the north side of the altar. The walls forming part of the chapel built about 1398, it has been thought that the body was that of an abbot who died about the same time. We have every reason to believe, however, that it was of subsequent date, probably the end of the fifteenth century. Whether the body be entire, as has been stated, is not yet known, as it is enclosed in a sack fitting the shape, and probably sewn up behind. The arms are crossed, or at least the bones appear to have been so, and a floriated crook was found beside the remains.

Poisoning by Cesspool and other Exhalations.—Two persons, a man and his wife, were lately found dead in their bed-room, in a house at Sheffield, and various conjectures arose as to the cause of death. *Post-mortem* examinations were made without avail, although the lungs and brain were found congested. It was afterwards discovered, however, that at the south end of the house, and about four yards distant, there is a cesspool, into which was thrown, about a week before, a mattress, on which a sick man had lain a long time. Some mischievous person had set it on fire, and it continued in a smouldering state all the week. Mrs. Hall, who was asthmatical, complained of the stench from the cesspool interrupting her breathing, and her husband covered over the smouldering mass with ashes. A heavy fall of rain formed a superficial layer into a concrete, so that the exhalations could no longer arise. The noxious steam consequently penetrated the foundation-wall of Hall's house, which was already decayed by the action of the feculent matter, and the fumes stole into the bed-room. It was a small low room, very imperfectly ventilated, the fire-place being closed by a fire-board. While the unconscious victims were quietly reposing, the room became filled with the noxious exhalation, which being strongly charged with sulphuretted hydrogen gas, destroyed their lives so subtlely as not to disturb their sleep. The olfactory nerves had been previously blunted by the abominable stench.

Charing-cross Hospital.—The annual report of the committee of this most useful and valuable hospital has just been issued for the year last past. Its importance to the building trades especially will be seen from the following extract as to cases of accident and emergency:—

	To 31st Dec. 1850	In 1851.	Total.
From falls off scaffolds, ladders, buildings, vessels, lofts, staircases, and windows; or down cellars, trap-doors, areas, &c...	2,320	728	3,048
The falling of excavated earth, buildings, chimneys, timbers, stones, heavy weights, &c.	880	93	973
Steam-engines, mill-cogs, crane-tackle, and other machinery.....	285	78	363

In all, 2,238 cases of accident and emergency were treated during last year. The institution has lost a number of its best supporters by death during the year; but it is to be hoped their places will be more than supplied in the year that is opening. A special appeal is made for the completion of the hospital buildings, so as to admit of fifty additional beds in four invalid wards.

The Marionette Theatre.—Science, and Terpsichore, who wildly succeeded her, have retired from what was the Adelaide Gallery, Strand, and yielded their places to the Momus or Melpomene, we know not which, of the Marionettes. What is a Marionette? asks a mere Englishman. The French dictionary answers him—a puppet. And these puppets are so ingeniously contrived to imitate the motions of humanity, and so well dressed up to the proprieties of the drama, that it is scarcely possible to avoid being amused by them. Considerable wit, too, is superadded to the brisk saltatorial and emotional action of these wooden bodies, though not blockheads. The theatre, moreover, is decorated with much taste and elegance.

Exeter Diocesan Architectural Society.—On the 8th, the usual quarterly meeting was held, the Rev. Canon Rogers in the chair. Papers were read by Mr. Furneaux, of Plymouth, and Mr. William Crabbe, of Exeter. The former gave an account of the rebuilding of the parish church of Yealmpton, under the direction of Mr. Butterfield; and the latter, a graphic historical description (illustrated by drawings by Mr. Ashworth, which have been chromolithed by Day, for the next part of transactions) of Bishop Bronescombe's monument in the Lady Chapel of the Cathedral.

Public Baths and Wash-houses.—The committee for promoting the establishment of baths and washhouses for the labouring classes state that they are actively promoting the establishment of these institutions in all parts of the country, as well as abroad, by the distribution of plans and practical information. They add that in our smaller towns baths and wash-houses can be erected at a cost of 2,000*l.*, 4,000*l.*, or 8,000*l.*, exclusive of charge for land. They publish returns for the year ending Christmas 1851, of which the following is an abstract:—

Establishments	Bath Department: Number of Bathers	Bath Department: Receipts. £	s.	d.	Wash-house Department: Number of Washers.	Wash-house Department: Receipts. £	s.	d.
Metropolis.								
The Model, Whitechapel...	156,310	2,143	7	8	43,462	531	1	2
St. Martin-in-the-fields	213,485	3,437	17	9	50,200	499	14	1
St. Marylebone	173,157	2,243	3	7	24,718	300	18	10
St. Margaret and St. John, Westminster	83,405	972	2	1	13,189	147	1	1
Greenwich	20,885	345	17	5	682	20	4	0
Totals.....	647,242	9,141	8	6	132,251	1,498	19	2
Country.								
Liverpool—								
Cornwallis-st.	86,899	1,283	12	1				
Paul-street ...	42,353	576	4	10	19,455	190	12	10
Hull	63,765	640	18	1	4,966	91	6	8
Bristol	43,373	547	19	11	5,746	62	11	1
Preston	24,515	244	12	10	2,179	27	19	4
Birmingham.....	78,646	1,015	11	9	908	26	14	8

Metropolitan Sewers Commission.—A special meeting was held on 21st inst. in Greek-street, when the resignation of Mr. Forster, the chief engineer to the commission, under somewhat curious circumstances, was announced. The reasons given for the resignation were, that the line of the Victoria-street sewer was not of the engineer's selection, and, on the contrary, had been carried out against his opinion; that he had met with frequent opposition on the part of one of the commissioners, Captain Vetch; that his best and most efficient assistant had been dismissed without sufficient reason; and, finally, that the exercise of his duties had brought on serious illness. The commissioners, on the ground of Mr. Forster's illness, determined to postpone acceptance of his resignation, in order that he might have an opportunity to give an explanation.

Metropolitan Sanitary Association.—The acting committee have resumed their sittings for the present session, at their office, 10, Craig's-court, Charing-cross. It is to be hoped they will receive such support as may enable them to act efficiently.

New Pile-driving Machine.—The works under the superintendence of Mr. Rendel—the engineer—at the West India Docks, have been supplied with a new pile-driving machine. A pile 25 feet in length was driven into the ground by it in eight minutes: by the old process it would have taken three hours. The engine is capable of making from sixty to seventy strokes a minute. It will be at work for some months.

New Window, Kensington.—A stained glass window, by O'Connor, has, during the past week, been put up in St. Barnabas Church, Kensington, at a cost of 350*l.* It is a large perpendicular window of two stories of seven lights each. In the supermullions are the evangelistic symbols and figures of angels: the large lights contain single figures under rich canopies arranged as below:—

St. Philip	St. Matthew
St. James Minor	St. Andrew
St. Matthias	St. Peter
St. Barnabas	Our Lord in Glory seated holding orb and cup, his other hand raised in benediction
St. Jude	St. John
St. Simon	St. James, Major
St. Bartholemew	St. Thomas.

"Don't Care!"—Don't care is not always let off so easily as one would imagine. The man who does not care for others, who does not sympathise with and help them, is very often pursued, even in this life, with a just retribution. He does not care for the foul, pestilential air breathed by the inhabitants a few streets off; but the fever which has been bred there at length comes into his own household, and snatches away those whom he loves the dearest. He does not care for the criminality, ignorance, and poverty nursed there; but the burglar and the thief find him out in his seclusion. He does not care for pauperism; but the heavy poor-rates compel him to pay for it half-yearly. He does not care for politics—pooh, pooh! what has he to do with them? but lo! there is an income tax, or an assessed tax, or a war tax, and then he finds Don't Care is not such cheap policy after all. Don't Care was the man who was to blame for the well-known catastrophe, thus popularly related:—"For want of a nail the shoe was lost, for want of a shoe the horse was lost, and for want of a horse the man was lost."—*E. Cook's Journal.*

Sweeping Machines.—In a recent number of The Builder it is stated by "Clericus," that the sweeping machine for chimneys at present in use is totally useless in cases where there is any flexure of the flue. I do not know if you are acquinted with the sweeping machine used in some parts of Germany, which answers very well with the round chimneys introduced into most modern buildings. It consists of a rope, to one end of which is attached a stiff broom, in an inverted position, and under this a cannon ball. The boy goes on the roof of the building, and lets the rope with broom and weight attached to it down the chimney, and, by drawing it up and down, clears the flue effectually without being obliged to enter it. It is evident that the flexibility of the rope, and the weight attached to it, allow the broom to follow all the curvatures of the flue.—E. E.

The Boston Fire Alarms.—Dr. W. F. Channing is stated, in *The Boston Almanack for* 1852, to have first published the application of the telegraph to fire alarms in 1845. This gentleman laid the details before the Boston City Government in March last, and 10,000*l.* were voted to carry the system into operation in June. The length of wires erected in the city is 49 miles. There are duplicate wires between every station. They are seldom broken, however. The circuits are tested hourly. The signal station is a small cast-iron box placed on the side of a building. Responsible persons in the immediate vicinity have the keys, and at an alarm of fire, the crank in the box is turned slowly round six times, and intelligence is thus conveyed to the City Building of the exact locality of the fire. In each church, connected with the alarm circuit, is machinery like the striking part of a clock, with a weight attached, and an electro-magnet, connected with the circuit. When the operator at the City Building receives intelligence from any signal station, he strikes, by means of the alarm circuit, on all of the bells at the same time, the numbers of strokes corresponding with the district from which the signal comes, and the firemen immediately know where they are wanted. The circuits of wire are so arranged that no alarm can be communicated except from the signal boxes, forty in number, placed throughout the city about 100 rods apart. An officer of the fire department can ascertain the number of the station in any district from which an alarm of fire proceeds, by going to any signal box and making the simplest signal. The operator at the central office will reply by counting out the number of the station, by means of the clicks of a little electro-magnet in the signal box at which the inquiry is made. The position of the fire would then be known within 50 rods. If a fire is soon extinguished the engineer sends to one of the signal boxes, and communicates the signal of "All out," which is, "*one, one-two,*"—"*one, one-two,*" to the central office, from whence the same signal is struck upon the alarm bells, and the engines in all parts of the city are enabled at once to turn back.

VENETIAN GLASS.—A new manufactory has been established at Venice, in which those processes that once rendered Venetian glass so celebrated are to be revived and combined with improvements suggested by modern science. The number of workmen it employs at present is 200.

[ADVERTISEMENT.]

TO BUILDERS.

BUILDERS, and those connected therewith, are dependant upon their own personal exertions for their subsistence. If health fails, they fall into distress; if they die, their families are unprovided for.

The uncertainty of their income often prevents them from making provision for infirmity, old age, or death, by the usual method of assurance.

To meet this difficulty, *The Law Property Assurance Society* has made the following arrangements for the benefit of the profession:—

1. It grants special policies of assurance, by which the assured, instead of being obliged to pay a fixed sum every year, or forfeit their policies, may pay any sum they please at any time according to their means, and for which a proportionate sum will be assured to them by their policy. By this means uncertainty of income is provided for, and no forfeiture for nonpayment ever takes place.

2. If the assurer in this office should find that the objects of his insurance after death are no longer required, he may convert his policy into an annuity for his own life.

3. On payment of a small annual sum during their own lives, husbands may secure annuities for their wives or daughters after their own decease.

4. On payment of a small sum annually, professional men may secure for themselves an annuity to commence on the decline of life, or earlier should they be at any time disabled by sickness or infirmity from pursuing their occupations.

Detailed prospectuses, forms of proposal, and every information will be immediately furnished on application to WILLIAM NEISON, Actuary and Secretary, 30, Essex-street, Strand, London.

TENDERS

For the New Chapel, Schools, Residences, &c., Winchester, Hants. Mr. W. F. Poulton, architect:—

	If Bath stone be used instead of Caen.					
	£	s.	d.	£	s.	d.
Seal, Chelsea	3,575	0	0			
Fielder and Macklin, Winchester	3,150	0	0	3,100	0	0
Newman, ditto	2,985	0	0	2,907	0	0
Brown, ditto	2,945	0	0	2,885	0	0
Hollis, Alton	2,747	0	0			
Wells, Reading	2,645	0	0	2,595	0	0
Heudy, Portsmouth	2,516	17	0	2,462	17	0

Quantities furnished.

For new Workhouse, Westminster, Messrs. Hunt and Stephenson, Architects.

		Extra if floors fire-proof.
Thompson	£10,975	£277
Lucas	10,780	273
Lee	10,403	375
Glyn	10,328	461
Smith and Appleford	10,270	262
Hayward and Co.	10,180	300
Mansfield	10,131	359
Sisson and Co.	10,047	273
Holland	9,988	376
Kirk	9,964	336
Little	9,946	338
Piper and Co.	9,789	334
Hill, Whitechapel	9,592	277
Locke and Nesham	9,500	346
Pollock and Co.	9,485	276
Cooper	9,400	438
Carter	9,390	376
Curtis	8,973	461
Jay	8,640	248
Myers	8,360	230

For the Jolly Sailor Public House and two fourth-rate Houses adjoining, in the Back-road, Shadwell, Mr. H. Joll, architect:—

Whiting	£1,514
Sewell	1,475
Wood and Son	1,394
Wilson	1,387
Coventry	1,385
Hill	1,367
Bowley	1,345
Ashby and Co.	1,270
Watson	1,258
Dennison	1,255
Egnor	1,250
Tarrant	1,246
Tombs	1,146
Hovington	1,090

For Works at Limehouse:—

	Church.	School.	Parsonage.	Total.
	£	£	£	£
Lawrance	5,862	2,260	1,160	9,282
Higgs	5,820	2,620	1,350	9,790
Hollands	5,255	2,227	1,165	8,647
Locke and Nesham	4,980	2,181	1,150	8,311
Piper	4,960	2,175	1,120	8,255
Grimsdell	4,795	2,105	1,088	7,988

TO CORRESPONDENTS.

Architectural Exhibition.—We are asked to say that the two sketches for street architecture mentioned by us, erroneously attributed in the Catalogue to Mr. Fergusson, are by Mr. Chamberlain.——Also that Mr. Dunhill's market is to accommodate 6,000 beasts and 40,000 sheep, instead of the number named.

"H. B." (will see, on consideration, that for us to write replies to such inquiries is out of the question), "E. J.," "C. R. W.," "W. H. M." (we have no time to refer), "Constant Subscriber," "J. B.," Bloomsbury (the lines from an American paper sent for insertion are taken from THE BUILDER, where they appeared some time ago), "J. E." (declined with thanks), "Baron B." (ditto), "J. N.," "R. R. P." (look to the advertisement), "W. C.," "W. E." (under our mark), "J. H. S.," "E. A.," "M. M. D.," "C. C. N." (thanks), "W. B.," "J. H. C.," "C. F. D." (thanks), "R. R.," "R. W. A." (declined with thanks), "S. C." (shall appear), "Mr. D.," "F. & W.," "T. T.," "G. W." "W. C.," (the discrepancy mentioned between part of plan and elevation of the Silato certainly exists. The position of chimney appears to have been altered), "H. W.," "Sowerberry," "A. W. H.," "J. T.," "One of the Competitors," "T. A. Y.," "C. R. S.," "M. A. D.," "A Justice of the Peace," "R. C.," "C. G." (next week), "B. S.," "L. S." (shall hear from us), "R. S.," "J. B.," Pentonville, "*Pro-rata*," "I. B. W.," "W. W.," "T. H. W."

Several communications are unavoidably declined for want of space.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

TO SMITHS.

WANTED, a steady active Man as General SMITH; one who has been used to a foundry would be preferred.—Apply at the Commercial Iron Foundry, No. 8, Beech-street, Barbican.

WANTED, an efficient CLERK of WORKS, to superintend the erection of a Family Mansion in the Country.—Address, post-paid, stating the last and previous engagements, terms, &c., to C. W., at Mr. Wilson's, Law Stationer, Charles-street, Middlesex Hospital.

TO GAS ENGINEERS.

WANTED, an experienced ENGINEER, of undoubted professional ability, to superintend the Laying of Street Mains and the Erection of a first-class Gas Works. He must be able to produce plans and specifications and be thoroughly conversant with the manufacture of gas and all the details connected with the construction of the most approved apparatus and machinery for works capable of distributing 200,000,000 during the year. Salary not less than 300*l.* per annum.—Apply by letter only, as personal applications or canvassing will render candidates ineligible) to the Directors of the Sheffield Gas Consumers' Company, 25, Norfolk-street, on or before the 4th day of February next. SAMUEL S. DEAKIN, Chairman.

Testimonials of unsuccessful candidates will be strictly preserved and returned.—Sheffield, Jan. 15, 1852.

TO ENGINEERS AND ARCHITECTS.

WANTED, by a Gentleman aged 24 (who has been upwards of six years in an Engineer's Office), a SITUATION as ASSISTANT in either of the above Offices. Satisfactory references will be given. Address, stating salary given, to A. B. C., Office of "The Builder," York-street, Covent-garden.

TO BUILDERS.

WANTED to APPRENTICE, a YOUTH, aged 14, as an out-door apprentice, to a CARPENTER and JOINER, or a PLUMBER, or some respectable business; anything in the painting business objected to. West end preferred, and premium must be moderate. Address full particulars to Mr. SNELL, 33, Waverley-road, Harrow-road, Paddington.

TO ARCHITECTS AND SURVEYORS.

WANTED, by the Advertiser, a Re-engagement as ASSISTANT. He has been accustomed to land and house surveying, levelling and mapping, and also to getting out working, finished, and prospective drawings, and to the usual routine of an architect and surveyor's office. Terms moderate.—Address to Mr HENRY BUCTHER, 19, Shrubland-road, Dalston.

WANTED, a SITUATION in a Builder's or Surveyor's Office, by a respectable Young Man, 27 years of age, who has been for a number of years in a House Measurer's Office in Chancery, is a good penman, and quick at figures. A very moderate salary will be accepted, and security can be given if required.—Address H. M., Mrs. Mayer's, 10, Cardington-street, Hampstead-road.

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WANTED, a SITUATION, by a Young Man, who is thoroughly acquainted with practical building, can make fair and working drawings, write specifications, take out quantities, measure, estimate, and capable of generally conducting a busines under the direction of the principal.—Address, J. B., at Mr. Lawrie's, Stationer, Highbury, Islington.

TO SMITHS, IRONMONGERS, AND OTHERS.

WANTED, by a Young Man of active business habits a SITUATION as CLERK or SALESMAN, or in any similar capacity. He has had very extensive experience in the keeping of manufacturing books, workmen's books, and the charging of goods, having for the last nine years been engaged in one of the most extensive and distinguished manufactories in the city of London. First rate references as to character, energy, &c.—Address (pre-paid) to D. G., 7, Gresham-street, City.

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WANTED, a RE-ENGAGEMENT as FOREMAN, by a person who has occupied that position for the last eight years, in one of the largest manufacturing ironmongers in London; is fully competent to give estimates for all kinds of work, being practically acquainted with the various kinds of close cooking stoves, steam boilers, hot water apparatus, also every description of iron work. Satisfactory references as to character, ability, &c. Address to A. Z., care of Mr. Spong, 51, Chiswell-street, Finsbury.

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WANTED, a SITUATION for a respectable Youth of Seventeen (for Two Years), in the ENGLISH and FOREIGN TIMBER TRADE.—Address, C. S. P., Post-office, Chelmsford.

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WANTED, by a MAN, of 38 years, a SITUATION, of the above; no objection to take the three branches.—Address, J. M., No. 6, Boyton's-place, New Church-road, Camberwell.

TO CARPENTERS AND BUILDERS.

WANTED, by an experienced person, a SITUATION as SHOP or OUT-DOOR FOREMAN. Unexceptionable references can be given.—Address to A. B., 18, Percy-street, Tottenham court-road.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

WANTED, by a Young Man, a Situation as CLERK and DRAUGHTSMAN. Can survey and measure up work, and keep accounts. First rate testimonials can be given.—Address, E. R., Mr. Bird's, 5, Blomfield-street North, Dalston.

WANTED, a SITUATION as CLERK of WORKS, by a thorough practical and experienced person, who is an efficient measurer and draughtsman. Most respectable testimonials can be given.—Address, F. M., Watts's Coffee-house, Catherine-street, Strand.

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WANTED, EMPLOYMENT in Town or Country by a Young Man, a competent Draughtsman, and who has been generally used to the business of an Architect and Surveyor's Office. For further information address E. C., No. 22, Commercial road, Lambeth.

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WANTED, by a thorough practical Plumber a SITUATION as FOREMAN, or to superintend Plumber's Work of large Jobs, having held similar situations the last twelve years. Good reference can be given.—Address, prepaid, to G. W., 30, Sidney-street, Mile end-gate.

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A YOUNG MAN, aged 22, is desirous of an ENGAGEMENT, either in town or country; he is a neat draughtsman, quick at figures, and writes a good hand. Salary moderate.—Address, R. E. R., General Post-office, Wolverhampton.

A YOUNG MAN (not a carpenter) would be found very useful to any party in the jobbing business, where an attentive and confidential man is required. Wages a second consideration, as regular employment is the Advertiser's object. Good reference given. Direct, H. M., 43, Bedford-street, Strand.

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A YOUNG MAN, respectably connected, is desirous of an ENGAGEMENT as DRAUGHTSMAN and GENERAL ASSISTANT. If for a permanency, salary moderate; if not, according to requirements. Country not objected to. Most respectable references can be given.—Address R. B., 4, Churchstreet, Queen-street, Pimlico.

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A YOUNG MAN having completed his articles with an eminent architect, wishes to meet with an ENGAGEMENT as CLERK or ASSISTANT in an Architect or Surveyor's Office. He is a first-rate draughtsman, has a knowledge of Gothic, is well acquainted with making finished and working drawings, and the general routine of an architect's office.—Address S. G., 9, Bruton-street, Berkeley square.

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AS CLERK of WORKS or FOREMAN.—A WANTED, by an experienced person (having just completed the building upon which he has been engaged as clerk of works), a SITUATION, either as CLERK of WORKS or BUILDER'S GENERAL or SHOP FOREMAN. He can produce first-rate testimonials as to ability, &c.—Direct to X. Y. Z., 4, Lewington-buildings City road, London.

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A GENTLEMAN of many years' experience as a Surveyor and Leveller, fully competent to complete surveys of any extent, and in minute detail, and who is also a very superior mapping draughtsman (specimens of which may be seen), desires an ENGAGEMENT. The advertiser has just completed a survey, and has at command a plant of first-rate field and office instruments.—Address, K Q, Office of "The Builder," York-street, Covent Garden.

TO ARCHITECTS AND CIVIL ENGINEERS.

A GENTLEMAN requires a SITUATION as MANAGER or SUPERIOR CLERK in London. Has just retired from the former position for cogent reasons, which will be given and referred to. He is fully competent to all duties of design and ornamentation stained glass, &c. Also perfectly versed in all practical constructions, surveying dilapidations, and quantities. The advertiser is proficient in perspective, is a colourist, and is the author of a work on the delineation of Gothic Architecture. Terms moderate, and the most unexceptionable references given as to character, position, and ability.—Address, X. office of "The Builder," 1, York-street, Covent-garden.

THE Advertiser having a portion of his time unoccupied, would be glad to undertake any work that he might do at home, in Writing, Copying, or Tracing Plans, &c. —Address, prepaid, F. C., care of Mr. Holmes, 138, Fenchurch-street.

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THE Advertiser (16 years of age) offers his services as ASSISTANT in an ARCHITECTS or SURVEYOR'S OFFICE; is a fair draughtsman, writes a good hand, first rate reference as to ability, &c.—Address (prepaid) A. B., care of Mr. Holmes, 138, Fenchurch-street.

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The Builder.

No. CCCCLXIX.

SATURDAY, JANUARY 31, 1852.

GENTLE Reader, as the novelists formerly called you,—hoping by "blarney" to propitiate,—we are about to ring gently a few changes on BELLS:—

"The bells and chimes of Motherland,
Of England green and old,
That out from grey and ivied tower
A thousand years have tolled."

It will not be a *peal*, for this in strictness means a performance of not less than 5,000 changes, but simply what is known as "a short touch:" nor shall we deal with bob-triples, bob-majors, or grandsire-bob-cators,—with the dodges called "hunting," and "snapping," or any of the other worse than Eleusinian mysteries of those well-known unknowns the College Youths, who have figured on belfry tablets for these last two or three hundred years, and had their name, it seems, from meeting to practice at St. Michael's, on College-hill, London. This church, by the way, was rebuilt by that redoubtable hero of the nursery who was brought back to London by the bells, which seemed to say to him:—

"Turn again, Whittington,
Thrice Lord Mayor of London."

He was buried here too, and it is just possible, we may suggest, that the story had something to do with the meeting together of his most ancient society of ringers, the foresaid College Youths. It is not, however, of their art and doings, or of the out-of-place pranks of some of their followers and imitators that we would deal, but rather with the Bell itself; the story it tells, its founding, and its hanging. There are few of true metal themselves who can listen to the outbreaking bells without emotion. What wonder is it, then, that so many poets, giving utterance to these feelings, should have sung of the bells,—Schiller singing longest and loftiest? Longfellow, the last, makes his Friar at Strasburg cease his discourse when the bells begin to chime:—

For the bells themselves are the best of preachers;
Their brazen lips are learned teachers,
From their pulpits of stone, in the upper air,
Sounding aloft, without crack or flaw,
Shriller than trumpets under the Law,
Now a sermon and now a prayer.
The clangorous hammer is the tongue,
This way, that way, beaten and swung,
From mouth of brass, as from Mouth of Gold,
May be taught the Testaments, New and Old.
And above it the great cross beam of wood
Representeth the Holy Rood,
Upon which, like the bell, our hopes are hung.
And the wheel wherewith it is swayed and rung
Is the mind of man, that round and round
Sways, and maketh the tongue to sound!
And the rope, with its twisted cordage three,
Denoteth the Scriptural Trinity
Of Morals, and Symbols, and History;
And the upward and downward motions show
That we touch upon matters high and low."

What say the old couplets, though in another tongue,—

"I praise the true God, call the people, convene the clergy,
I mourn the dead, dispel the pestilence, and grace festivals."

"Lightning and thunder I break asunder,"

is often part of the motto inscribed on them. And on others we find, simpler and more touching,—"we rejoice with the joyful, we grieve with the sorrowful:" or, better still as it stands in the bells' own tongue,—bells have always spoken Latin,—

"Gaudemus gaudentibus,
Dolemus dolentibus."

The great antiquity of bells is undoubted, but the date of their introduction is unknown. The instruction in *Exodus* that there should be a golden bell and a pomegranate alternately on the priest's garments, will be remembered. The Greeks and the Romans used them. In the sixth century, at all events, they were in use for the Christian church. They were variously called Signum (showing connection with a signal), Campana, and Nola (because a Bishop of *Nola*, in *Campania*, is supposed by some, on slight grounds, to have first introduced them to Italy; though others say because they were made of Campanian brass), *Tintinnabulum* (from the sound they give?), and Codon. The Curfew bell, and the marriage bell, and the passing bell, have their own associations, and tell their own story. Bells are blessed, if not baptised, by the Roman Catholic Church,—with the desire anciently to render them effectual in driving away evil spirits. According to the Rev. A. Gatty, in a pleasant and comprehensive little book, called "The Bell,"* "It is not very clear when this custom began; some say under Pope John XIII. (A.D. 970): but it must have prevailed long before his time, as in the capitulars of Charlemagne (A.D. 789), the baptism of bells is distinctly forbidden,—"*ut clocæ non baptizentur.*" Some years ago, in one of our continental rambles, we were present at the consecration of a bell at Bayeux, in Normandy, and have elsewhere described the occurrence.† The bell was suspended from a scaffold on the east side of the tower, near it was a temporary altar, and around it priests, vergers, chorister-boys, with robes, and crosses, and lanterns: about a hundred females composed the assembly. Prayers were read, the bell was sprinkled, anointed, and fumigated twice; a napkin was tied round the clapper, and its name was declared to be *Clementine*.

We gave, a short time since, the weights of some of the principal bells, and need not now repeat the enumeration. None of them come near the King of Bells, in Russia, the weight of which is said to be 443,772 lbs. The diameter of it is 22 feet 5 inches. It seems that it was fractured in the casting, and remained nearly two centuries partially buried in its mother pit. It is now placed in view, and is perhaps more useful (failure though it be) as giving an impulse to mind, than it would have been, if put out of sight to perform its real office. To "raise it," as the ringers call the first movement for ringing, would have been almost impossible.

Amongst the largest bells of the present time is the great bell at Montreal, which was cast in 1847, by Messrs. Mears, of Whitechapel. This is 8 feet 7 inches in diameter at the mouth, 8 feet 1 inch high, to the top of the crown, and weighs 30,800 lbs. This same firm cast "Great Peter of York," which weighs 26,800 lbs., also the new "Tom o' Lincoln," and such a startling list of ordinary church bells, that we have been led to analyse it, and find it embraces 11 peals of 12 bells, 27 of 10 bells, 172 of 8 bells, 260 of 6 bells, 73 of 5 bells, and about 190,000 single *tintinnabula!* A tolerable evidence, in itself, of the extent of modern churchbuilding. We journeyed to Whitechapel the other day, to see a set of bells cast, intended for Port Phillip, Melbourne. Everything was ready for the operation. In the furnace there were nearly six tons of molten metal, a sea of fire when stirred by the men, consisting of copper and tin in certain proportions. The moulds were in their places, and the "gutters" formed. While the men are sweeping the burning embers out of the latter, placed there to heat them, so that the metal may receive no chill, we will tell you something of the previous arrangements.

The inner mould, or core, of the bell is built up of brickwork, having a hollow left in the centre of it for a fire, and the face of this core is covered with a composition of clay and other materials, and moulded into the shape of the *inside* of the bell. It is then baked by means of the fire in the hollow, and when hard, is coated with another composition, which is made to take the exact shape of the *outside* of the bell, and is also hardened by the fire; after which the inscriptions and any desired ornaments are placed upon it in relief. Over this the outer mould, or "cope," is formed, and the whole having been burnt, the cope is taken off, and the inner thickness of composition, representing the bell, is removed; so that when the cope is again put over the core, there is, of course, a space between the two, of the shape and thickness of the bell, and into this the metal is allowed to run. One necessary precaution is to leave a hole in the cap of the mould, besides the orifice through which the metal runs, to allow the air to escape: the omission of this would be fatal to the process. For large bells the formation of the mould takes place in a pit dug in the ground near the furnace, but the moulds of smaller size are formed in the workshops and placed afterwards in holes dug for the purpose. When in the pit the earth is rammed firmly round it, leaving nothing exposed but the holes in the cap, and from these a channel, technically called a "gutter," is cut to the mouth of the furnace. When a number of bells are to be cast at the same time, various gutters are formed from the furnace-mouth, and a metal spade, called a "slice," is used to cut off the communications between the gutters and the various moulds. When the first mould is seen to be full, the slice is withdrawn, and the metal is allowed to flow into the next, and so on.

The moment was now come, the metal was of the right proportions (tried by occasional *assays*) and the right temperature, almost as important, and the men took a final glance around to see that the whole was correct. As Schiller says:—

"Is it in the ground well bedded?
Is the mould well set and steadied?
Skill and diligence to pay
Will it issue fair to-day?
Should the cast not hit—
Should the copeing split!
Ah, perhaps, while hope elates us,
Now—e'en now—mishap awaits us!"

But in Mears' foundry, it seems, mishap is never dreamt of: two or three blows with a point, at the clay-stopped hole in the furnace-mouth, and out rushes a vivid streak of fire, bubbles along the gutter and pours into the first mould:—

"Smoking where the gutter bows
Fierce in fiery waves it flows."

When the red metal bubbles up through the

* The Bell: its Origin, History, and Uses. Published by George Bell, Fleet-street.
† The Churches of London, vol. II.

air-hole the slice is withdrawn and the stream passes on to make the next bell. Long may they hang to summon in a distant land our fellow-men to holy teaching.

About twenty-four hours suffice to cool an ordinary bell sufficiently to allow of the removal of the earth around it: the mould is then broken off with small hatchets, and the bell is removed to the shops to be tuned by means of the "turning machine." When a set of bells turn out to be in harmony, without tuning, they are called a "maiden peal," but this does not often happen.

Something might usefully be said of the mode of hanging bells, the "cage," as it is called, and the wheels, but this we must defer. Reference has been made in our pages to the present disgraceful state of many belfries, and it is high time that the churchwardens looked to them, and set them in order. In some that we have seen lately, pigeons and other birds have provided all the materials for producing spontaneous combustion. The Rev. Henry Ellacombe, who, like a refined Quasimodo, hangs about his bells with affection, has urged the necessity of reform in the conduct of the ringers, too, and has drawn up a set of rules with that end in view.* The Reverend writer points out a method by which,—

> "To call the folk to church in time,
> One little boy six bells can chime."

This may be effected either by heavy hammers to strike outside on the "*bridge*" of the bells, like those of a clock; or, by fixing light hammers or balls, proportioned in size, and in length of lever, to each bell, and so arranged to work on an axis as to strike on the inside—just where the clapper strikes,—and when not in use, to drop down, so as to be quite clear of the swing of the bell when rung. A cord, or "*sash line*," fastened at the end of the lever, may be guided by pulleys to a given point in the church, where the ends are tied, when used, to a fixed horizontal bar.

A set of brisk able ringers at work is an interesting scene, and if you tumble up still higher, you will see a sight you will not soon forget: the bells, dancing and whirling, and banging and clashing, produce a stunning and bewildering effect on the strongest nerves: we tried it once and intend never to do so again. Charles Lamb calls bells "the music nighest bordering on heaven;" but it is not every one who lives near a church who thinks so; and ringers will do well, therefore, to use their privileges with judgment, or they may hear something closely resembling a French verse, which Mr. Gatty translates into,—

> "Disturbers of the human race,
> Your bells are always ringing;
> I wish the ropes were round your necks,
> And you upon them swinging."

And for fear you, the aforesaid gentle reader, should think that our clapper has run long enough, we, too, will finish our "touch," and tie up the ropes for to-day.

A New Patent Material.—The Earl of Dundonald has obtained a patent for "improvements" in sewers, drains, &c., and for making columns and vases. The substance patented is *bitumen* of various kinds, according to circumstances. The pipes are to be cast with one side flat. The patentee proposes to use it for concrete, also for foundations under water.

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* Practical Remarks on Belfries and Ringers. George Bell, London. 1850.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.

In his second Lecture, on the 15th instant, Professor Cockerell proceeded to illustrate the principles laid down in the preceding lecture. He observed that most works on the history of architecture began by tracing to their origin, in the tent, the hut, and the wigwam, the temples of Greece and Rome, and all the other masterpieces of architecture. On this point he would only say, that the building art was coeval with man's first appearance upon the earth: his habitation was, indeed, inseparable from his existence, and as essential as the hive to the bee, or the hut to the beaver. Milton had described the bower constructed by our first parents in Paradise; whilst the city built by Cain, with Noah's ark, and the Tower of Babel, furnished proofs of the antiquity of that art which was, indeed, a portion of the natural history of man.

Next to the roof and walls, the first elements of architectural construction were the pillar and the impost, which, by natural steps, became, in after times, the shaft, the capital, and the entablature. These types assumed the form of the mere post and beam in woody countries; but where that material was scarce, sun-dried or kiln-burnt bricks were employed.

The observation of the forms of nature led to the improvement of the column, to its gradual and graceful diminution, and to the use of *entasis*. The same study of nature, aided by the curves derived from the conic sections, enabled the Greeks to invent their admirable mouldings; the ovola, the ogee, and the cymatium. The Romans, on the contrary, were satisfied, as engineers, with those curves and profiles which could be produced by the compass, and neglected the conic sections. The latter were the true source of the beautiful, and furnished the elements of that quality alike in the details of Greek, Gothic, Saracenic, and Chinese architecture.

The elements of architecture were of the simplest kind; the column, with its entablature, forming the classic order; and the architect who possessed the three orders—Doric, Ionic, and Corinthian—with the arch, was, in fact, fully furnished with his stock in trade. These materials might be compared with the letters of the alphabet; and only mind was wanting to enable the architect to achieve with the former like wonders as those which Homer and Shakspeare had accomplished with the latter. The architect had no right to lament the paucity of his materials: all that was needed was poetic thought and happy invention.

The lecturer proceeded to consider the elements of lines, to which the architect is required to give language and expression. By the horizontal and perpendicular lines mankind were furnished with standards whereby to reconcile the greatest confusion; and they afforded types by which the sublime in architecture had been sought,—in a hilly country by the former, and in a flat country by the latter. The first sight of the sea, after travelling over an undulating country, illustrated the agreeable effect of the horizontal line. Under these circumstances, the landsmen confessed the majesty of Neptune, and admitted his sublimity; and the enthusiasm displayed by the Ten Thousand, in their famous retreat under Xenophon, at the first sight of the sea, might be ascribed not merely to the prospect of a speedy return to their beloved homes, but in part to the natural effect of the sublime horizontal line of the ocean. In hilly and romantic Greece, the long level line of its temples, with their regularly ordered colonnades, furnished repose to the eye, and admirably contrasted with the flowing lines of the accompanying landscape. And where the straight lines of Greek architecture were broken, as they were in some of the works of the Adamses, the effect was consequently bad. In flat countries the perpendicular line was naturally adopted in architectural compositions on the same principle.

The beauty of the straight line was keenly appreciated by the Greeks; and it was still to be traced by the adoption in our own language of the words *orthodox*, *orthography*, &c., shewing that the straight, the level, and the upright were the *correct* in morals as well as in art. Contrast was an important source of the beautiful, and the rules referred to would supply a useful guide to the architect in adapting his design to its site.

The diagonal line was a natural source of delight in its various angles with the horizontal and the perpendicular. Right angles were always avoided by engravers, who produced their sweetest effects by the more obtusely angular lines. The general and continuous admiration of the pyramid and the pediment sufficiently proved the attraction of diagonal lines, and it might be seen also by their prevalence in the sculpture accompanying Greek architecture, the effect of which was much enhanced by its contrast with the straight lines of the architecture. So carefully indeed did the Greeks avoid placing in conjunction with their architecture any perpendicular or horizontal line in the sculpture, that they appear to have had an utter abhorrence of the parallelism which must ensue. This feeling was especially manifested in Phigalian sculptures, as well as in those of Halicarnassus and the Budrum Mausoleum.

In proceeding to consider architectural forms in plan and elevation, it might be observed that a square was a better form of plan for a tower, than a parallelogram. A square house, on the contrary, was stigmatised as a box; and dwellings with more propriety assumed, like the Greek temples, the form of a parallelogram. A tower which took the form of a parallelogram in plan was altogether a solecism, as might be illustrated by reference to the tower of the New Church in the Strand, by Gibbs. The disagreeable effect, and indeed the deformity, of the tower of that church, so far as its plan was concerned, was only to be seen as approaching it from Drury-lane. If it had been so placed as to have been viewed at an angle, it must have created a public scandal, and long since have been altered; but its peculiar position was, no doubt, duly considered by the architect, who accordingly spread out the tower so as to increase the effect, as viewed from the Strand, and felt it unnecessary to give it a corresponding depth.

The plan of the Roman temples was a double cube: those of the Greeks were rather more. That ordinarily adopted for the plan of modern churches, namely, a parallelogram of 2 by 3, or 60 feet by 90, had a very unpleasant effect internally,—as might be seen in St. James's Church, Piccadilly,—showing the necessity of a clerestory to restore its tasteful proportion. The proportion of 3 by 2, or 36 feet by 24, was an admired proportion for internal apartments in the best houses of this country; but 5 by 3, or 40 feet by 24, was, in his opinion, much more effective. The latter was recommended by Palladio, whose rules on this subject, as well as those of Vitruvius and Alberti, might be studied with advantage.

The triangular form might be characterized as the root of Gothic architecture, not only from its frequent employment emblematically, as the symbol of the Trinity, but from its geometrical combinations. Regarding the square form in its application to Greek architecture, and the triangular to Gothic, they might be likened to the four-legged and the three-legged stool; and, apart from any partiality or prejudice for or against either style of architecture, it must be acknowledged that the Gothic—the acute or triangular—must be ever meagre and unsatisfactory in its effect, compared with the Greek, of which the square form might be regarded as the basis. In triangular forms there must be absolute light contrasted with absolute darkness; whereas, in square or circular compositions, an exquisite gradation of middle tents was obtained. In the circular form this was especially manifested. The Colosseum and the Pantheon, the Crescent at Bath, the Castle of St. Angelo, the column in all its varieties, the rainbow-arch of the bridge, and the vaulted ceiling, were alike wonders of structure, of strength, suavity of form, gradation of light and shade, and beauty of effect from every point of view.

The apparent diminution of circular forms to the eye, unless seen from a distance, made their requisite proportions a matter of serious consideration; and in buildings of circular

plan, it appeared that the less their elevation, the better was their effect; that their proportion should be rather that of the single or double Gloucester, than of the Stilton cheese. This was proved by the proportions of the Pantheon, and the Castle of St. Angelo.

In treating of the spiral line—the offspring of the circle—the lecturer adverted to the beauty of the fossil relic known as the *Cornua Ammonis*, which, if it had been a work of art, discovered amongst the ruins of Greece or Nineveh, would have been the theme of general admiration, but, as a natural production, was altogether disregarded. Again, adverting to the graceful lines derived from the conic sections, he referred to the statement of Tacitus, that the goddess Venus was worshipped in Cyprus, under the form of the cone said to have fallen from Olympus,—as if the worshippers of beauty had recognised its principal element in that form.

The next point to be considered was the combination of rectilinear and curvilinear lines, both in the plans of buildings and in their mouldings. This combination was not adopted either by the Greeks or the Egyptians, but it was conspicuous in the plans of Roman buildings, as might be seen in several basilicas, in the temple of Mars Ultor, and in the palace of Augustus, as restored by Canina. The same principle, applied to external architecture, was carried to a great extent by Borromini and Bernini, and by it much grace of composition, with a great variety of light and shade, were attained. In its general application to exterior elevations this combination was a modern innovation; but it constituted the soul of beauty in the composition and contour of Greek mouldings. Hogarth's "line of beauty" was identical with the profile of the Greek cymatium: and the great charm of other antique mouldings was derived from the tasteful opposition and combination of the round, the angular, and the square.

Mr. Cockerell illustrated the grace and delicacy of the great mouldings by referring to some well-executed casts; and proceeded to contrast them with the coarseness and rudeness of those of the Romans. The angularity and acuteness of the latter, with their vulgar energy, as compared with the Grecian specimens, were forcibly elucidated. The Romans, he observed, concealed their want of art by an abundance of ornament. This was manifested in the arch of Septimus Severus; which justified the assertion of Tacitus, that from the time of that emperor the art of architecture had lost its majesty. The still further degeneration of art subsequently was shewn by reference to the mouldings of the Palace of Diocletian, at Spalatro; and the lecturer urged upon the attention of the students the opinions so well expressed on Greek and Roman mouldings, in Wood's "Letters of an Architect." He further illustrated the subject and its analogy with natural forms, by diagrams of the human profile; shewing that the existence therein of outlines similar to those of the best Grecian mouldings, conveyed a highly intellectual expression of countenance; whereas their absence produced only an ugly and sensual expression.

It was necessary to guard the students against the seductions of archæology; whereby they were too likely to be led to admire and imitate the deteriorated productions of the Lower Empire. It was proved by history that architecture and public morals declined simultaneously. Indeed it would be obvious to any philosophic student, by comparing the history of the age of Augustus with that of Justinian, that the architectural works of the former period must of necessity be elevated, and those of the latter debased. In this respect the architect might be regarded as himself the historian of his times. Obvious as this truth was, it was necessary to guard the student against the meretricious graces of Spalatro, Baalbec, and Palmyra, and the Byzantine works described by D'Agincourt. These, though worthy of careful study, should be subjected by the student to severe and rigid criticism. In common with all kinds of inferior productions, these works had been repeatedly engraved of late years; and in fact few ancient edifices had not been so illustrated; every author and publisher being an enthusiast in reference to his own works. Great care, therefore, was necessary to distinguish the corn from the chaff, and it was much to be desired that an age of sound and judicious criticism should follow the present era of immense production.

Having pointed out the skill and taste which the Greeks displayed in adapting the superficial ornamentation of their mouldings to the forms of these members, and the neglect of such matters of detail by the Romans, the lecturer proceeded to notice the three Grecian orders, premising that architectural practice in England must be limited to Greek, Roman, and Gothic architecture, excluding, as impracticable here, the Egyptian, Assyrian, and other ancient forms.

The Doric order, he observed, had never yet had a fair chance in England. It was difficult to associate its horizontal lines successfully with the general surface of the country; and only in such situations as Edinburgh and other elevated spots could it be properly employed. Vitruvius had overlooked one important feature of the Doric order, namely, the steps forming its stylobate. These, in the best classic examples, were of considerable height; the actual ascent to the temple being by lower and subsidiary steps. To place a Greek column, therefore, on a 6-inch step, was a gross solecism. In the main steps, likewise, the Greeks introduced a sinking in each riser, so as to form a nosing, which gave its due effect of shade to every step; and but for this expedient the steps would have presented the appearance of an unbroken mass of light when the sun shone full upon them. The great size of the stones employed was another main feature of the ancient Doric, as shown in the ruins of Pæstum, Selinus, Corinth, &c. In modern imitations, therefore, the column should, if possible, always be a monolith, and the architrave in single stones.

The difference between the Ionic of Ionia and that of Greece Proper, with the superior beauty of the former, was next explained, together with the leading features of the Corinthian order. In conclusion, the Professor observed that, whilst admiring these beautiful examples of masonic architecture, on which all their associations of the beautiful were founded, it was essential that they should not overlook the new element, the Iron order, which science had lately brought into notice. The student would do well to turn his attention to the means of imparting, by analogy with nature, that beauty which it was capable of receiving, to the Iron order, on which he hoped to offer some remarks on a future occasion.

THE RIVER TERRACES FOR LONDON.

ALTHOUGH the grand scheme for forming continuous lines of terrace along the Middlesex *strand* of the Thames—say, between Vauxhall-bridge and London-bridge,—which has so long engaged the attention of John Martin and the public, bears little promise of being carried into effect, seeing the multitude of interests that are involved, and the great cost that would attend the carrying out an undertaking of such magnitude, it does not follow, all the while, that portions, such as offered as the most eligible, should not be effected from time to time. Now, if there is one portion more than another which could be executed with facility, and would be attended with advantages to those most immediately interested, far more than commensurate to the expenditure, it is that lying between Adelphi-terrace and the north end of Waterloo-bridge. Here, the line of direction is free of main buildings; and the relative levels of the shore, terrace, and bridge, are such, that the low-lying premises on the first would be cleared by a terrace carried over them. The circumstances at this place are such as suggest a mode of construction in which cast-iron would obviously play a prominent part,—columns—arch-girders—binders—joists, and a platform of Rockhill (*i. e.* Caithness) or Valentia flags, not omitting semitransparent but substantial flags of glass: such platforms can now with ease be made waterproof by a system of skeleton framing affording solid bearings to every joint, these packed with elastic material saturated with red or white lead, and the flags flush-screwed. Such an opening next the river becomes very desirable in connection with the improvements at the west side of Somerset House-buildings; while it would be no inconsiderable convenience, so far as the westward approach to, or egress from, Waterloo-bridge is concerned. To the proprietors, also, of the aforesaid low-lying premises on the shore that would be spanned over, improved communication with the Strand and Waterloo-bridge level would become available, by means of open, spiral, or other stairs opening on the terrace; and, generally, an enhancement in value of the properties in contact with it might be anticipated. We throw out the hint to those whom it may concern, and shall be glad to find the seed germinate.

IRELAND AND HER BOGS, AND HOW TO USE THEM.

IT is a gratifying and singular fact that the districts of the sister kingdom which are at present considered as the most worthless seem ordained to be, at a not very distant period, a mine of wealth to their fortunate proprietors. Unlike mines in general, too, we find here the object of our wish may be wrung from mother-earth by labourers rejoicing in the genial sunshine, and invigorated by the nature of their toil.

The actual extent of bog-land reclaimable in Ireland alone amounts to 3,000,000 acres. And as the weary traveller surveys on every side, as far as the eye can reach, the dull brown tints which indicate the nature of these wildernesses, the idea must naturally suggest itself to his mind that it is a truth that nothing is devoid of purpose if we can but discover its applicability; and it appears we are now upon the eve of being assured that the dreary bogs, in which vegetation seems so long to have slumbered, are to become the sources of abundant and general reproduction. In more than one part of this hitherto much neglected country may be observed the manufactories for converting the peat or turf into charcoal, the virtue of which, whether as a deodorant, a medium of rapid filtration, a fuel, a vehicle for transforming the contents of sewers and cesspools into a most valuable and inoffensive manure, cannot be overrated, and to be duly appreciated must be seen in operation. It is true that various demonstrations of the uses of this material have been made, and numerous publications issued on the subject, and yet we find the general public either totally ignorant of its merits, or sceptical on the subject of its vast importance to society. Foremost amongst the depôts for the manufacture of this article in Ireland we find the extensive stations of the Irish Amelioration Society, in Kildare, providing employment, at remunerative wages, to a vast number of the willing peasantry, who are giving daily proof that it is labour alone the Irish seek, and not alms. We have also the works of Messrs. Gwynne and Hays, in the county Kerry, who have commenced trade largely in drying and compressing peat for fuel, for home use and for exportation, as it is considered far preferable to coal for steam-boilers, engines, &c. There are also many private manufacturers in different parts of the country, giving much occupation to the poor people, who are always grateful for being afforded the means of self-support, as their employers invariably testify.

We have heard repeatedly of the practicability of extracting spermaceti, naphtha, tar, &c. from this humble Cinderella of the great organic family, and that such may be done at a cost to amply repay parties who judiciously employ their capital in producing the same we have no reason to doubt.

In a recent experiment, made in the presence of two professional friends, I had the satisfaction of finding that the gas produced from the compressed peat burnt freely a considerable time with a clear steady flame, in every way similar to the carburetted hydrogen, or common coal gas, but evidently more brilliant, probably owing to the absence of sulphur in the peat, while it abounds so largely in the

coal. May not advantage of this material, therefore, be taken for lighting economically towns situate in the neighbourhood of the peat districts?—or, indeed, since means have been found for compressing the turf almost to the density of coal, an export trade in the commodity may be hoped for.

Even from the rushes which abound so luxuriantly in bogs and other marshes, a beautiful fabric may be woven; and some dressed specimens prepared for weaving which I lately saw in the possession of a foreigner, appeared to possess all the strength of the best flax, with the rich gloss of silk.

While on the subject of the uses to which peat may be applied, allow me to say that the nature and origin of the vast tracts of waste, both in this country and throughout the entire of Europe, to which we have given the term bog in general, ought to be a matter of peculiar interest, whether to the geologist or botanist; and, from careful observations, made in numerous sections of those of Ireland, on the classification, position, and structure of the various trees, plants, shrubs, &c., found therein, and comparing the same with the brown coal common in many parts of Germany, containing timber in so perfect a state as to serve for the manufacture of various articles of household furniture, I have every reason to conclude that what we now term peat bogs are simply the younger formations of immense coal-fields, awaiting only volcanic influence to entomb the mass, which, when submitted to intense pressure, the action of sulphur jets, and other mineral productions, aided by the agency of time, the mysterious revealer of events, may become the great basis of the wealth of the commercial world, coal.

Thus, after the lapse of ages, another revolution awaits the buried elements of nature, for the requirements of man compel him to dive deep into the bowels of the earth for the treasure he neglected while upon its surface. By combustion he may change the form and quality of the exhumed mineral, but destruction he cannot effect—the gases liberated by fire hasten to perfect new and wonderful combinations—obeying the fiat of the omnipotent Creator—"increase and multiply." The new system of drying the turf (which at present is but little understood) by means of constant currents of air at a moderate temperature evenly sustained by a simple and economical application of heat, is answering well. It is now generally admitted, that in a humid climate, to depend upon atmospheric drying alone is at least precarious, if not wholly unprofitable, when the operations become extensive. CHARLES GEOGHEGAN.

*** An improvement in the mode of burning the peat into charcoal is much needed: the patented kilns are eminently defective. We have seen the drawings of a kiln devised for the purpose by Mr. Geoghegan, the writer of the above communication, which seems to have great advantages, and ought, we think, to come into use. The great value and importance of the material is only beginning to be understood.—ED.

GREEK AND ROMAN ANTIQUITIES.*

THERE was long wanting in our language a correct and ample dictionary of Greek and Roman antiquities: we had out-grown *Adam's Account of the Manners and Customs of the Romans*; and beyond this there was nothing to be found in a connected form. It was reserved for Dr. Smith to produce a work which gives a perfect knowledge of "That city of the Cæsars, the mistress of the world," and of its teacher State, which, having checked the westward progress of Asiatic dominion, and given to the universe faultless models in every species of literature and art, was eventually compelled to succumb to the prowess of its rival's arms. It is too late now to point out that Dr. Smith has produced, by careful examination of original authority, with such aids as could be derived from the best modern writers—making the results of present day research available for the purpose of instruction—a standard work, containing the most extensive information on the highly interesting and important subject of which it treats. We may say, however, that the second edition now before us contains so many additions and improvements, that it must be regarded to a considerable extent as a new work.

Opening the volume, to give our readers an idea of the system adopted by the learned Doctor and his able coadjutors, we fall on the word *paries* (τοῖχος), the wall of a house, in contradistinction to *murus* (τεῖχος), the wall of a city, a fortification-wall, in fact.

Among the various methods employed by the ancients in constructing walls we find first spoken of the *Paries cratitius*, or wattled wall, made of canes or hurdles covered with clay, of which, in the original Roman city, entire houses were formed. Mention is also made of dried lumps of clay built into walls, strengthened by means of horizontal bond timber; and in districts where wood abounded, log-houses were common, constructed after the fashion of those at present in the back settlements of America,—trunks of trees partially squared, piled one on the other, the interstices being filled with either moss or clay. But these were, as civilisation advanced, succeeded by the use of brick or stone; this latter, either in the shape of irregular masonry, the wall being built of stones, which were not squared or cut into any exact form, or as the *emplecton* or complicated wall, consisting in fact of three walls joined together, each side presenting regular masonry; the interior being filled with rubble; the two outside shells rendered firm and durable by large stones or courses of brickwork extending at intervals through the whole structure.

Vitruvius tells us the mode universally adopted in his time was the *reticulata structura*, resembling network. It consisted in placing square or lozenge-shaped stones side by side upon their edges, the stones being of small dimensions and cemented by mortar. Walls thus constructed were considered more pleasing to the eye, but less substantial than those in which the stones lay flat. The front of the wall was the only part in which the structure was regular, or the stones cut into a certain form; the interior being rubble work or stone chippings imbedded in mortar. Only part of the wall was reticulated: to give it firmness and durability the sides and base were built of brick or squared stones, and horizontal courses of bricks were laid at intervals, extending through the length and thickness of the wall. In many cases the mortar has proved more durable than the stone, especially where volcanic tufa is the material employed, as at Baiae, in the Bay of Naples, and in the Villa of Hadrian, near Tivoli.

Annexed (Fig. 1) is an engraving of a wall of this sort from the drawing of a wall at Pompeii by Mr. Mocatta.

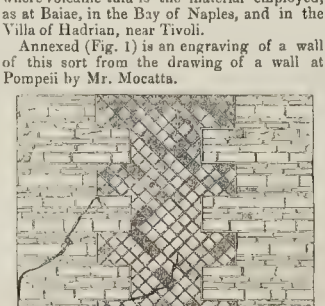


FIG. 1.

But the most perfect wall, especially when built of marble, was the *paries e lapide quadrato* or ashlar wall, consisting entirely of stones cut and squared by the chisel. The construction of such was carried to the highest perfection by the architects of Greece; the temples of Athens, Corinth, and many cities of Asia Minor still attesting in their ruins the extreme skill bestowed on their erection. Considerable excellence in this art must have been attained by the Greeks even as early as the age of Homer, who derives one of his similes from the "nicely fitted stones" of the wall of a house. But probably in this the Greeks only copied the Asiatics, for Xenophon came to a deserted city in Mesopotamia, the brick walls of which were capped by a parapet of "polished shell marble."

The accompanying cut (fig. 2) shows to what an extent the Romans introduced arches in their buildings, not only where openings were needed, but where they could serve no other use than to strengthen the wall. It represents a portion of the supposed *Thermæ* at Trêves.



FIG. 2.

Walls were adorned, especially in the interior of buildings, in a great variety of ways. However coarse and rough their construction might be, unevenness was removed by a coating of plaster with rough cast, consisting of sand, together with stone, brick, and marble, broken and ground to various degrees of fineness. Gypsum, also, in the state which we call plaster of Paris, was much used in the more splendid edifices, decorated with an endless variety of tasteful devices, in bas-relief or fresco. Another method of decorating walls was by encrusting them with slabs of marble—an art of high antiquity, probably in its origin Oriental. The brick walls of the Mausoleum at Halicarnassus were covered with slabs of Proconnesian marble; and this is the most ancient example upon record.

Mausoleum being our last word of any import, we turn to the page in our dictionary where we may expect to find it: we are there told that the original building was the production of the piety of a wealthy queen, and of the skill of the great artists of the later Ionian and Attic schools of architecture and sculpture. Mausolus, the Dynast of Carea, having died B.C. 353, his queen Artemisia evinced her sorrow by observing his funeral rites with the most expensive splendour, and by commencing the erection of a sepulchral monument to him at Halicarnassus, which should surpass anything the world had yet seen. Pliny is the only writer who gives anything like a complete description of the edifice; but even in this account there are considerable difficulties. The building, he tells us, extended 63 feet from north to south, being shorter on the fronts, and its whole circuit was 411 feet (or, according to the Bamberg MS., 440 feet): it rose to the height of 25 cubits (37½ feet) and was surrounded by thirty-six columns. This part of the building was called *Pteron*. It was adorned with sculptures in relief, on its eastern face by Icopas, on its northern by Bryaxis, on the southern by Timotheus, and on the western by Leochares. Above this *pteron* was a pyramid equal to it in height, diminishing by twenty-four steps to its summit, which was surmounted by the marble quadriga made by Pythis. The total height, including this ornament, was 140 feet. The only way of accounting for the discrepancy

* Dictionary of Greek and Roman Antiquities. Edited by Wm. Smith, LL.D. Second edition, published by Taylor, Walton, and Maberly, Upper Gower-street, and Ivy-lane, Paternoster-row; and John Murray, Albemarle-street.

between the total and relative heights being the supposition that the whole was elevated on a basement; the other apparent discrepancy between the lengths of the sides and fronts and the total circuit of the building can only be satisfactorily explained by supposing that it stood within an enclosure, or upon a platform of the larger dimensions, viz., 440 feet in perimeter. When we come to the details of the arrangement of the parts, we find most writers giving the simple explanation, which most readers of Pliny would probably adopt at first sight, that the thirty-six columns formed a single peristyle all round the building. To this view there are very formidable objections, and another, which has not only the merit of being exceedingly ingenious, but the authority of an accomplished architect, is proposed by Mr. Cockerell in Mr. Newton's Essay in the *Classical Museum*. Taking, on the one hand, Pliny's 63 feet as the length of the longer side of the peristyle, and, on the other hand, calculating the dimensions of the order from the existing fragments of the frieze, (which in the case of a work of that period of Greek art an architect can do with much certainty), Mr. Cockerell arrives at the conclusion that the thirty-six pillars were arranged in a single row of six columns on each front, and in a double row of eight on each side, at intercolumniations of 6 feet 8 inches, around a long narrow *cella*, corresponding in length to six of the columns of the peristyle, and in width to two. The researches of the latest travellers furnish a strong hope that good elements for reconstructing the plan of the Mausoleum may be found among the fragments of columns which are about the city of Budrum, or are worked into its walls, either when it was built by the knights of Rhodes in the fifteenth century, or when they strengthened its fortifications in 1522. In most ruins we behold what Time has spared; but ancient Rome appears to have defied him. In its present remains we see the limbs which he has rent and scattered in the struggle. Sir Stratford Canning obtained permission from the Porte to remove from the inner wall of that fortress *some of the sculptured slabs which had formed its frieze*, and in February 1846 they were taken down, conveyed to England, and are now deposited in the British Museum under the name of the *Budrum* Marbles. In the Roman Mausolea, as the term was afterwards used by them as a generic name for any magnificent sepulchral edifice, the form chiefly employed was that of a succession of terraces, in imitation of the *rogus*. Of these the most celebrated were those of Augustus and Hadrian; the latter of which, stripped of its ornaments, still forms the fortress of Modern Rome (the Castle of St. Angelo); but of the other, which was on a still larger scale, and which was considered one of the most magnificent buildings of Augustus, there are only some insignificant ruins.

This naturally induced us to turn our attention to *Time*, as it may be well to inquire how the division of that "old enemy" was regulated. We shall find the subject treated under the headings *Hora* and *Horologium*, the last being the name, as our readers know, of the various instruments by means of which was measured the time of the day and night. The first horologium known seems to have been the sun-dial, called by the Romans *solarium*, and by the Greeks γνώμων; but as these were found to be of no service unless the sun shone, they were superseded by the clepsydra, deriving its name from κλέπτειν and ὕδωρ, as in its original and simple form it consisted of a vessel with several little openings at the bottom, through which the water contained in it escaped. Several improvements were made on the original system, but all these were excelled by the ingenious invention of Ctesibius, a celebrated mathematician of Alexandria. It is described by Vitruvius: water is made to drop upon wheels, which were thereby turned: the regular movement of these wheels was communicated to a small statue, which, gradually rising, pointed with a little stick to the hours marked on a pillar which was attached to the mechanism. It indicated the hours regularly throughout the year, but requiring to be often attended to and regulated, did not come into general use, being found only in the houses of the wealthy, the sun-dial or gnomon, and a simpler kind of clepsydra, being used to a very late period. There is still existing, though in ruins, a horological building, which is one of the most interesting monuments at Athens. It is the structure formerly called *The Tower of the Winds*, but now known as the *Horological Monument of Andronicus Cyrrhestes*.



Fig. 1.

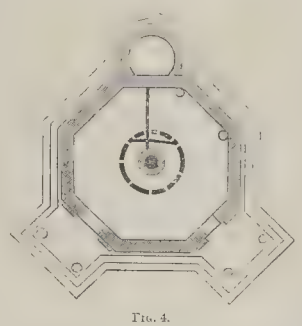


Fig. 2.

This building is fully described by Vitruvius, and our engravings 3 and 4 show its elevation and ground plan, as restored by Stuart. The turret in south wall contained the cistern which supplied water to the clepsydra.

There is so much in this volume to interest our readers, including valuable disquisitions on the baths, the temples, amphitheatres, aqueducts, &c., of the ancients, that we shall make another dip into it, and will only say, in the meantime, that it will be found a mine of knowledge, and will make a small library in which it is placed equal to many a large collection without it.

Insecure Balconies.—In your last week's number two serious accidents are mentioned as having occurred very recently from the falling of balconies. No practical man who is in the habit of walking about the suburbs can have failed to remark the generally insecure state of the balconies to third and fourth-rate houses, the only marvel being that accidents do not more frequently occur. This glaring evil may be, however, very easily and inexpensively obviated by invariably securing balconies with ornamental cast-iron cantilevers running through the whole thickness of the wall, and pinned in: they may be obtained in a great variety of patterns at any of our large iron warehouses, and the additional cost accruing from their use would not in ordinary cases exceed 5*l.* per house.—E. M.

ON SKYLINES.*

The influence of architecture on the nation by which it is fostered, and the impressions which even the various component parts of it make upon the spectator, can scarcely be estimated: that it is great, no one can deny, and we possess a glorious privilege to plant upon the land we love, o'er the grave of buried years, emblematical monuments of their worth and their civilization, to form the connecting link, more truthful than the written page, between the buried past and the historian of the veiled future,—to mould the subject-matter for the strains of future poets. But to ensure such tributes to our art, it must be rendered worthy of them. Resolutely must we labour, fervently and religiously ponder on all which constitutes its greatness. The measureless compass of our study must nothing daunt us. *Sans peur* we must be, if we would be *sans reproche*. The materials of which beauty is built up must be thoroughly comprehended. Each of the outworks must be mastered ere we attempt the holy citadel. There must be no leaps over rapids we cannot breast, but all must be gained by a persevering course, and the print of each onward step must be garnered in our minds.

Outline, colour, harmony, unity, expression, fitness, are all worthy our attention and our contemplation; but the foundation of all beauty is undoubtedly form. Even this is capable of being again subdivided into the general grouping of the building and its relationship to adjacent objects; the composition of its several parts, and the outline of its detail. I shall, on the present occasion, offer a few remarks upon the form of the highest points of a building—the skyline, as it is called—where it stands distinctly forth against the over-arching firmament, where no broad shadow nor dazzling light can, as on a wall, cast a deepening veil upon its form.

It is immaterial what the subject be: whether church, conventicle, warehouse, or an ivied cottage, the skyline of a design cannot escape the spectator's eye: the architect, so long as he preserves the fitness of the parts and the character of the building, has the whole realm of form before him to make his work harmonious and striking. It is not the shadows which fall behind the porticoes of the classic temples, depicting their columns in sharp outline and the boldness of their projection: it is not the long lines of their cornices, so harmonious with the broad outstretching desert and the line of the distant main, which Byron marked when standing beneath the portico of Pallas's fane: it is not these which give them grandeur, though certainly aiding in the work; but the beauteous, gently sloping, reposing lines which stand forth in silent beauty from the deep azure of the cloudless eastern sky. The sky in these sunny climes is generally one unbroken calm—

> "Where not a breath disturbs the air serene,—
> Where not a cloud throughout th' expanse is seen;"—

consequently, as a general rule, the skyline of their buildings is unbroken, and the contrast is formed by the simple outline of the structure. * * * *

Leaving the lands of cloudless skies and sandy plains, it must be evident to all, that where the sky is continually varying, where pillowy clouds float through the air "as on their way to some celestial show," without any tokens of discipline, a very different treatment must be pursued in determining the skyline of our buildings. The fitful changes of our northern skies are communicated to the landscape. They and it suit one another, and man has best succeeded in his buildings where he has shown his comprehension of nature's wisdom, and given irregularity to the crowning feature of his work. I need not remind you, and yet they are illustrative of our subject, of the marvellous effect visible, through an observance of this principle, in the works of the mediæval builders, in their cathedrals and abbeys, and even in the old timber houses still existing both in England and on the con-

* From a paper read at a meeting of the Architectural Association.

tinent. It is not for any beauty of detail that the latter are admired and selected by painters for sketches. They are generally deficient in this requisite, being, for the most part, built of rough carpentry and plaster. Where any carving is to be seen, it is of the rudest description; yet these structures have a wonderful effect upon the naturally active and restless northern mind, standing out prominently from the irregularity of the cloudy sky.

Regularity would never so affect us: the eye, as Reynolds says, would be perplexed and fatigued through not knowing where to rest, where to find the principal action; and where all were making equal pretensions to notice, all would be in equal danger of neglect. I do not need to be told that these excellencies in the old timber buildings are dispersed, and that the beautiful skyline is accidental, and often the crowning feature of a mass of rubbish and discomfort; but when these old picturesque places lie near our path, it is well we should know that something may be gleaned from them which, reborn, would reflect credit upon its producers.

If likewise, from some prominent position, we look down on our modern towns, the irregularity caused by the spires of the churches and the various public buildings, is the secret of their charm; nor is it lessened, because those which pierce the smoke of our modern London are not designed to suit the fashion and the assumptions of the day: indeed, I would point to two of the Pagan churches (as they have been called) for one of the triumphs of our art with respect to the arrangement of the skyline in harmonious contrast one with the other:—I allude to the church on Ludgate-hill and St. Paul's, as seen from any part of Fleet-street. It is a panorama of surpassing beauty. Each sets the other off, yet each is equally successful. Notice, for instance, how the thin elegant spire in the church gives dignity to the cathedral, and *vice versa*; and how, to preserve harmony, the form of the *small* cupolas in the cathedral is repeated in the church at the *bottom* of the spire.

I would that I could speak favourably of the general skylines of our modern streets, but alas! what with unbroken surmounting cornices, copings on plain brick walls, and high zinc smoke pipes of all imaginable forms, excepting only those which approach the beautiful, there is little skyline to admire. I know not why we stick so pertinaciously to the invariable parapet gutter, one of the principal causes of the unsightliness of the skylines in our streets. It likewise astonishes me that we can scarcely build a chimney without necessitating the use of those abominable things I have just mentioned. First, with respect to the gutters, there is no question about their being the worst and dearest. With a steeper roof and eaves gutters there is greater protection from the weather; there is no snow stoppage in winter, no deluge in summer.

The zinc smoke-pipes cast a shadow upon our scientific knowledge, and disfigure the finest building. Look, for example, at the effect of them on Somerset and Marlborough Houses.

A chimney flue is generally too small to be an important feature, and yet it *must* go above the roof. We must get over this apparent difficulty by grouping the flues into stacks, according to our taste and judgment, and to peculiar circumstance, in order to support the general effect of the building.

Were these two evils—parapets and zinc flue-tops—remedied, an architect would have, even in our streets, abundant materials to crown, with a good skyline, the beauty of his building. The effect of the modern continental streets is far more picturesque than those of England, through the liberal use of the dormer, which follows the adoption of a high-pitch roof to the building; and, I may add, incidentally, the colour which they give to their external plaster.

But we must not suppose that the materials of beauty are alone sufficient, and that a good skyline will result as a matter of course; neither should we imagine that a facility in creating beautiful parts will gain success in the skylines of street architecture. We must, in addition to that, possess knowledge, judgment, and feeling, if we would create aggregate beauty resulting from the skilful arrangement of delightful forms, harmonious in themselves, in harmonious contrast with all around. We must so arrange different parts that they shall adorn one another. Now what principle should govern us in determining our skyline? I answer, the same as nature has adopted in suiting the landscape to the sky: we have exactly the same background of ever-changing clouds. We cannot imitate her perfectly, but we can investigate her principles and profit by such a course, and this will lead us to irregularity of lines and irregularity of surface.

Of all the means which an architect may adopt in the collocation of minor parts or in the arrangement of the roofs, to effect a pleasing skyline, that must undoubtedly be the best which arises out of the construction of the work, and which is most likely to give effect to the principal feature, and which is unencumbered with foreign useless ornament, which everything must be that does not co-operate to the general appearance. Every part should be placed in the best available situation so as to support properly the principal feature. Intention should govern every line, and nothing be left to chance. We must likewise consider in buildings of any extent the propriety of introducing secondary and tertiary groups complete in themselves, but contributing to the primary feature. This principle is admirably carried out by Vanbrugh in Blenheim and Castle Howard. He is one of the most celebrated architects of England for skylines and painters' effects.

You will thus perceive that the whole subject must be completely realised in the architect's mind ere he attempts to give it outward form and shape. He must penetrate to the complete depths, and enclose the entire compass of his subject, expanding or redisposing any necessary adjunct if it be an obstacle to the elucidation of his idea, at the same time judiciously subduing aught which interferes with the success of his work, and which may have arisen out of the necessities of the structure. He will have likewise to bear in mind the character and sentiment of his substructure: whether the sentiment desired be the simple, the grand, or the picturesque; whether it stand upon a lofty eminence robed in mighty winds; or whether with as loud a roar the wild waves bend before its base,—the chief aim in the arrangement of the skyline should be to dispose the parts in the manner best calculated to express the desired sentiment,—so to form his skyline that in the fertility of his imagination he does not banish harmony from his design.

W. BOUTCHER.

DISCOVERIES IN ST. OLAVE'S CHURCH, CHICHESTER.

SOME interesting discoveries have lately been made in clearing out St. Olave's Church, Chichester, with a view to its restoration. On removing the floor of the chancel, to which there was an ascent of several steps, a circular arch was brought to light in the eastern wall. Both the material and structure of this arch are remarkable. The materials with which the arch is turned are large Roman tiles of almost 18 inches in length and 2 inches in thickness. As to its construction, instead of the usual truncated wedges or voussoirs closely fitted to each other, it has only the flat tiles aforesaid, placed at intervals of an inch or more from each other, and compacted together by a thick layer of mortar: neither do the tiles radiate or point to the centre, but are piled rudely almost parallel to each other. The masonry of the wall in other parts of the building is also of Roman tiles of a smaller size, mixed with rough stone. A local correspondent writes to us,—"In all these respects the structure exactly corresponds with that of the very ancient church of Brixworth, in Northamptonshire, which, on documentary evidence, is referred to the date 670—700, A.D. The probability of this being about the correct date in the present instance also is greatly confirmed by the consideration that it was in A.D. 680, that St. Wilfred founded the bishopric of this diocese at Selsey, having received a grant of land from Ceadwalla, king of the West Saxons. A church, therefore, might very well have been built here at the date specified, and very probably was, as Chichester had been a post of importance from the time of the Romans. These views, if correct, will place this humble church at the head of all in the diocese, and of all but one or two in the kingdom in point of antiquity.

The church was rebuilt at its present raised level in about 1310, and an elegant piscina has been discovered in the north wall of the nave, also one in the south wall; the former apparently from the same hand as the Chapel of St. Mary's Hospital, in Chichester. A second archway of depressed form, occurring in the north side of the chancel, and at the same low level as that in the eastern wall already described, has also been found to contain Roman tiles of great size and thickness, laid flatly over the stone voussoirs of the arch.

In the south wall of the nave of the present church, and at the present level (which is many feet above the level of the arches we have hitherto been speaking of) has been found, by still more recent examination, a very narrow doorway, circular headed, and perfectly plain, formed of a fine chalk stone, and in the most perfect preservation. A small cross, incised in the interior of the eastern jamb, marks doubtless the spot at which it was touched with chrism, or oil, at the consecration of the church. There can be no doubt but this doorway is also Saxon, though from the great difference of construction, and especially from the far higher finish of the work, it must be referred to a period many years subsequent to that of the rude remains which the undercript of the chancel exhibits, most probably to a period shortly anterior to the Norman Conquest. St. Olave, Olaf, or Olaus, King of Norway, came over about 1014 to assist Ethelred against the Danes; and on his being canonized after his death, in 1028, churches were, out of gratitude, built in his honour in London (Tooley-street takes its name from St. Olaus), and elsewhere, most probably before the date of the Conquest, 1066, since the Saxons, and not the Normans, owed St. Olave a debt of gratitude. We may conjecture that this arch is a relic of the church as rebuilt by the Saxons, and dedicated to St. Olave.

Thus we have in this single spot, if the above deductions from the date be correct, three successive arches; one at the old Roman level, of the date of 680 or 700, A.D.—some think even earlier; a second at the present level, at about 1040 or 1060; and a third at the date 1310 or 1320. The church is now in course of restoration, and a subscription has been set on foot for the purpose, and from the well-known liberality of the inhabitants of this ancient city, we should judge the work will be well carried out."

THE OPERATIVE ENGINEERS AND THEIR EMPLOYERS.

THE committee of associated masters have issued, under the signature of their secretary Mr. Sidney Smith, a representation of their view of the unhappy difference with their workmen. "All we want," they say, "is to be let alone. With less than that we shall not be satisfied. Until we accomplish that, we shall not re-open our establishments." We question the prudence, though not the motive, of one remark made in this "representation," viz., "we claim, and are resolved to assert the right of every British subject, *to do what we like with our own*, and to vindicate the title of our workmen to the same constitutional privilege." Considering the various equivocal senses in which "doing what we like with our own," has been applied and understood, we think it is a pity such a phrase appears in a question between masters and their "own" workmen, as a handle may be made of it wherewith to work out ends and views not contemplated when it was written. On the subject of the systematic abolition of overtime it is said, with a truth in which for our own parts we personally and feelingly sympathise,—"All classes, in nearly every avocation, have occasionally to

work overtime,—the Prime Minister, perhaps, the most,—the successful physician, or the great lawyer the most slavishly. But men of any merit voluntarily set the task to themselves; those of the mechanic class earnestly desire it; and so far is either that or piece-work from being regarded as an oppression, our experience as masters is, that in the eye of mechanics as a body, it is viewed as a positive objection to an establishment that it does not afford opportunity for working overtime. The real objection to piece-work, we fear is, that it protects the masters against those who are indisposed to give a fair day's work for a fair day's wages." As we have already remarked, the men demand of their masters in this last respect what associated workmen (in Paris) have discovered that they cannot honestly allow to each other. The result of these unhappy differences must be serious loss to both parties and to the country at large, and more serious the longer reconciliation is delayed. The position taken on either side, does not justify a hope of a speedy arrangement: we wish we could aid in effecting it. The tone of the masters' pamphlet is, we fear, not calculated to do so.

NOTES IN THE PROVINCES.

Leigh-de-la-Mere, Wilts.—At the village church of Leigh-de-la-Mere, built at the expense of Joseph Neeld, Esq., a *Lich Gate* has been put up under the direction of Mr. Thomson. It is of English oak, wrought and framed together in a substantial manner, and varnished to exhibit the rich colour of the wood. The roof is close boarded with oak placed lengthwise, and tiled with stone tiles. The application of the Lich Gate was suggested to Mr. Neeld, we understand, by our publication of an example of one some time since.

Claydon.—During the last six months a great portion of the parish church has been rebuilt. The former chancel, which was in a very dilapidated state, was taken down, as was also a portion of the nave, to allow of an enlargement by the erection of a transept. The rebuilding of the chancel, according to a contemporary, was undertaken by an amateur. The transept was built from a design by Mr. R. M. Phipson, architect. At the intersections with the nave and chancel are four moulded arches. Above is a groined roof of wood. The windows towards the north and south have flowing tracery. In the north and south compartments there is a waggon roof, divided into square panels, the intersections being ornamented with bosses. The nave is fitted up with open seats, which are unappropriated: the transept at present is not furnished. The roof and benches are the work of Mr. Ringham, whose son, Mr. W. Ringham, undertook the sculpture of the stone corbels. The ancient portion of the church contains some evidences of a Saxon date. At each of the western angles of the nave is an example of long and short work. The south door in the interior exhibits the same mode of building.

Wellington.—The contracts for the water-works at Wellington were let on the 14th, at prices within the estimate of Mr. Marten, the engineer to the company. Messrs. Dickson, M'Kenzie and Co. of Oaken-gates, have taken the contracts for the reservoir and pipe-laying; Messrs. Cochrane and Co. of Dudley, for the pipes; and Mr. Edward Blakemore, of Wednesbury, for the cocks. The works are to be commenced forthwith, and will be completed, it is expected, in about four months.

Milford Haven.—The estimated cost of constructing and completing the intended wet docks and floating basin at Milford Haven is 100,000*l.*

Bangor.—The survey of the borough by Mr. Johnson having been examined and approved of by Mr. H. Austin and the General Board of Health, the local board have appointed Mr. Johnson, their surveyor, to carry out the drainage of the town, and superintend the details, the plan to be submitted to the general board within one month.

Easton.—A painted window has recently been erected in the nave of St. Mark's Church, Easton. It is the gift of Mr. H. F. St. John, who, it is said, has studied the art of painting in glass under Mr. Bell, with a view solely to the extension of the art to sacred purposes. The window referred to represents the Baptism of our Lord. Mr. St. John has contributed several other windows of less elaborate character to this church.

Birmingham.—It is a gratifying proof of the appreciation of art by the working classes, that the Exhibition of Paintings at the Society of Artists' Rooms, has, since the reduction of the charge of admission, been visited by nearly five thousand persons. The Exhibition is announced to close on Saturday, the 31st inst.—*Aris's Gazette.*——A stained window has recently been inserted in the chancel of St. Martin's Church, in place of the unsightly and inappropriate one formerly over the altar. It is the production of Messrs. Chance, of the Spinlane Works, and has been provided by a fund subscribed some time ago for the purpose. The window is of three lights, with a head filled with flowing tracery. No figures have been introduced into the design, and but very few symbols, the principal one being the *Agnus Dei* in the head of the centre light. The remaining portion of the centre and the whole of the side lights are composed of medallions containing geometrical designs, and surrounded by scroll-work and floriated tracery. Each light is separated from the mullion by a narrow band of a deep blue colour; and the prevailing colours employed in the whole window are blue, green, orange, and ruby. The tracery of the head is composed of trefoils, quatrefoils, and conventional modifications of the *Vesica Piscis*, some of which contain scrolls, and others the open Bible, the Sacred Monogram, the Eucharistic chalice, the Cross, and the emblems of the Holy Trinity.

Liverpool.—An inquest was held on Thursday week on James Foulis, aged 44, a joiner, in the employ of Furniss and Kilpin, at St. George's Hall. That morning, about seven o'clock, the deceased left his work to go to a water-closet, and not returning before eight o'clock, a search was made for him, when he was found lying dead at the bottom of one of Dr. Reid's ventilating shafts. He must have fallen a height of 20 feet. Mr. Hughes, clerk of the works, said that, on Friday, the key had been taken from his office for the purpose of measuring the door and frame: the key had been returned into its usual place, and he never knew that the door had been left unlocked until he heard that the deceased had been found dead. The jury returned a verdict of accidental death, but made a presentment that they "considered the place in question as exceedingly dangerous; and that a watchman ought to have been in attendance to prevent danger." It was stated in the coroner's court by one of the men employed in St. George's Hall, that this is the ninth person who has been killed in that building.

Cockermouth.—The Consistory Court of Richmond, Yorkshire, have decided that Mr. Clarke's design is to be carried out.

HOLLOW BRICKS.

"THERE is nothing new under the sun," was the observation of Solomon. If you remember, it was stated that it was intended by the Bey to send over specimens of hollow bricks, at the present time in constant requisition in Tunis, for the Great Exhibition; but the interest of such a contribution was at the last moment accidentally overlooked.

In the Museum of the Bath Scientific Institution, specimens of hollow bricks used by the Romans, and dug up within a short distance of the spot where they are now deposited, may be seen by any party interested. They are double the size of those used by Messrs. Bazely and Co., and are cemented together by *genuine Roman cement*. And, no doubt, a machine like our modern ones for making them was also used by the Romans. It would be interesting to test the strength of these bricks, and of the cement that unites them, as compared with the modern manufacture. In Bengal, the floors of Bungalows are usually constructed with earthenware pots, commonly called "Kedgeree pots," turned over, with their orifices on the ground. Charcoal is filled between the interstices, and a coat of brick concrete is laid on the top, thus forming a perfectly dry floor. What a comfort would floors of hollow brick prove to the kitchens or cellars in some of our damp localities. H. W.

BIRMINGHAM NEW WORKHOUSE.

OUR engraving represents the large workhouse which has been erected for Birmingham, under the direction of Mr. J. J. Bateman, architect, who appears to have provided for the town a very creditable structure. The building will be opened for occupation in March next.

Accommodation is provided for 700 adults, including officers and tramps, 600 children, and an infirmary for 310. The principal features of the design are the isolation of each from the other, of the workhouse, the infirmary, the tramp department, and the asylum for the children, and of the perfect separation of the classes in each department. The asylum for the children has every accommodation for their maintenance and education, with a view to promoting habits of industry and self-reliance in their future career.

The cooking for the whole of the establishment is performed in one central kitchen. One entrance only is provided to the buildings for the better control of ingress and egress to and from the establishment.

The main building, comprising the workhouse department, has an open corridor throughout, 10 feet wide, and open from the second floor to the roof, with iron galleries at each floor, for supervision by the officers only. This arrangement gives great facility for effective ventilation, and inspection.

The chapel is fitted up with open seats, and two small galleries in the transepts for children.

By private subscription of the guardians, the officers of the workhouse, and the contractors, three stained glass windows (by Messrs. Chance), from Winchester examples, have been placed in the chancel and aisles. The chancel window contains, in the five principal lights, figures of the Saviour and four Evangelists, with canopies and pedestals, and symbols in the ten upper lights. The two aisle windows contain four scriptural subjects of almsgiving. Two other one-light windows have been presented by Messrs. Chance, of the Baptism and Preaching of St. John. The remaining aisle and transept windows have been filled with stained flower quarries by the architect. Mr. Minton has presented encaustic tiles for the chancel, and the architect has given Minton's tiles for the aisles and nave.

The whole of the building works have been very creditably performed by Mr. Glenn, of Liverpool-road, London.

The cold water is supplied from a well by an engine to a tank, containing 30,000 gallons, placed above the ridges of the building, and a reserve of 10,000 gallons from the ordinary supply is always retained in the tank for the supply of the fire-mains, which extend throughout the buildings. The drains are flushed from this tank.

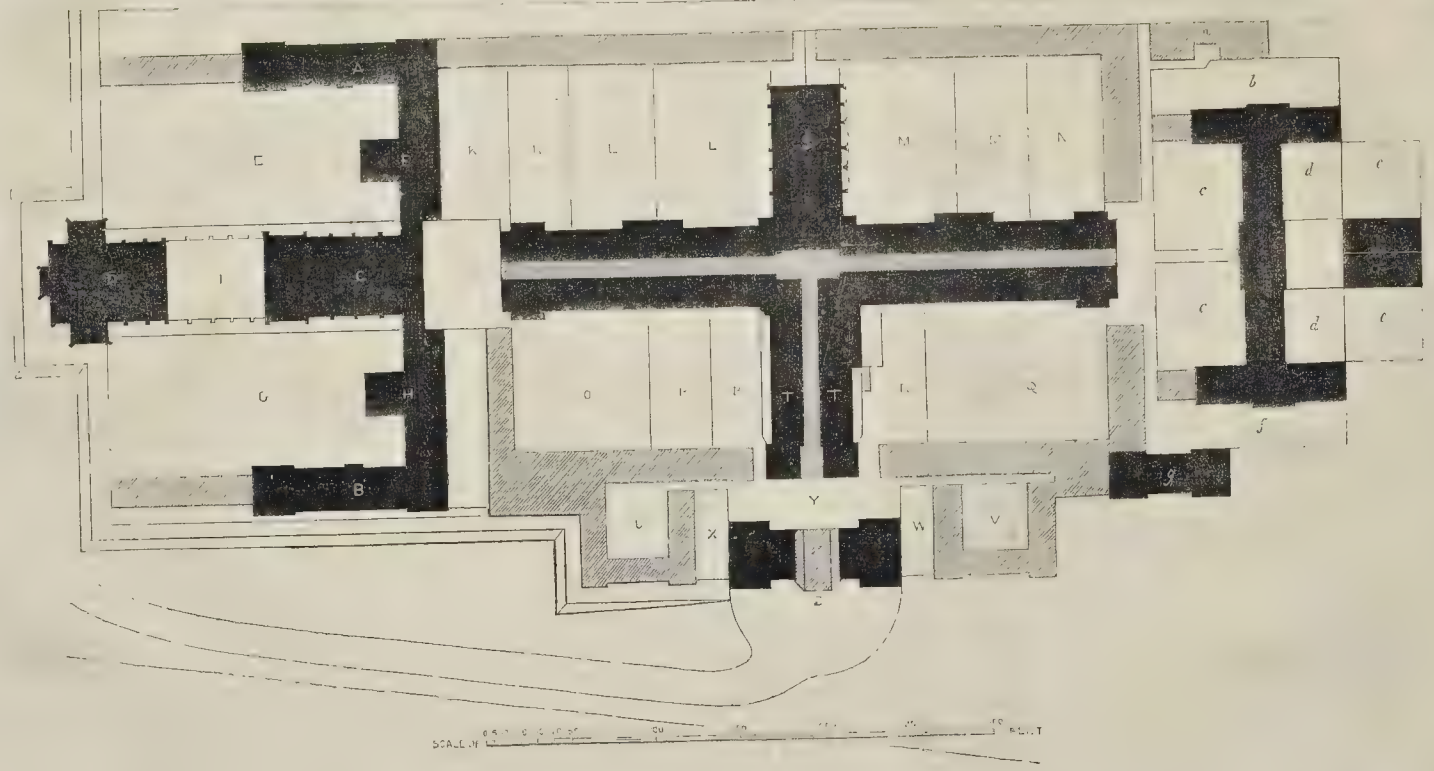
From a high-pressure steam-boiler, placed in a central situation, hot supplies for baths, lavatories, hospital, wash-house, drying-house, kitchen, sculleries, and for warming the infirm wards, dining-hall, and other parts of the building, are obtained. The engineering work has been ably constructed and applied by Mr. W. Jeakes, of London, and the comprehensive centralization of the heating powers has been very successfully carried out. Every room will be lighted by gas.

The furniture, of design to correspond with the building, has been made by Messrs. Jenkins and Ashford, of Birmingham.

The arrangements for ventilation, and other sanitary provisions, have been well spoken of.

The buildings include an area of above five acres, and liberal accommodation is provided for 1,610 inmates. The cost of the building amounts to about 29,000*l.*, exclusive of fixtures, furniture, and fittings.

PLAN OF BIRMINGHAM WORKHOUSE.



A Master's House
B Mistress's House
C Dining-hall, &c.
D Chapel
E Boys
F School

G Girl
H School
I Infants
K Probationary Children
L Infirm Women
M Infirm Men

N Disorderly Men
O Able Women
P Disorderly Women
Q Able Men
R Kitchen Court
S Adults' Dining-hall

T Stores, Domestic Offices, and Government Apartments
U Female Tramps
V Male Tramps
W Male Probationers

X Female Probationers
Y Court
Z Board-Offices
a Lying-in Ward
b Epileptic

c Sick
d Dirty
e Fever
f Epileptic
g Flour-mill



BIRMINGHAM NEW WORKHOUSE.—Mr. J. J. Bateman, Architect.

ART-VERSES BY MICHELANGELO.

Your fragment of Goëthe's, on Transcendentalism in Art, brought to my mind something of a similar strain of thought, conveyed in two sonnets by one of the greatest masters, Michelangelo himself. The reader who remembers the saying of "the Great Michael" that *he had no other mistress but Art*, will not be surprised to find him addressing her in the tones of a lover.

LE BELLEZZE MONDANE SONO SCALA AL FATTORE.

Dimmi di grazia, amor, se gli occhi miei
Veggono il ver della beltà ch'io miro,
O s'io la ho dentro il cor; ch'ovunque io giro,
Veggio più bello il volto di costei.

Tu'l dei saper, poichè tu vien con lei
A tormi ogni mia pace, ond'io m'adiro:
Benchè nè meno un sol breve sospiro,
Nè meno ardente foco chiederei.

La beltà che tu vedi, è ben da quella;
Ma cresce poi ch'a miglior loco sale,
Se per gli occhi mortali all' alma corre.

Quivi si fa divina onesta e bella,
Come a se simil vuol cosa immortale,
Questa, e non quella, agli occhi tuoi precorre.

La forza d'un del volto, al ciel mi sprona
(Ch' altro in terra non è che mi diletti)
E vivo ascendo tra gli spirti eletti,
Grazia ch' ad nom mortal raro si dona.

Si ben col suo Fattore l'opra consuona,
Ch' a lui mi levo per divin concetti;
E quivi informo i pensier tutti e i detti,
Ardendo, amando per gentil persona.

Onde se mai da due begli occhi il guardo
Torcer non so, conosco in lor la luce
Che mi mostra la via ch'a Dio mi guide.

E se nel lume loro acceso io ardo,
Nel nobil foco mio dolce riluce
La giojia che nel cielo eterna ride.

EARTHLY CHARMS ARE STEPS TO OUR MAKER.

In pity tell me, love, if that mine eyes
See soothly all the beauty I admire,
Or if I hold it in my heart; a higher
And purer grace thus giving her I prize.

Thou ought'st to know, who'rt with her when she lies
In wait to rob my peace, my patience tire:
Albeit I would not cool that wasting fire,
Nor lose, oh love! the least of all my sighs.

The beauty which thou see'st is all her own,
But waxeth greater as it rises higher,
If, through the eye, it do the soul inspire;

So that what was but fair, divine hath grown
Even as immortal things their like require;—
This, and not that, it is thou dost admire.

The force of a fair face lifts me to heaven
(For on this earth none other I admire),
And I ascend among the heavenly quire,
A grace to mortal man but rarely given.

The work doth with its Maker chime so even,
That by divine conceits it lifts me nigher
To Him, and I a purer air respire,
By love made clean of every earthly leaven.

Whence I do know, if e'er from two sweet eyes
I cannot turn away, that in them lies
A light, to show the way to God and love;

And if I burn, enkindled by that light,
Oh then, from that sweet fire reflected bright
I see the eternal joy that laughs above.

M. MacD.

SMOKE NUISANCE.*

To ensure satisfactory operation, and the suppression of smoke, the extreme—not the nominal—power of the steam-engine should be taken as the datum: from this, by the accustomed formulæ, the boiler capacity should then be found, and, from the latter, the fire area; but form and disposition are of prime importance in the boiler; and the area of its heat-receiving surface, in fire-grate and flues, is understood, as regards its generative power, to be of more consequence than its cubical capacity. The parity of the former in square, to the latter in cubic, feet, is said to afford the most satisfactory results, economy included; while the areas of the fire-grate and flue surfaces are considered to be most efficient when proportioned to each other in the ratio of 1 to 18. Where this proportion of recipient surface does not exist, it should be brought about, as near as may be, by alteration.

With no air-supply excepting through the fire-grate, the great bulk of the gases arising from each fresh charge of fuel, with their accompaniment of uninflamed carbon, must necessarily escape through the flues, and issue in volumes of dark smoke from the chimney, unless, indeed, a greater degree of care in firing be exercised by the stoker than can be hoped for in common practice; and then, the continual firing at short intervals under such circumstances, to obviate the smoke, would be unattended with the desired economy; seeing that the lowering the temperature of the furnace, through the absorption of heat by the cold fuel, and by the hardly-intermittent current of cold air admitted through the door-opening, would have a retarding effect on the boiler, that would call for a greater consumption of fuel.

While putting together these remarks, we have had before us two pamphlets; one, "On the Construction of Boilers, Consumption of Fuel, and Prevention of Smoke," by William Fairbairn, C.E., F.R.S;* the other on "The City Smoke-prevention Act, with Suggestions on the use of Smoke-consuming Furnaces," by W. Keld Whytehead, C.E.;† to both of which we can refer the reader for scientific and practical instructions on these important subjects. To Mr. Fairbairn's admirable pamphlet we refer him for lucid information as to the gases eliminated by coal in a state of combustion, and the equivalents of atmospheric air requisite to support the same, as well as much valuable tabulated information as to the constituents and calorific powers of a great variety of coals. On the cylindrical boiler, with two furnaces and flues, the following extract will be of interest:—

"Irrespective of the changes of form and management of boilers which are in progress, it may be proper to notice a still further improvement in construction, which has recently taken place; and where a still greater economy is effected. This is a mean between the Cornish single-flue boiler and the tubular boiler: it is perfectly cylindrical, and contains two circular flues, varying from 2 ft. 6 in. to 2 ft. 9 in. diameter, extending throughout its whole length. * * * Towards the front end, the flues are made slightly elliptical, in order to receive the furnace grate-bars, hearth-plates, &c. to give sufficient space over the fire, and to admit a free current of air under the ash-pit. On this plan it will be observed that each furnace is surrounded by water in every direction, with large intermediate spaces to allow a free circulation of the water, as the globules of heat rise from the radiant surface over the fires, and the other intensely-heated parts of the flues. Another advantage is the position of the receptacle for the sedimentary deposits, which do not take place over the furnace, as in the old construction, but in the lower region of the boiler, where the temperature is lowest,—thus affording greater security from incrustation, and other causes of an injurious tendency."

In the boiler here described, the two furnaces are fed alternately; and the gases emitted flow along the flues, and only unite at its extreme end.

"At this point a change immediately takes place in the gaseous products, and that from one of two causes, as follows: Suppose the one furnace to be newly fired, and the fuel in it [not being] in a perfectly incandescent state, it then follows that the gases passing from the other furnace will not only be different in their constituents to those from the first, but they are at a much higher temperature; and both furnaces having received air as a constant quantity through the fixed apertures [under the bridges], it will be seen that, in the event of a surcharge of air on one side and a diminished supply on the other, that their extremes are neutralized by the excess of oxygen thus introduced, and the increased temperature which effects ignition at the point [at the extreme end of the boiler] where combination takes place. All that is therefore necessary is to replenish the fires alternately every twenty minutes, in order to effect the combustion of the gases without the least appearance of smoke. These, and the recipient surface, are the leading properties of this boiler, which, compared with others having single flues, is found to be greatly superior either as regards the combustion or the economy of fuel."

On this form of boiler Mr. Whytehead remarks (with some difference of opinion) as follows:—

"*Messrs. W. and J. Galloways' Patent Boilers.*—These boilers consist of a cylindrical shell or outer case, containing two cylindrical tubes forming the furnaces. These two tubes *unite behind the fire-bars* in a single chamber; and it is in this union that their virtue as smoke-consumers consists. The ordinary double-furnaced boilers in use in the manufacturing districts are defective smoke-consumers, inasmuch as the two furnace-tubes extend the whole length of the boiler; so that the products of combustion do not meet until their temperature has been reduced below the point of ignition. Extended experience proves that, as economic evaporators, Messrs. Galloways' boilers hold a high rank."

Mr. Whytehead's strictures on hand and machine firing will be found sound and practical: we quite concur in the importance attached, both by him and Mr. Fairbairn, to the duties of the stoker; and in the opinion that he should be paid, not according to the quantity of coals shovelled on the fire, but the amount of saving effected.

From Mr. Fairbairn's pamphlet we extract the following neat calculations, forming data for determining the sectional area of the flue,—quoted by him from a paper "On the Construction and proper Proportion of Boilers for the Generation of Steam," communicated to the Institution of Civil Engineers by Mr. Andrew Murray, of the Royal Dockyard, Woolwich:—

"Mr. Murray states that 'The quantity of air chemically required for the combustion of 1 lb. of coal has been shown to be 150·35 cubic feet, of which 44·64 enter into combination with the gases, and 105·71 with the solid portion of the coal. From the chemical changes which take place in the combination of hydrogen with oxygen, the bulk of the products is found to be to the bulk of the atmospheric air required to furnish the oxygen, as 10 is to 11. The amount is, therefore, 49·104. This is without taking into account the augmentation of the bulk due to the increase of the temperature. In the combination which takes place between the carbon and the oxygen, the resultant gases (carbonic acid gas and nitrogen gas) are of exactly the same bulk as the amount of air, that is, 105·71 cubic feet, exclusive, as before, of the augmentation of bulk from the increase of temperature. The total amount of the products of combustion in a cool state would, therefore, be 49·104 + 105·71 = 154·814 cubic feet.

The general temperature of a furnace has not been very satisfactorily ascertained, but it may be stated at about 1,000° Fahrenheit, and at this temperature the products of combustion would be increased, according to the laws of the expansion of aëriform bodies, to about three times their original bulk. The bulk, therefore, of the products of combustion which must pass off must be 154·814 × 3 = 464·442 cubic feet. At a velocity of 36 feet per second,* the area, to allow this quantity to pass off in an hour, is ·516 square inch. In a furnace in which 13 lbs. of coal are burnt upon a square foot of grate per hour, the area to every foot of grate would be ·516 × 13 = 6·708 square inches; and the proportion to each foot of grate, if the rate of combustion be higher or lower than 13 lbs., may be found in the same way.

This area having been obtained, on the supposition that no more air is admitted than the quantity chemically required, and that the combustion is complete and perfect in the furnace, it is evident that this area must be much increased in practice where we know these conditions are not fulfilled, but that a large surplus quantity of air is always admitted. A limit is thus found for the area over the bridge or the area of the flue immediately behind the furnace, below which it must not be decreased, or the due quantity could not pass off, and, consequently, the due quantity of air could not enter, and the combustion would be proportionally imperfect. It will be found advantageous in practice to make the area 2 square inches instead of ·516 square inch. The imperfection of the combustion in any furnace, when it is less than 1·5 square inch, will be rendered very apparent by the quantity of carbon which will rise unconsumed along with the hydrogen gas, and show itself in a dense black smoke on issuing from the chimney. This would give 26 square inches of area over the bridge to every square foot of grate in a furnace in which the rate of combustion is 13 lbs. of coal on each square foot per hour, and so on in proportion for any rate. Taking this area as the proportion for the products of combustion immediately on their leaving the furnace, it may be gradually reduced as it approaches the chimney, on account of the reduction in the temperature, and, consequently, in the

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* See page 52, *ante*.

* London: Simpkin, Marshall, and Co.; and John Weale. 1851.

† London: John Weale. 1851.

* See Dr. Ure's experiments, read before the Royal Society, June 1836.

bulk of the gases. Care must, however, be taken that the flues are nowhere so contracted, nor so constructed, as to cause, by awkward bends or in any other way, any obstruction to the draught, otherwise similar bad consequences will ensue.'

From this statement, says Mr. Fairbairn, it would appear that 26 square inches of area over the bridge is about the correct proportion for the combustion of 13 lbs. of coal per hour on each square foot of grate-bar. Now these proportions are rather more than are given in stationary boilers, as the mean of a number of experiments, taken where the combustion was most perfect, gave about 18 square inches over the bridge, and about 28 square inches as the area of the flues to every square foot of grate-bar.

These data may not at first sight appear important: they are, however, of great value in practice, as the economy of the fuel and the efficiency of the furnace in a great measure depend upon the height of the bridge behind, which operates as a retarder of the currents, in the same way as the damper is used for checking the draught of the chimney in the flues."

In these pamphlets much information will be obtained respecting the principal smoke-consuming furnaces, which have from time to time been brought forward. Touching one of these, of great ingenuity and merit, we regret to know—and it is no secret—that its inventor and patentee, Juckes, is at present an inmate of the Queen's Bench, and for a very small amount as compared with the value of his invention.

In conclusion, we would caution the reader against the supposition that, because smoke may be prevented, therefore tall chimneys can be got rid of. Dr. Ure, in his evidence before a committee of the House of Commons, in August, 1843, intimated that the contrivances from Watt to the present time, which were directed to the burning of smoke, were grounded on a great error,—that while the result sought, and often attained, was the annihilation of smoke, it was attended with a greater evil, the creation of a far more noxious, though invisible, gas: he explained that, in the carbonic acid and smoke passing over the incandescent fuel, the former imbibed, and carried off, an additional portion of charcoal from the latter, and exchanged its proportion of 2 atoms of oxygen and 1 of charcoal, to equal portions of these gases, and thus became carbonic oxide, a gas of the most fatal description. The gases are still generated, and thrown off, notwithstanding that they are insensible to the eye.

ARTISTIC AND RAILWAY MEMS. IN IRELAND.

THE bridge over the river Luir, at present in course of construction at Caher, on the Waterford and Limerick Railway, is one of the largest yet constructed in Ireland. The remainder of the works on the line are steadily progressing under the superintendence of Mr. Wm. Dargan.

The directors of the Provincial Bank are about having a new bank erected at Maryborough.

A new church is about to be erected at Lisnaskea, according to the designs of the architect to the Ecclesiastical Commissioners: a large allotment of ground has been given by the Earl of Erne, with a subscription of 500*l.* towards defraying the expenses.

The Poor-Law Commissioners are erecting a new workhouse at Corrafin, county Clare, according to the drawings of their architect, Mr. Wilkinson. The works are now nearly complete. Messrs. Crowe and Sons, of Dublin, are the builders; and the expenditure will be about 6,000*l.*

The works at the new Roman Catholic church which is being erected at Rathmines, county Dublin, are progressing slowly. The old church is nearly enclosed by the new one, the walls of which are almost raised to the level of wall plate. The tetrastyle portico (originally intended) is not yet in course of erection. The front facing Rathmines-road is alone in chiselled granite stone, from the Wicklow quarries, the remaining exterior portion of the building being of rubble masonry, composed of *black* stone, *which forms a bad contrast.* Mr. P. Byrne is the architect.

The Midland Great Western Railway terminus, at Dublin, is now complete, with the exception of a few trifling finishings. The entire building is in chiselled granite stone, supplied by Mr. P. Ollagan, of Ballyknockin quarry. The expenditure incurred in erecting the directors' house and terminal buildings is about 23,000*l.* A massive retaining wall with curvilinear batter composed of rough hammered limestone, with granite capping serving as parapet for roadway, has been erected the entire extent of east elevation, which faces Phibsborough-road.

A model school is to be built at Louth, according to the designs of the architect to the Commissioners of National Education.

A submarine cable is to be established between Kingstown and Holyhead, and Mr. Jacob Brett has had an interview with the Lord-Lieutenant on the subject. Two wires are intended for Government and two for general and commercial purposes, and will be connected with those on the Midland Great Western and Great Southern and Western Railways, contracted for, we understand, at 200*l.* per mile.

A new church has been erected at Doe, county Donegal, by the Ecclesiastical Commissioners, in conformity with the designs of their architect: the interior woodworks, sittings, &c. are not yet complete.

A model school is about to be established by the corporation of Drogheda.

A new bridge, at a cost of 60,000*l.* is to be erected at Londonderry, 20,000*l.* are to be produced from the Londonderry and Enniskillen Railway Company.

Additions are being made to several of the large business houses in Dublin, but generally speaking the building trade is dull there.

BUILDERS' CHARGES FOR SURVEYING OR FOR ARCHITECTURAL DESIGNS.

SOME time ago, an action was brought in the Lambeth County Court, before Mr. G. Chilton, by Mr. Shaw, a baker, to recover 2*l.* 5s. for goods supplied to Mr. Eccles, a master builder of Brixton. The defendant pleaded the following set-off, verbatim:—

"1851, June 16.—To measuring and making A plan for A House, which I agreed to build for 90*l.*, attending on district-surveyor, &c., at 2½ per cent. on Cost of house 2*l.* 5s."

In answer to the questions of Mr. Bussell, solicitor for plaintiff, Mr. Shaw proved the claim; and with respect to the set-off, said that Eccles being a customer of his, he had employed him upon various building jobs; and upon requiring a new out-house he asked the defendant to come and look at it. He did so upon two occasions, on two Sunday mornings, and brought a bit of paper, upon which he made some pencil marks, with him. He never authorised him to act in the capacity of a surveyor or architect.

Mr. Eccles said he did not deny the plaintiff's claim for bread; and with regard to the above set-off Mr. Shaw requested him to give in an estimate for the building, and he did so for 90*l.* His contract was not accepted, and he accordingly charged 2*l.* 5s. for planning and measuring. Was in the habit of making such charges. Was not a surveyor or architect, but a builder at Brixton.

Mr. Bussell said the way in which the set-off was written, evidenced that Mr. Eccles was unqualified for the respectable and responsible calling of a surveyor or architect. It was an abuse upon the profession for persons like the defendant to assume a surveyor's calling. To show that Eccles was unqualified to even draw a plan, he would call Mr. Lett, the district-surveyor, into the witness-box. With respect to the other view of the set-off, it was quite clear that it was an afterthought, and that his client would never have heard of the defendant's absurd charge for surveying had it not been for the summons for bread owing.

Mr. Frederick Lett said he was the district surveyor; that on the 16th of June of last year, he was informed by the plaintiff he had applied to Eccles for an estimate for making a proposed addition to a house in Loughborough-road. At that time Eccles had not in any way defined in what way he purported making the addition for which 90*l.* was demanded. He was then instructed by Mr. Shaw to obtain tenders from several builders, giving Eccles an opportunity to tender. He did so, and having opened the tenders on the 6th of July, found the lowest to be Mr. Roycroft's (84*l.*), who contracted for and executed the works. Eccles declined to tender under him (Mr. Lett). His charge against Mr. Shaw, for detailed specification, drawing, superintendence of the works, and examining Roycroft's account, was 4*l.* 4s.

Mr. Eccles here said that he had demanded payment of Mr. Shaw for the work he had done, and, far from objecting to the demand, Mr. Shaw had agreed to it.

The Judge.—You hear what Mr. Eccles swears: is it so?

Mr. Shaw.—I swear that no demand was ever made upon me till now; and, on my oath, I never agreed to it.

Mr. Bussell.—It was clearly an afterthought.

The Judge.—It is perfectly clear Mr. Eccles has no right whatever to charge for the professional services of a surveyor: he admits he is a builder, and not a surveyor; therefore his charge for surveying is illegal. Still I consider he is entitled to some remuneration for the labour and time bestowed. I shall therefore award him 1*l.*, which will be a verdict for plaintiff of 1*l.* 5s.

BURTON *v.* DOWDEN.—This was an action brought in the Marylebone County Court, to recover 3*l.* 3s. for services rendered in the capacity of an architect. The plaintiff deposed to being engaged by the defendant to prepare plans for his premises. He did so, and expected to have had the contract for the work in question: he did not get it. Mr. Alderman Lawrence did, because it was thought he had more influence with the district surveyor.

Defendant said he had not had any of the drawings. Mr. Burton proposed an iron column, which he, defendant, had a great objection to; and as the plaintiff said the building could not be securely constructed without the column, he applied to Mr. Alderman Lawrence, who said it could be erected without the obnoxious supporter, and he gave him the job, and for no other reason.

The judge said he had so frequently adjudicated upon similar suits, that he had no hesitation in giving a verdict for the defendant.

THE FOUNDATIONS OF BRIDGES.

THE BRIDGES OF THE THAMES.

THE failure of Westminster and Blackfriars bridges has been the heading to, or the subject of, numerous articles in the papers; and questions similar to that asked in THE BUILDER of the 17th (viz., if the removal of old London-bridge has caused the failure of these, why have not the Southwark and Waterloo bridges shared the same fate?), are constantly being put: will you permit me to answer, and I will endeavour to do so in a manner that will prevent your being troubled with such questions for the future.

There are two simple requisites to make a foundation in the bed of a river like the Thames secure.

1stly. The area must be sufficiently great to resist the pressure of the superimposed structure.

2ndly. This area must be obtained at such a depth beneath the river bed, not only that a sufficiently resistant stratum may be reached; but that it may be left undisturbed, should the bed of the river be lowered by artificial or by natural means. The tonnage of the vessels navigating the river may be required to be increased, and the depth of water, therefore, increased by dredging. Obstructions to the ebb and flow of the tide may be removed, and the greater velocity thus allowed to the water scour away the bottom. The determination of this proper depth for the foundation must be confided to the judgment of a practised engineer, and there are three modes by which, in modern practice, he may reach it. 1stly. By timber piling within a cofferdam, as in Waterloo, Southwark, and all the other bridges over the Thames except Westminster and Blackfriars. 2ndly. By excavating down to the proper stratum within a cofferdam, as in the Potomac aqueduct. 3rdly. By sinking permanent cofferdams, in the shape of large iron cylinders, as at Rochester. In 1738, when Labelye designed Westminster-bridge, none of the above methods of founding piers were known, and caissons were used which were water-tight chests sunk upon the bed of the river, previously dredged level to receive them, and on the bottom of these chests the masonry of the piers was erected. In 1760, Milne commenced Blackfriars-bridge, and the same mode of getting in the foundations was adopted, but before sink-

ing the caissons the area to be occupied by them was partially piled, and the heads cut off below the water, at the proper level of the river bed: these piles were more for insuring an even bearing for the caisson, than to take any burden, and the result has sufficiently proved this to be the case. This method of founding by caissons was a great advance over the old one, by "starlings," as those huge bulwarks of timber filled with loose stones were called; and Rochester-bridge is the only example of such rude work remaining in England.

In 1811 Mr. Rennie commenced Waterloo-bridge, and introduced coffer-dams, by which the area of the foundations could be laid bare, and the river bed rendered, by close piling, sufficiently solid to support the superimposed mass, *for a great depth beneath the bed*, which is the important feature that has enabled this and the other bridges with similar foundations to remain unaffected by the scouring away of the bed around them.

The stability of a pier founded on a caisson grating depends upon the area exposed to the pressure remaining undisturbed. The gratings at Westminster were laid about 5 feet below the bed of the river, and so long as the scour affected only the bed *above* the level of the grating, the bridge stood secure; but the scour through the arch which has yielded, and is now, with its immediate neighbours, supported upon centreing, has undermined the gratings beneath its piers, which have consequently canted inwards, and allowed the arch to spread.

The case is precisely the same with Blackfriars. Piers supported upon an efficiently piled area have their foundations, not upon the *heads* of the piles, but upon the *ends*, which most probably will be 20 feet below the bed of the river: the area supporting the pier is therefore 20 feet thick. This system of piling is protected by sheet piling, encasing it like a box, which preserves all the inner parts; and a disturbance by scour may take place to a considerable depth below the mere masonry of the pier, without evil consequences resulting. This denudation is not, of course, a desirable thing, but the amount that would be fatal to a pier founded on a caisson grating without piles would be harmless to one founded as those of Waterloo and Southwark bridges are.

These, then, Sir, are the facts of the case, and I think sufficiently answer the question, why have Westminster and Blackfriars bridges given away, while Waterloo and Southwark remain firm?

S. C.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

Emolument and Honour conferred on Science and Art Men.—M. Leverrier, who (contemporaneously with Mr. Adams) discovered the *existence* of the planet Neptune by mathematical calculation, has been named a member of the senate of the French Republic.—The King of Prussia has conferred the decoration of the Order of Merit (a sort of Legion of Honour) on Professor Owen, the English comparative anatomist; M. Gaillard, the painter, of Brussels; and M. Tenerani, the sculptor at Rome. The same monarch has forwarded to the French painter, M. Ingres, a large gold medal, for having presented the king with a copy of the engravings lately published of M. Ingres's pictures.—M. Baumgärtner, formerly the editor of a physico-mathematical journal, has been appointed Minister of Finance and Public Works by the Emperor of Austria.

Berlin.—The electro-telegraphic lines for connecting the different police-stations of the Prussian capital with those of the fire brigade, have now been completed. By these means any accident of the kind becomes instantaneously known to the firemen, and although the expense has been, at first, considerable, the amount will be saved in property and premiums of the insurance offices. Accidents of any kind, robberies of some magnitude, &c., will become similarly known to the police authorities, for which purpose a small apparatus has been put up in the *bureau* of the chief of the Berlin police.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

THIS society held its first meeting after the Christmas recess, on Wednesday evening, January 28th. A considerable number of valuable works were presented to the association from various learned societies and private individuals. A Roman urn was exhibited by Mr. Tucker, and a singularly rowelled spur of the 15th century, by Mr. Cavanagh, of Wexford, Ireland. Mr. Burkett sent a drawing of the remains of the ecclesiastic lately discovered in the Crypt of St. Stephen's chapel, Westminster, and a most interesting discussion took place on the subject. A letter from Mr. Duesbury correcting some serious errors in the hitherto published accounts of the crypt was read, and that gentleman, who was present, added to the information contained in his letter, some important as well as interesting facts respecting the original construction and appearance of that beautiful building. Mr. Carrington exhibited several very careful rubbings of brasses in Wantage and Langbourne churches, Berks, and St. Michael's, Penkeril (near Falmouth), Cornwall. Mr. Colnaghi exhibited some beautiful specimens of tapestry, one of them decorated with imitation jewellery. Mr. Planché read a paper on the Monuments of the Cockayne family, in Ashburne church, Derbyshire; and it was announced from the chair that the next congress would be held at Newark, under the presidency of his Grace the Duke of Newcastle.

GAS.

Ely.—The gas inspectors of Ely Trinity have been superseded by the local Board of Health, who have now taken charge of the lighting of the town.

Southampton.—The local Board of Health here also are taking an active part in the extension of gas lighting. They have reduced the long-standing debt of the town to the local gas company by 2,000*l.*, and the company have since announced a reduction of price to 5s. a thousand cubic feet, from Michaelmas last.

Newport.—The town has been planted with ornamental gas lamps, and the new gas company have lit the High-street.

Cambridge.—An active canvass is now in progress through this city for subscribers to the proposed new gas company. The price is to be 4s. a thousand cubic feet, and the list of subscribers guaranteeing that they will patronise the new company is already a large one, according to the *Cambridge Chronicle*.

Bilston.—At the annual meeting of the Bilston Gas Company a dividend at the rate of 8 per cent. on the paid-up capital was lately announced, with a surplus of 53*l.* added to the reserve fund. The sum total of profit on this small concern was only 1,253*l.* odd.

Preston.—The result of previous reduction in the price of gas here has been such that the directors, in their annual report, announce that they "feel justified in again reducing the price, so that on all bills made out after the 1st of March next, the net cash price will be 4s. 6d. per thousand to the small consumers, and 3s. 9d. to the largest." It was resolved at the annual meeting, "That a dividend of 1*l.* per share, net, out of the profits of the half-year ending 31st December, 1851, be now declared, payable by the treasurer on the 2nd February next;" and, "That the salaries of the auditors be increased 30*l.* each per annum."

London.—"Unlike some gas companies," says the *Journal of Gas Lighting* "the Chartered has repudiated the system of maintaining their accustomed dividends, in the face of the late reduction of price, by resorting to the supply of an inferior article; and, as it is now the only free and unfettered gas company in the city of London, they are on the eve of profiting largely by the position they have in this respect assumed. Let us hope that the same wise policy will be pursued under the presidency of the new governor, Benjamin Hawes, Esq." It is by increased purity alone, and hence by extension in private dwellings, not by defilement or adulteration, that the dividends are to be increased, and they will be so, on these conditions, to an extent that may astonish the shareholders as well as the management.—The Imperial Gaslight and Coke Company have given notice that the price of their gas, by meter, will be reduced to 4s. 6d. per 1,000 cubic feet, dating from 1st January instant, and that the charge, by scale, for the 15-hole Argand burner, to burn from sunset to 9 o'clock, six days in the week, will be at the rate of 2*l.* 2s. per annum; and other burners in proportion.

Prismatic Refractors for Burners.—Mr. Boggett has recently patented an application of optical science to gas-lights, whereby they are said to be greatly increased in brilliancy, without additional expenditure of gas. It consists simply in placing a long prismatic lens on each side of an Argand burner, by which the appearance of three perfect flames of equal power is produced. These lenses may be applied to any description of burner, but the patentee of course prefers his own burner, with lateral jet-holes, patented in 1850, and now known as "the smokeless burner."

Books.

General Board of Health: Minutes of information *collected on the practical Application of Sewer Water and Town Manures to Agricultural Production. Ordered to be printed for the Use of Local Boards of Health and their Surveyors, &c., December*, 1851. Her Majesty's Stationery Office. 1852.

To the satisfactory solution of the difficult, and as yet unsettled question of the disposal of the refuse and sewage of towns with the least offence and injury, and the most advantage, to the community at large, there are two essential aspects of the subject which must necessarily be well considered, namely, as it relates to the sanitary state of towns, and even of agricultural districts, and as it relates to the cultivation and improvement of the soil in the latter districts, and especially in those more immediately surrounding towns. The paper under notice, together with its appendices, constitutes a valuable and interesting contribution of the most recent and approved experience and suggestion as to both of these vital questions. The minutes are drawn up by Mr. Henry Austin, the secretary to the General Board of Health, and amongst the appendices are other valuable reports and papers, tables, and suggestions on various points bearing on the general question.

Stated broadly, the result now arrived at appears to be that on the whole, and notwithstanding the errors of the Metropolitan Sewage Manure Company, a distribution of liquid manure through tubular mains and branch pipes to adjoining horticultural and agricultural districts, with hydrants and hose-pipes in the fields, would be the best way of disposing of the sewage of towns; but that where, or when, such a system could not be continuously in operation, the sewage might be solidified on Prince Albert's principle of upward filtration, through tanks with false bottoms, as in the filtration of Thames water for town use, and with whatever filtering medium, such as charcoal, gypsum, burnt clay, &c., as suggested by the Prince, or otherwise, may be selected as best adapted to the circumstances. This principle of filtration, as we have before remarked, and as appears to have been considered in the original suggestion, is equally applicable to the separation of liquid manure itself in a fit state for distribution to fields, a filtering medium simply separating the solid refuse being substituted for one absorbing the valuable materials in solution.

The pamphlet not only contains matter of vital import as relates to towns and their suburban districts, but also to farmers and agriculturists in general, every farmyard supplying to the rural farm what every town does to its own surrounding market gardens; so that whether by mere gravitation or by steam or hydraulic power, every farm might be organised with an *arterial* watering and manuring system as well as with a *venous*

draining one; and, indeed, might not the one be associated with the other, like the impulsion and distribution of arterial blood and the suction and withdrawal of the venous mainly by the one common central agency of the heart? Drainage is, no doubt, of vast importance to the soil, not only clearing it of sour and stagnant moisture, but wonderfully mitigating the coldness, or rather positively and obviously increasing the warmth, both of soil and air; but what an immense power of multiplying produce would be realised by the *addition* of a concurrent tubular system of arteries for the distribution of liquid manure when wanted, and of pure water in drought! Such, it appears, is the system, in its full development, of which our agricultural engineers and our active Central Board of Health are laying the foundations; and we certainly think that a pamphlet such as this ought to be not only in the hands of every local Board of Health, but of every farmer and every market-gardener in the country, as one of the most important contributions towards an end which, together with the application of steam or other power to ploughing, digging, harrowing, &c., is likely one day to realise that era of which we some time since spoke, in which the science and the practice of agriculture will be as vastly developed as have the science and the practice of *other* MANUFACTURES in the memory of the present generation.

Another small contribution towards the same great end, we may here briefly notice, namely, a clearly written pamphlet on the drainage of Coventry, with proposals for the establishment of a self-sustaining system of sewage removal, by Mr. T. A. Yarrow, C.E., Engineer to the Irish Amelioration Society. Mr. Yarrow, too, advises the adoption of Prince Albert's filtering tanks, together with peat-charcoal for the solidification and deodorization of the sewage.

Miscellanea.

THE BUILDERS' BALL.—We hope our readers will keep in mind that the ball, in aid of the Builders' Benevolent Institution, is to come off on the 19th February. The list of stewards is not yet what we wish it were; but no doubt it will be greatly enlarged now that the time is so close at hand. The position of a steward is much more honorary than expensive, and we trust that, for the sake of so excellent a charity, even those who would have rather had some other mode of benefiting it than the one found to be expedient in the present instance, will not object to contribute the means at least, though they cannot enjoy the opportunity.

ENGINEER FOR METROPOLITAN SEWERS COMMISSION.—It has been suggested, and, as it seems to us, with good reason, that the resignation of Mr. F. Foster, as engineer-in-chief to the Court of Sewers, affords an opportunity for rewarding that individual among the competitors of 1849, whose design approaches most nearly that which has been sanctioned by the court, or is, otherwise, the best.

COTTAGE COMPETITIONS.—The report of the committee of the Highland and Agricultural Society of Scotland on cottage competitions during 1851, states "that in the county of Berwick no fewer than ten parishes had competed with great spirit and benefit to the cottagers. Many proprietors had built excellent cottages, or improved the old ones, so that no part of Scotland is now superior to this district in cottage accommodation. Fresh districts should annually be added to the list, and the benefit resulting from competition be felt throughout the whole country." While the committee lament the little interest generally taken in cottage competitions, they notice the zeal of many proprietors in building and improving cottages. Mr. Home, of Wedderburn, had built thirty-one cottages, and improved ten existing cottages. Lord Kinnaird had built twenty and improved five, and Sir David Kinlock had built eight. Judging from the plans received, all these cottages appeared to be much superior to the majority of such buildings in general use.

SALES OF HOUSES, &c.—At Messrs. Farebrother, Clark, and Lye's sales, at Garraway's, on Wednesday in last week, the important freehold ground-rents issuing out of the Lyceum Theatre, two dwelling-houses, Nos. 1 and 2, Wellington-street North, and three houses in Exeter-street, Strand, amounting together to 70*l*. per annum, and of the estimated annual value of 3,000*l*., were sold for 15,750*l*. Two tithe-free farms, situate in the parish of Langford, near to Farringdon, Berks, held under leases for lives, containing 178 acres, and let at 320*l*. per annum, were sold for 3,100*l*. A leasehold private residence, No. 23 A, Bruton-street, Berkeley-square, held for a term of 49 years, at a ground-rent of 55*l*. per annum, sold for 2,030*l*. An improved rent of 30*l*. per annum, for thirteen years, issuing out of a residence situate at Kennington-common, sold for 200*l*.; and a freehold house and shop, No. 112, Fleet-street, let on lease at 112*l*. per annum, was knocked down for 2,050*l*.—*Morning Herald*.

WYLD'S GREAT GLOBE.—Sir,—My retirement, twelve months ago, as architect of the building for the great globe in Leicester-square, having had an injurious implication on my professional character, which I have had no opportunity of explaining, will you allow me now, in my own justification, to state, that the plans, &c., showing the mode in which I proposed constructing the building, and on which Mr. Myers's contract at 1,888*l*. were founded, had been carefully examined by the official referees, and pronounced satisfactory by them, and that Mr. Wyld had received the same favourable opinion from one of the principal builders in London. It is due to Mr. Wyld that I should further state, that after giving my evidence in the late trial of *Abrahams* v. *Wyld* (as Mr. Abrahams' witness), Mr. Wyld made me an apology in court for the manner in which I had been treated in this business.—EDWARD WELCH.

OMNIBUS PROPRIETORS AND SERVANTS.—It is stated, says the *Morning Herald*, that some disagreeable differences are likely to arise between the omnibus proprietors and their men, in consequence of the movement which the latter have made to obtain cessation from labour on every alternate Sunday. The drivers and conductors have recently formed a benevolent institution, for the purpose of providing against sickness and other unavoidable misfortunes. This society has taken part in the above movement, and it is said that several of the members have, in consequence, received notice of discharge from their employment. If this determination be acted upon, the probability is that some serious "opposition," in the shape of competing omnibuses, will be started by the men. The poor omnibus drivers and conductors are much to be pitied. *They* have, indeed, too much reason, we think, to complain of "over-time." No "galley-slave" was ever so "lashed to the oar" as they are to their duties. There ought to be two distinct sets of men for each omnibus, were it possible to make such an arrangement, consistently with the interests of the men as well as of the masters. The public interests themselves demand it. Such an arrangement would do more than any thing else to put an end to fretting and chafing with omnibus men. All they themselves ask, however, is liberty every alternate Sunday, but even that necessitates a double set of men, at least for the time required.

THE TIMBER TRADE.—It having been represented to the Customs authorities, by the importers of wood goods at the port of London, that difficulties are experienced with respect to planks, deals, battens, &c., entered by tale upon a computation of their cubic content, calculated according to the scale annexed to the Act 14th and 15th Vict. cap. 62, in consequence of the length of the pieces in the scale being particularised by feet, without an allowance of any fractional part thereof; and also, in consequence of the importers not being in possession of the exact dimensions; the authorities have issued a general order to their officers at all the ports throughout the kingdom, directing certain regulations in the matter to be in future observed.

PROPOSED GREAT EXHIBITION IN NEW YORK.—The committee on the petition asking that Edward Riddle may be permitted to erect on Madison-square, New York, a building of iron and glass, 600 feet long and 200 wide, for an industrial exhibition of all nations, *have reported favourably to the City Board of Aldermen*, and a resolution, granting him the sole occupation of the square for two years, has been passed. The occupiers of the land are to inclose it with an iron fence, to cost not less than 6,000 dollars, and they all agree that the admission price to said enclosure shall at no time exceed fifty cents.

RAILWAY COMPANIES AND LUGGAGE.—At the Marylebone County Court lately, a lady brought an action against the Great Western Railway Company for 35*l*. 14s. 3d. being the value of some luggage lost at the station. It appeared by the statement of an omnibus conductor, named Long, who was brought up on a *habeas corpus* expressly to state the manner in which the luggage was stolen, that it was customary, on the arrival of trains, for the porter to bring out the passengers' luggage, and that any omnibus conductor might get hold of it and drive off. The company contended that they were not liable, as it was expressly stated in their bye-laws that every first-class passenger would be allowed 112 lbs. and every second-class passenger 56 lbs. free of charge, but that the company would not be responsible for luggage unless booked and paid for. The plaintiff in this case had not complied with this bye-law. In support of the plaintiff's case Mr. Goodman stated that, in order to test the "bye-law," he had applied to the station clerk to book his luggage, and this had been refused. Mr. Amos (the judge) said it would be a most *extraordinary thing if the company could enforce such a law as this, made by themselves*, and compel passengers to book their luggage to ensure the responsibility of the company. A verdict was at once given in favour of the plaintiff for the whole amount, 35*l*. 14s. 3d.

ELECTRO-TELEGRAPHIC PROGRESS.—The system adopted in Prussia of running the gutta perchaed wires underground has proved, as we long since predicted, so complete a failure, that the directors of the Royal Prussian Telegraph have resolved to substitute the usual mode of fixing them on posts. The gutta percha was constantly eaten away by vermin. The wires, however, might have been protected by tubes. The directors have ordered tenders to be taken in the English markets for a considerable supply of wire for their telegraphs.——The various states of Switzerland have subscribed 225,912f. as a loan, without interest, for the construction of electric telegraphs. The sum required is 500,000f.

LECTURES TO WORKING MEN.—We are glad to hear that a series of lectures illustrative of the collections in the Museum of Practical Geology, is about to be given for behoof of artizans, who will be admitted by free tickets, for which early application ought to be made, as the number of admissions will necessarily be limited. The first lecture will be delivered on Monday, the 9th of February, by Dr. Lyon Playfair, on glass and its composition, and the series will be continued by other lectures on each of five successive Mondays, at eight o'clock in the evening.

IMPROVEMENT OF DWELLINGS.—A society called The Windsor Royal Society for Encouraging and Providing better Domestic Accommodation for the Industrial Classes, has been set on foot at a meeting held in the Townhall, Windsor, on Thursday in last week. The society is to have a capital of 6,000*l*. in 600 shares of 10*l*. each, and will be under the patronage of her Majesty and Prince Albert. The Prince intends, as he cannot participate in any profits, to purchase shares to the amount of 200*l*. and present them to the society.

ST. PAUL'S, COVENT-GARDEN.—Efforts are being made to obtain for this church of historical interest funds for some stained glass windows. There will surely be little difficulty in effecting this in such a parish as St. Paul's, Covent-garden.

CONDENSATION OF MOISTURE IN SHOP WINDOWS. — A correspondent, M. A. D., appears to have tried our suggestion to use some deliquescent, and we presume has found it successful; for he says, with reference to our request to be informed of the result of any such trial—"In answer to the request headed 'Condensation on Glass,' in No. 465, vol. x.: Well mix three pounds of potash with one pound of common salt. Spread it well, or dissolve it in as small a quantity of boiling water as you can: soak it all up with dry cloths, and spread them near the glass."

ARCHITECTURAL INSTITUTE OF SCOTLAND.—The Architectural Institute of Scotland met on Thursday evening, the 22nd instant, at Aberdeen. Mr. Alexander Forbes Irvine, younger of Drum, was called to the chair, and supported by the Lord Provost and Sir A. L. Hay. After an address by the chairman, a paper was read by Mr. Thomas Purdie, of Edinburgh, giving "a comparative estimate of mural decorations, as practised in our country, and on the continent of Europe, accompanied by suggestions as to the methods by which professional architects may improve this department of native art."

CAMBRIAN ARCHÆOLOGICAL ASSOCIATION.—The next annual meeting of the Cambrian Archæological Association is, according to the Cardiff *Guardian*, to be held at Ludlow, in the autumn, under the presidency of the Hon. R. H. Clive, M.P., of Oakley Park, who has succeeded Earl Cawdor. As the neighbourhood of Ludlow abounds in objects of antiquarian interest, more so, perhaps, than any other part of the marches which are comprised in the society's researches, a very large assembly is anticipated.

DISTRICT SURVEYORSHIP.—By the lamented death of Mr. W. Grellier, the district surveyorship of St. Mary's, Whitechapel, is vacant.

TENDERS

For Parsonage at Staplefield, Sussex, for Rev. R. Wilson. Messrs. Morris and Hebson, architects. Quantities supplied:—

J. Hodge	£1,989	0	0
H. Constable, Pensburst	1,877	18	9½
J. Arnall	1,876	17	3½
Holloway	1,814	0	0
Ockenden	1,813	5	8
W. Smith, London	1,704	0	0
Thomas Fisher, Stratford	1,690	0	0
Pollock and M'Lennan, London	1,680	0	0

For New Workhouse for Westminster, to be built at Kensington. Messrs. Hunt and Stephenson, architects:—

Tompson	£32,745	0	0
Hurst	30,899	0	0
Cooper	29,886	0	0
Mansfield	28,433	0	0
Glenn	27,923	0	0
Hayward and Nixon	27,900	0	0
Lee	27,872	0	0
Kelk	27,864	0	0
Lucas	27,628	0	0
Smith and Appleford	26,965	0	0
Piper	26,482	0	0
Little and Sons	26,443	0	0
Holland	2,6380	0	0
Sissons and Robinson	25,900	0	0
Hill	25,290	0	0
Locke and Nesham	25,157	0	0
Pollock	24,229	0	0
Jay	23,517	0	0
Myers	22,374	0	0

For the Cambridge Military Asylum, to be erected at Kingston. Mr. Allom, architect:—

Mason (Kingston)	£4,389	0	0
Holland	4,340	0	0
Lucas	4,100	0	0
Dove	4,060	0	0
Haynes	4,050	0	0
Jay	3,979	0	0
Patman (Kingston)	3,970	0	0
Ashby and Horner	3,840	0	0
Grimsdell	3,834	0	0
Myers	3,786	0	0
Carter and Ellis	3,766	0	0
Locke and Nesham	3,700	0	0

TO CORRESPONDENTS.

"Old Subscriber and Builder" (we avoid recommending: probably, however, the "Parian" would answer his purpose), "R. N." (a dozen times a week we are asked by correspondents to send them the date of our paper containing particular articles, &c. Once for all, we must beg them to refer for themselves), "S. W. D.," "J. W.," "J. S. P.," "E. B.," "G. H. B.," "C. J. M.," "A. B. C." (asks for information as to the construction of a sudatorium), "T. G.," "J. B. N.," "C. D.," "S. H.," "A Practical Man" (has, apparently, not read all the "letters"), "J. J. B.," "J. P.," "C. C.," "Quondam," "Father of a Family," "A. B.," "Mr. H.," "J. R. P.," "C. C. N.," "A Well-wisher," "Mr. M.," "Outsider," "C. F.," "Timothy," "M. MacD.," "A Plasterer" (next week), "C. W. C. P." (under our mark), "S. S." (ditto).

ADVERTISEMENTS.

THE ARCHITECTURAL EXHIBITION with the collection of Materials, Patents, Processes, &c., connected with Architecture, IS NOW OPEN from Ten till dusk, at the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission One Shilling, including Catalogue. Season Tickets, including a Catalogue, admitting the holder from the 10th of January to the 15th of March, Two Shillings. Free Tickets may be had for Workmen, on application at the Galleries.

JAS. EDMESTON, Jun. } Hon. Secs.
JAS. FERGUSSON, F.R.A.S. }

NATIONAL DEFENCES.—An Explanatory Description of Wilkinson's Stadia, the Prussian Musket, the Lancaster and Minie Rifles, the improved Conical Bullet, and Fire-arms of the Earlier Periods, will be given at the ROYAL POLYTECHNIC INSTITUTION, by Mr. Crispe, daily at Three o'clock, and at Half past Eight in the Evening.—A Lecture on the Music of Many Nations, with Vocal Illustrations, by T. Thorpe Peed, Esq., on Monday, Wednesday, and Friday Evenings, in addition to the usual Exhibitions, Lectures, &c., &c.—Admission, 1s.; Schools and Children under ten years of age, half-price.—Open daily from Eleven to Five, and every Evening, except Saturday, from Seven till Half-past Ten.

MESSRS. TROUGHTON and BEVAN, Ironmongers, Ironfounders, and Millwrights, 16, High-street, Gravesend, are in want of a YOUTH, 16 years of age, as an IN-DOOR APPRENTICE. A premium required; and one who writes a good hand will be preferred.

A YOUTH required in a Stone-Merchant's Office; he will be required to Measure, keep the Men's Time, Work, &c.; he must be quick at Mensuration, and write a good hand, as he will have an opportunity of learning the entire theory of the business.—Address, D. D. D., Office of "The Builder," 1, York-street, Covent-Garden. No premium required, nor any salary given for the first twelve months.

TO GRAINERS AND HOUSE PAINTERS.

WANTED, immediately, as a CONSTANT MAN, one who thoroughly understands the above business. References as to character and ability will be required.—Address, A. B., Post-office, Tamworth.

TO CLERKS OF WORKS.

WANTED, an experienced CLERK of WORKS, who has had the superintendence of domestic work under an ecclesiastical architect. A single man would be preferred.—Apply by letter, giving references, and stating with whom last engaged, A. P., 34, Richmond road, Barnsbury, London.

TO CLERKS OF WORKS AND BUILDERS' FOREMEN.

WANTED, a steady, middle-aged, active Man, with a thorough knowledge of the different branches, to SUPERINTEND the ERECTION of a BUILDING, of moderate extent, for a builder. Unexceptionable references required as to capability, sobriety, and assiduity.—Letters addressed, prepaid, to A. Z., at the office of "The Builder," 1, York-street, Covent garden, stating amount of salary required, and where last engaged. If likely to suit, will be replied to.

TO GAS ENGINEERS.

WANTED, an experienced ENGINEER, of undoubted professional ability, to superintend the Laying of Street Mains and the Erection of a first-class Gas Works. He must be able to produce plans and specifications, and to be thoroughly conversant with the manufacture of gas, and all the details connected with the construction of the most approved apparatus and machinery for works capable of distributing 200,000,000 during the year. Salary not less than 300l. per annum.—Apply by letter only as personal applications or canvassing will render candidates ineligible to the Directors of the Nuthedd Gas Consumers' Company, 25, Norfolk-street, on or before the 5th day of February next. SAMUEL S. DEAKIN, Chairman.

Testimonials of unsuccessful candidates will be strictly preserved and returned.—Sheffield, Jan. 18, 1862.

TO BUILDERS, PLUMBERS, PAINTERS, &c.

WANTED, by a strictly sober Man, age 30, PERMANENT EMPLOYMENT as a THREE-BRANCH HAND in the above line.—Address, E. F., G. Fowle's, 12, Royley-street, Old-street, St. Luke's.

TO BUILDERS, PAINTERS, &c.

WANTED, by a Married Man, aged 30, PERMANENT EMPLOYMENT as GENERAL HAND, viz. Paperhanger, Grainer, Painter, &c. Reference given on trial if required; not particular to town or country.—Apply to A. B., at Mr. Stevens's, 43, Store-street, Bedford-square.

WANTED, by a Respectable Married Man, of some years' experience in London, a SITUATION as HOUSE and ESTATE CARPENTER and JOINER; the Advertiser has a knowledge of measuring artificers' and sawyers' work. A respectable town reference can be given.—Address, A. Z., 143, Oxford street.

WANTED, a SITUATION, by a Practical Person, who can measure, take out quantities, and make drawings and plans; understands bookkeeping and estimating, and has had some years' experience. References given.—Address, W., Mr. Butler's, 2, Goodge-street, Tottenham-court-road.

TO BUILDERS AND CONTRACTORS.

WANTED, a RE-ENGAGEMENT as Foreman, or to take the entire charge of Works, by an experienced person, who has filled such situations in several large firms. Unexceptional testimonials and references to ability and character can be given.—Address, post-paid, to S. E. R., Mr. Stocker's, No. 25, Lower-street, Islington.

TO ARCHITECTS AND ENGINEERS.

WANTED, in London a SITUATION as MANAGER or SUPERIOR CLERK, by a Gentleman fully capable in all the branches of the profession, comprising finished drawings, practical constructions, colouring, and perspective, also surveying and dilapidations. Terms moderate, and the most unexceptionable references given as to character, posture, and ability.—Address, ATZO, Office of "The Builder," 1, York-street, Covent garden.

LAND and ESTATE IMPROVEMENTS. A CIVIL ENGINEER, of ability and activity, offers his SERVICES to parties requiring such in the above undertakings. Undoubted proof as to ability, activity, &c., will be produced. Letters addressed to T. C. D., at the Office of "The Builder," 1, York-street, Covent Garden, will be attended to.

A GENTLEMAN, having a portion of his time disengaged, wishes to meet with an Architect or Surveyor requiring OCCASIONAL ASSISTANCE.—Address F. S., Office of "The Builder," York-street, Covent-garden.

A CIVIL ENGINEER, as PARTNER, MANAGER, or GENERAL ASSISTANT, &c., of undeniable qualifications as to abilities, &c., is open to an OFFER or ENGAGEMENT.—Letters addressed to L. L. J., at the Office of "The Builder," 1, York-street, Covent Garden, shall be attended to.

AN ENGINEER about to leave his present situation wishes an ENGAGEMENT. Has been some years conducting saw-mills for wood and stone, and can be well recommended by his employer. Has no objection to town or country.—Address to S. C., 114, Cromer-street, Brunswick-square.

A CLERK of WORKS, well experienced in all the branches of building, is now open to an ENGAGEMENT. Can make out fair working drawings, &c. Unexceptionable reference from his late engagement.—Address, A. B. G., at the Office of "The Builder," 1, York-street, Covent Garden.

SEWERAGE and DRAINAGE.—Mr. JOHN PHILLIPS'S engagement as Surveyor to the Metropolitan Commission of Sewers having determined at Christmas, he can now devote the whole or portions of his time to the sewerage of towns and the drainage of houses or land.—Address to him at the offices of Mr. Leslie's Patents, 59, Conduit-street, London.

AS CLERK.—The Advertiser, from his extensive experience, is competent to undertake the duties of a Builder's Office, where one Clerk only is employed, or to take part of the Measuring and Estimating, and the general routine of office business. Terms a secondary consideration.—Address, A. B., Mr. Warner's, No. 9, Francis-street, St. Pancras.

A YOUNG MAN, about 20 years of age, wishes for an ENGAGEMENT to attend a Circular-saw Bench, or Deal and Timber Frames, and, if required, would make himself useful to fill up his time in any way to the advantage of his employers.—Address to W. B., Office of "The Builder," York-street, Covent-garden.

TO BUILDERS AND GLASSCUTTERS.

A YOUNG MAN, who is a Glasscutter and Glazier, and has been used to the management of a business, wishes for an ENGAGEMENT, where strict attention to business would be of service to an employer. Can have an undeniable character.—Address, M. W., 31, Ann's-place, Hackney-road, near Margaret-street.

BUILDERS, Contractors, Boiler Makers, Engineers, or any manufacturers or parties requiring a respectable man who has filled a responsible situation in a factory, kept a set of books, and is well recommended, may hear of one who has no objection to town, country, or to go abroad, by addressing, free, C. K., 14, Stanley-terrace, Lower-road, Rotherhithe, London.

TO ARCHITECTS, BUILDERS, AND OTHERS (who want occasional assistance).

PLANS, Specifications prepared, Quantities taken, Estimates made, Works measured, Accounts adjusted, and Bookkeeping, on the most reasonable terms.—Apply, by letter, to K. J., 16, Caroline-street, Bedford-square.

TO JAPANNERS, DECORATORS, BUILDERS, &c.

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The Builder.

No. CCCCLXX.

ATURDAY, FEBRUARY 7, 1852.

HE production in England of a large and elaborate work on classic art is so great a novelty at this time, that we hasten to welcome Mr. Penrose's "Inves-gation of the Principles of Athenian Archi-cture," which has just now been published. ut for the Society of Dilettanti we should ot have had this. It is not likely that any dividuals would have incurred the necessary tlay with the certainty almost (we grieve to y it) of so limited a sale as would render ss inevitable. The Dilettanti Society, as ost of our readers know, is composed of ntlemen devoted to art and antiquities. It now in its 118th year, and consists of rty-two members, who dine together on the st Sunday in every month during the season. alpole, speaking in 1743 of this club, in nnection with the establishment of an opera, rs, "the nominal qualification [to be a mber] is having been in Italy, and the real e being drunk." We need not say this does t apply now. The two oldest members are e Duke of Somerset (1799), and Lord rthwick (1802); the two youngest are Mr. oderip and the Marquis of Northampton 51). It has assisted in the production of veral fine works, and the book now before is one of them. This is illustrated with merous large engravings and vignettes, thout regard to expense, which makes us re regret that so many pages of the letter-ss, at all events in our copy, are "smudged," parently through not being sufficiently dried fore binding.

We shall confine ourselves on the present casion to a brief exposition of the origin, ject, and contents of the works.

In 1845 Mr. Penrose visited Athens, and mained there some months. In the spring the following year, making reference to the rtained fact that traces of the most refined ught and subtle optical principles were to found in the Greek buildings of the best e, entirely overlooked by Stuart and Revett, d not adequately noticed in any later work, he proposed to the trustees of the British useum to provide himself with the requisite truments of the best quality, and to give his rvices to the investigation of them free of all rsonal expenses (the results to be handed to e trustees for publication if they should nk fit), provided he were sent out armed h their sanction and authority. He con-ered that it would require five or six nths' work thoroughly to examine the rthenon and the Temple of Theseus; that expense in scaffolding and assistance uld amount to about 50*l.*; and he said that would be quite satisfied if her Majesty's nister were authorised to supply these ex-nses in furtherance of the work. The stees felt that the undertaking proposed was eign to their purpose, and were obliged to cline it. But one of the trustees, who was o secretary to the society of *dilettanti*, con-ring the proposition to that body, it was immediately accepted, and thence the work in question. Its full title is, "An Investigation of the Principles of Athenian Architecture, or the Results of a recent Survey conducted chiefly with reference to the optical refinements exhibited in the construction of the ancient buildings at Athens, By Francis Cranmer Penrose, Architect, M.A."* It may be described in brief as a treatise "on the systematic deviations from ordinary rectilineal construction, found in the principal works of Greek architecture, which arise out of and pervade the entire design of the building." The aim proposed is, 1st, the establishment of the fact; 2ndly, the determination of the exact nature of these deviations; and, 3rdly, to aid in arriving at some knowledge of the theory on which they were made. Of the general character of the investigations on which this work is founded our readers are already informed, and if we give them an outline of the table of contents, they will be able to judge of the extent to which they have been carried out. Chapter 1 contains a general description of the Acropolis of Athens; 2 treats of the iconographic and orthographic proportions of the Parthenon; 3, of the discovery of the curvature of the horizontal lines in that building, and the jointing of the stones in Greek architecture generally; 4 speaks of the inclination of the columns; 5, of the Entasis; 6 gives details of the construction of the Parthenon; and 7 is on the curves of Athenian mouldings; 8 and 9 treat of the Polychromy of the Parthenon and the Propylæa; 10 gives a description of the latter building; 11 treats of the Theseum; 12 of the Temple of Jupiter Olympus; and 13, of the remains of an earlier Parthenon. The 14th and last is on the theory of the Optical Corrections adopted by the Greek architects.

We will mention that in the case of the Propylæa, the drawings from which the plates have been engraved—and very careful drawings they are—were prepared by Mr. T. J. Willson, who was the companion of the author in Athens.

Vitruvius is the earliest writer who alludes to the curvature of what are usually considered horizontal lines, and he points out that the stylobate (or substructure on which the columns rest) should rise gradually from the ends towards the centre ("as it would otherwise appear like the bed of a channel"), and that the capitals of the columns should not be placed in the same horizontal level, but should deviate from the straight line in proportion to the addition given to the centre of the stylobate.

The first notice of the fact in Athens was made in 1837, when Mr. John Pennethorne, an English architect, discovered the curvature, and afterwards published his observations in the shape of a pamphlet. The entasis, or swell in the upright lines of the columns of the Parthenon, was established by Professor Cockerell in 1810, and the inclination of the columns, by Professor Donaldson about 1829. It is singular how few of us *observe* even what we see!

"The flattest curve which has ever been applied to any architectural line for the confessed purpose of pleasing the eye is that, probably, which forms the entasis of the columns of the Erechtheum. In these, the amount of departure from a straight line, or to speak mathematically, the sagitta of the curve, is only ·0195 in 21·12, which is equivalent to ·108 in 100 feet. The value of the increment of curvature corresponding to the flank of the Parthenon is ·156 in 100 feet, so that the curve of the column of the Erechtheum,—a curve confessedly productive of the impression of beauty,—is scarcely more than two-thirds as great as that of the stylobate of the Parthenon; we cannot, therefore, deny that the curvature of the horizontal lines may produce some optical effect of beauty."

It is not unreasonable to suppose that those travellers who have wondered why the fronts of the Greek buildings were so much less "dry and hard" than our imitations of them, must have felt (however unconsciously) the beauty of the horizontal curvature. Without the entasis the outlines of columns seem concave instead of straight. It was applied so delicately, however, by the Greeks, that it is scarcely appreciable, except by its indirect effects. The Italian architects, of the Revival, magnified it very absurdly, making the diameter of the column at about one-third of its height actually larger than at the base. In no one of the Athenian examples, except Jupiter Olympius, is the profile of the column even perpendicular at the base,—the entasis is kept subordinate to the diminution. Mr. Penrose found the entasis in every case so nearly resembling one of the forms of the Conic Sections, viz., the hyperbola, that he is satisfied this was the curve used in the Athenian structures. The use of the hyperbolic or parabolic curves in the Greek mouldings produces a wonderful variety of light and shade.

The greatest amount of curvature in the horizontal lines of Greek structures was found in the new or Hecatompedon Parthenon, and in the Propylæa. In the latter, however, the curve only occurs in the entablature, the line of the steps being straight and level. The measurements are given in the two first columns of the following table; and if the length of the curved lines in the above-mentioned cases be all either increased or diminished, as the case may require, to an uniform length of 100 feet (the rise of the centre of the line always preserving its proportions to the length), the third column will give the relative amount of rise.

Buildings.	Actual length of the front or flank, measured.	Actual rise above a straight line joining the extremities.	Proportional rise corresponding to a length of 100 feet.
1. *Jupiter Olympius*—			
Front	354·2	·25 nearly	·07
2. *Sub-basement of the Parthenon*—			
Front	104·2	·150	·145
Flank	221·	·233	·105
3. *Theseum*—			
Front	45	·063	·140
Flank	104·2	·101	·100
4. *Parthenon*—			
Front	101·3	·228=Flank × $\frac{1}{1000}$	·225 = $\frac{3}{4}$ ·145 } very nearly.
Flank	228 1	·355	·156=$\frac{3}{4}$ ·105 }
Entablature from eastern front	100 2	·171 = $\frac{3}{4}$ ·288	·171
Ditto on flanks, restored	227·	·307	·135
5. *Propylæa*—			
Entablature from eastern portico	68·1	·119	·175

It will be seen from the above table that the curvature of the temple of Theseus is about the same as that of the earlier Parthenon; while in

* London: Longman and Co.; and John Murray.

the Periclean temple it is greater by one half. The effect of the curvature in the case of the temple of Theseus may have shown that an increase of curvature would be attended with advantage."

There is little doubt that some of the curves have resulted from accident; but that the curvature of horizontal lines was, nevertheless, a practice, seems established beyond a doubt. In some cases it was omitted. The temple at Bassæ, for example, although a work of the very best period, gives no indication of original curvature. Mr. Penrose explains this on the supposition that on account of its comparatively unfrequented situation it was not thought worth while to incur the additional expense necessarily attending it.

As to the reason for these deviations, our author thinks it difficult to imagine any other than that they were intended to correct certain influences which tended to make the apparent differ from the real form; and he is disposed to think that the want of each correction was felt and the correction applied separately. His opinion is that "the origin of the horizontal curve was to obviate a disagreeable effect produced by the contrast of the horizontal with the inclined lines of a flat pediment, causing the former (that is the cornice) to appear deflected from the angles." If we remember rightly, Dr. Emil Braun suggested that it was to make the lines harmonize with the sea horizon.

Our author concludes his work with some eloquent observations on the beauty of Grecian architecture, which he considers,—remembering "the studied harmony of the proportions, the delicacy of feeling evinced in the optical corrections, and the exquisite taste shown in the selection of the mouldings, and in the coloured ornaments so far as they are preserved to us; and, above all, the unrivalled sculpture, to which the architecture of the temple served as a glorious framework,"—is, humanly speaking, perfect. A greater range has been attempted in other styles, and successfully, but for consummate delicacy and judgment, the Greeks have had no equals. The study of their works is incumbent on all who would render themselves worthy the title of Architect.

Mr. Penrose's book is the result of most elaborate and careful investigations, guided by intelligence and sound scientific knowledge: it will find a place in every architectural library, and must be referred to by all who would thoroughly understand the principles of Grecian art.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.

In Mr. Cockerell's third lecture, he proceeded, from the alphabet of the art, to consider its syntax, as laid down by Vitruvius, under the following heads:—1. Order, method, and regularity; 2. Fitness of arrangement, general disposition and contrivance, as adapted to locality and other circumstances; 3. Uniformity; 4. Proportion, being that relation of parts or quantities, by which harmony and grace are obtained; 5. Character, which dictates the special aspect of the work, according to its purpose; 6. Analogy, consisting in those resemblances and ideal significancies which assimilate the works of man to those of nature; and, 7. Economy, not only the vulgar economy of the purse, but that which combines utility with beauty, admitting nothing superfluous, and allowing nothing to be overlooked.

The first of these fundamental rules of architecture as a fine art, namely, *order*, is conspicuous in the individual productions of nature; from the daisy to the mammoth. It might be obscured by accidents of position, as in the case of a mob of people or a herd of wild horses; but if these were arranged in symmetrical form, as that of a regiment of soldiers, a general effect of order was produced, equally as in the individual. The principle of order, that serene tranquillity which ought to be the end and aim of all fine art, was especially enforced by Aristotle in its application to architecture. In the remains of Greek art it was conspicuous; whereas Michelangelo and his followers had sinned greatly against it in their picturesque style, which was in fact an unauthorized modern invention, arising out of the influence of the painter architects. The front of St. Peter's was particularly deficient in this respect. It would be seen by an elevation of it, that there were no two intercolumniations of equal width; besides which coupled columns were introduced, and the whole front cut up in a way which deprived it of all order and repose, and produced an unpleasant effect. In the design by Fontana for the same façade, the principle of order had been, on the contrary, well preserved. In the architecture of the Revival, broken pediments and architraves were constantly introduced: one pediment was placed within another; and many similar irregularities were committed,—the architects of that period forgetting that nature presented variety enough, and that architectural objects should be distinguished from those of nature by their greater exactness and regularity. It was right, however, to exempt the works of Raffaelle from this censure. As an architect, his designs were conformable to the spirit of the antique in their regard to order. Although a thorough master of the picturesque, he had reserved that quality for his pictures, and observed a rigorous order in his buildings. Palladio also merited the same degree of praise.

One method of attaining order, which had been successfully practised, was by an equidistant arrangement of windows and doors. This might be seen in Whitehall Chapel, where the main architectural features were irregular, but the windows equidistant. The same peculiarity might be noticed in the barracks in the Birdcage-walk.

Absolute order might be seen in a continuous balustrade, and within certain limits its effect was good; but sometimes absolute uniformity produced a mechanical effect, highly displeasing to the eye. To avoid this result, the Egyptians and the Gothic architects—while their columns and intercolumniations, were alike in general form and arrangement—varied the decoration of their capitals and bases to a very great extent. The same expedient was resorted to in the temple of Ephesus; and in one of the temples of Rome the capitals of the different columns contained a rebus of the names of the artists who executed them. Sir John Soane, in the National Debt Redemption Office, in the Old Jewry, had carried out the same principle, by using arches alternately of different sizes and elevations; and it was also shown in the works of a distinguished modern architect at Ghent. Julio Romano and his followers produced an admirable effect of order by the employment of decorated panels. There was, indeed, some justice in the reproach which had applied to English architects, who, in reproducing the temple of Jupiter Stator, and the other classic orders, and applying them to the most ordinary purposes, where an ornamented wall would be much more appropriate, had too often shown much poverty of invention. The exquisite mural paintings of Pompeii would furnish many useful lessons on this subject.

On the second head of Vitruvius—*diathesis*, or fitness of arrangement,—the architect's talent resembles that of the military general, who disposes his forces so as to conquer every difficulty. As surveyor to St. Paul's Cathedral the lecturer had frequently observed with admiration the skill of its distinguished architect in this respect: one instance especially he might refer to: the south-west windows of the edifice were hermetically sealed, while those to the north-east were ready to open, to admit the dry wind which would give durability to the structure.

In speaking of *symmetria* and *eurythmia*, the lecturer alluded to the confusion in their definition by Vitruvius, whose work was in that respect unsatisfactory,—probably owing to his deficiency of scholarship. The former of these terms might be defined as commensuration and parity of parts; a quality conspicuously displayed in the human figure. This symmetry was a characteristic and pleasing feature of the Great Exhibition building. Vitruvius spoke of decimal and duodecimal proportions among the ancients: a Roman temple had a dome in the form of a decagon; and it was possible that some such principles were acted upon. *Eurythmia* was that happy proportion and just harmony which produced an effect analogous to that of rhythm in poetry.

Under the fifth head, *character*, Vitruvius proceeded to define three varieties—the strong and robust, the slender and delicate, and that which formed a medium between the two; pointing out, in connection with the subject, the analogy of the Doric, Ionic, and Corinthian orders respectively, to the virile warmth of the mature man, the beauty of the matron, and that of the youthful damsel. It was evident, by the opening of the 3rd book of the Iliad, that the Greeks felt the dignity, beauty, and grace of these types of the human form; and set a high value upon each. The same classification of forms might be extended to the animal and vegetable creation, and even to geometrical forms; as in the cube, the parallelogram, and the cone; which each presented different qualities and merits.

The Greeks observed these different proportions, and although the theories of Palladio and his contemporaries did not advert to them their practice did. Palladio, indeed, gave three different proportions of arches; one of a low or quadrate form, another of medium proportion, and a third being tall and lofty.

To show that all the dignity desirable could be obtained in a low, square composition, by a proper arrangement of its parts, the lecturer referred to Nottingham Castle, the house of the Duke of Newcastle, now in ruins. The width of the doors and windows in this building, and their distance from each other, served to compensate for the want of altitude, and imparted a high degree of dignity and magnificence to the design. The Church of St Paul, Covent-garden, with its large intercolumniations, and square and massive effect throughout, was another illustration of this rule. It was also happily illustrated in the Cour de Garde of the Prussians, at Cologne by Schinkel; whilst the vestibule of Buckingham Palace, about 100 feet by 50 feet, and only 15 feet high, was, on the contrary, injured in its effect by the employment of a Corinthian order,—which required a much loftier proportion. The equal beauty to be derived from low and lofty proportions, properly disposed was further shown by drawings of the temple of Jupiter Capitolinus, restored by Canina, and the temple of Venus, a totally different design.

This quality of *character*, as well as the sixth quality, *economy*, and the seventh, *analogy* were in some degree involved in the second head. The analogy of the human form with the proportions of the orders, has been already mentioned. Artists described works of art by the aid of natural similes; and in poetry the same analogy was continually felt and indicated. The slight allusion of Hamlet to the sepulchre of his father proved the analogy felt by the great poet of all time for an architectural monument; and the same analogy between poetry, nature, and arts, was displayed in the famous lines by which Viola describes her patient grief. The artist who did not likewise feel this analogy, was totally deficient in the first ingredients of his art. Joining in the poet's anathema against "the man who hath not music in his soul," he would emphatically say, "let no such man be trusted." Let no such man be trusted with the design and conduct of works which are to assume all the graces and dignity of art, and to challenge the approbation and criticism of native and foreign connoissieurs.

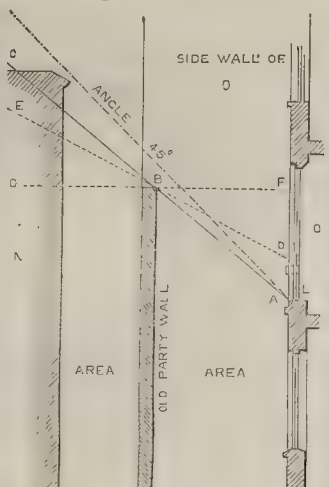
"PRIVILEGED LIGHTS."

THERE are few architects practising in this densely-housed metropolis who are insensible to the difficulties connected with "privileged lights," by which I mean those windows which exist and derive an essential amount of light from the property of the adjoining owner, and which, by an uninterrupted existence of twenty years, have obtained a prescriptive or privileged right to a continuance of the same; and the difficulty is aggravated by the absence of any legislative enactment on the subject, so that the architect is left to act on his unaided appreciation of the extent to which this acquired right is to ride over and control the buildings which he is instructed to place on the ground of his employer, and to incur the responsibility of occupying every desired inch of space to which he is entitled, without trenching on the "privileged light;" and an error of judgment, or even a difference of opinion with the owner of that light, may involve his employer in the vexatious and expensive proceedings of a Court of Law or Equity. It is manifest that this embarrassment could be greatly diminished, if not avoided, by a clause in the "Amended Buildings Act," setting forth a principle of adjustment and appointing a Court of Reference in case of difference of opinion as to its application. I think it probable her Majesty's Commissioners of Works might be induced to insert such a clause, if a principle were presented to them with the general concurrence of the Metropolitan architects; and it is with this view that I am desirous to avail myself of the medium of your journal for the discussion of the principle.

It would be uncandid not to state that I have been spurred to this by an award upsetting the theory on which I have hitherto based my proceedings, and as I propose to use the case out of which it arose as an explication of the theory, which I believe to be sound, I may be allowed to beg the gentlemen concerned therein to acquit me of all intention to say anything in the smallest degree offensive or derogatory to their excellent standing and high character.

My theory as to the extent to which a privileged light should prevail over the inherent rights of an adjoining owner is founded on the belief that light falls on and enters an opening or window at an angle of 45°; and, therefore, that if the new building does not project before or rise above that line of 45°, there is no deprivation of light to such window. In support of this theory I quote the schedule in the Metropolitan Buildings Act, which rules that every street, alley, or mews hereafter built must be equal in width to the height of the buildings on either side," which is in effect the same as a line of 45° started from the junction of the buildings with the street or road. But the strongest argument I find in favour of this theory is, that it can be universally applied without leading to glaring absurdity or cruel injustice, and that is more than I can say for any other theory with which I have yet had the fortune to meet. In the case I have referred to, it was considered advisable to test the theory by an extreme case, which was put in this form: "Supposing a window to exist in a wall on the boundary of two properties, do you mean to contend that a roof springing from the wall, and rising at an angle of 45°, would not diminish the light in that window?" I answer: "Supposing the material of the roof (not such as by reflection to affect the quality of the light, I do believe that it would not lessen the amount of light transmitted by that window to an apartment." And it should be remembered that the person who depends on his neighbour's property instead of his own for light, is not a person for whom the law should be strained. We shall presently see where the principle of the award, if any may be inferred, will carry us, when applied under slightly different circumstances.

In the diagram subjoined the old house is denoted by the letter O, the new building by the letter N. The angle of 45° there shown is the line to which I claimed the right to carry the new building iwthout interference with the "privileged light," L.



SECTION.

The umpire has awarded, "That the new buildings shall not be carried above the line, A B C, which line is to be drawn from the top of the wooden sill of the window, touching the inner top edge of the old party wall."

You will readily conceive my gratitude that the consequences are not more serious; for, if the sill of this window had been three feet above the floor, no uncommon case, the principle of the award which hinges on the "inner top edge" of the wall, would have swept away half the top story of my building, D B E; and to carry out this theory, the more nearly the sill of the window reached the level of the said wall, the more tremendous would be the effect on the adjoining property, and when *at* the level, away must go the whole of the story, F B G. I do not imagine that the gentleman in question would have made any such award, but I think this case goes far to prove the necessity of some established principle. There are many familiar illustrations that would assist to show soundness in my theory, but I do not feel justified in trespassing further on your courtesy, and they will readily present themselves to any person thinking earnestly on the point, and testing it by a variety of diagrams. In conclusion, I wish to observe, that I do not for one moment lay claim to this theory as original or peculiar: indeed, I know it is largely adopted by the most eminent members of my profession, and I confess I considered it so generally recognised amongst us, that I was free from fear when circumstances permitted me to comply with its rules; but now, alas!—in Celtic parlance—"I am landed in a sea of difficulties," and I shall be sincerely obliged to any one who will set me right, or lend a hand to procure an authoritative decision on this much-vexed question of "privileged lights."

C. F.

HYDRAULIC POWER AT SEA. — Mr. Seydell, naval architect at Stettin, and Mr. Ruthven, an English engineer, are said to have constructed a ship which is impelled neither by wind, oars, nor steam, but by retro-active hydraulic power.

"STEAM SUPERSEDED."—A new motive power is said to have been discovered or invented by Mr. J. Bourke, of Limerick, coach-maker. "The mechanism of the invention is quite simple, consisting of only 16 plain formed iron cranks, with six frames, which stand in the centre of the machine, inclining one towards the other. It can be erected upon two pair of wheels and two pair of springs, there being also 12 small wheels, or pulleys, with three levers, one bearing on the other, and by which it will be propelled."

GREEK AND ROMAN ARCHITECTURAL ANTIQUITIES.

AMPHITHEATRE—AQUEDUCT—TREASURY.

MAKING a second dive into Dr. Smith's depository of classical knowledge,* we fall on the word *Amphitheatrum*, and, with the certainty of telling some of our readers little more than they know, simply refreshing their memories, we nevertheless proceed to give a summary of the article.

The Amphitheatre, all know, was a building arranged for the purpose where were held the combats of the gladiators and wild beasts, representations of mimic sea-fights, &c. These exhibitions—peculiar to the Romans, and probably unknown to the Greeks, until introduced by that people—were originally made to take place in the Forum or the Circus; but this latter, being long and narrow, better adapted, in fact, for the chariot races, for which it was first designed; and the *spina*, a low wall, about 12 feet broad, and some 4 feet high, running almost the whole length of the arena, the *metæ* or goals at either extremity, offering a great impediment,—some new form of building was required, which should accommodate a multitude of spectators in such a manner that all might have a good view of the space occupied by the combatants; these shows, or slaughters rather, becoming in time the favourite amusement. The idea of such a building was suggested, as its name seems to imply, by the existing theatre (*ἀμφὶ* on both sides, *θέατρον* a theatre, a place for beholding). Indeed, the first amphitheatre of which we have any account—that of C. Scribonius Curio—was literally composed of two theatres placed on pivots, so that they could be turned back to back, forming two distinct structures for dramatic performances, or face to face, completing the amphitheatre. The erection of the next was effected by Julius Cæsar during his perpetual dictatorship, B.C. 46; and it was not till the fourth consulship of Augustus, B.C. 30, that a more durable amphitheatre of stone was erected by Statilius Taurus, in the Campus Martius (wood having been used for their construction, which some times proving inadequate to support the weight of the immense body of spectators, occasioned serious accidents; one, we are told of, built at Fidenæ, in the reign of Tiberius, gave way, burying in its ruins either 20,000 or 50,000 spectators). That Statilius's building was simply composed of stone, as far as regards the carcase only, and that the staircases and seats were of wood, seems highly probable, as in the burning of Rome, A.D. 64, it was destroyed. Caligula also commenced one near the Septa, but the work was not continued by Claudius; and Nero, too, in his second consulship, A.D. 57, erected a vast temporary building of wood.

The erection of an amphitheatre in the midst of Rome, proportioned to the magnitude of the city, was among the designs of Augustus; but it was not till the reigns of Vespasian and Titus that it was carried into effect by the erection of the Amphitheatrum Flavium, or, as it has been called since the time of Bede, the Colosseum, or Colisæum,—a name said to be derived from the Colossus of Nero, which stood close by.

This wonderful building, which for magnitude can only be compared to the Pyramids of Egypt, and which is perhaps the most striking monument at once of the material greatness and the moral degradation of Rome under the empire, was commenced by Vespasian, but at what time is uncertain, the date assigned by Lepsius, A.D. 77, being more than doubtful; and completed by Titus, who dedicated it, A.D. 80, when were slaughtered 5,000 animals of different kinds. There is an ecclesiastical tradition, but not entitled to much credit, that the architect of the Colosseum was a Christian, and afterwards a martyr, named Gaudentius, and that thousands of the captive Jews were employed on it. In the reign of Macrinus, on the day of the Vulcanalia, it was struck by lightning, by which the upper rows of benches were con-

* Dictionary of Greek and Roman Antiquities. Edited by William Smith, LL.D. Second edition. London: Taylor, Walton, and Maberly; and John Murray.

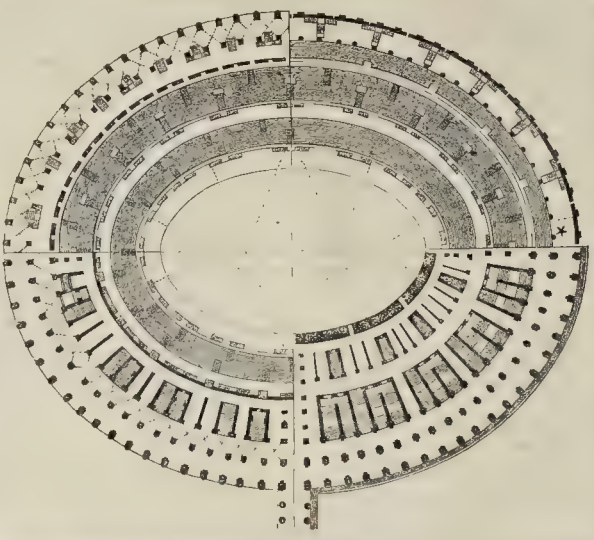
sumed, and so much damage done to other parts of the structure that the Games were for some years celebrated in the Stadium. Its restoration was commenced by Elagabalus and completed by Alexander Severus. It was again struck by lightning in the reign of Decius, but was soon restored, and the Games continued to be celebrated in it down to the sixth century; the latest recorded exhibition of wild beasts being in the reign of Theodoric. Since that time it has been used sometimes in war as a fortress, and in peace as a quarry, whole palaces, such as the Cancellaria and the Palazzo Farnese, having been built out of its spoils. At length the popes made efforts to preserve it, Sixtus V. attempting to use it as a woollen factory, and to convert the Arcades into shops; Clement XI. enclosed the lower Arcades, and in 1750 Benedict XIV. consecrated it to Christians who had been martyred in it.

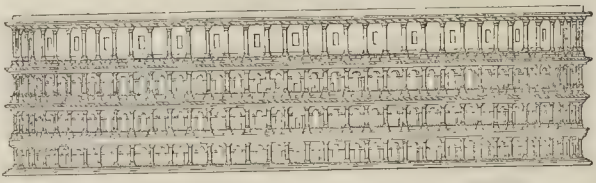
Notwithstanding the damages of time, war, and spoliation, the Flavian Amphitheatre still remains complete enough to give us, excepting in some minor details, a fair idea of the structure and arrangement of this description of building. It was situated in the middle of the city, in the valley between the Cœlius, the Esquiline, and the Velia, on the marshy ground which was previously the pond of Nero's Palace. From mere dimensions we can form but an inadequate conception of this vast structure, the arrangements of which were such as to furnish seats for 87,000 spectators, round an arena large enough to afford space for the combat of several hundred animals at once, for the evolutions of mimic sea-fights, and for the exhibition of artificial forests; with passages and staircases to give ingress and egress to the immense mass of spectators, as well as others for the attendants on the arena; dens for the thousands of victims devoted to destruction; channels for the rapid influx and outlet of water when the arena was used for the Naumachia; and the means for the removal of the carcases, &c. Admirable pictures of the magnitude and magnificence of the amphitheatre and its spectacles are drawn in the "Essays" of Montaigne, and by Gibbon in his "Decline and Fall," to which we can but refer our readers.

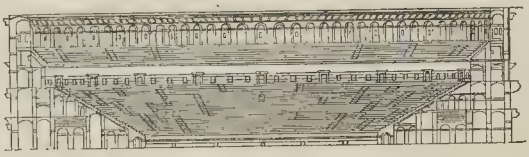
The annexed ground-plan, external elevation, and section, are from Hirt, and contain, of course, some conjectural details. The ground-plan is so arranged as to exhibit in each of its quarters the plan of each of the stories: thus the lower right hand quarter shows the base ground-plan, or that of the lowest story; the next on the left shows a plan of the erections on the level of the second row of exterior columns, as well as the seats, which sloped down from that level to the lower one; the next quarter shows a similar plan of the third order; and the upper right hand quarter exhibits a view of the interior, as it would appear to an eye looking vertically down upon it. The dotted lines on the arena are the radii, and their points of intersection the centres, of the several arcs which make up the ellipses, of which form this structure, like all the other existing amphitheatres, is, covering nearly six acres of ground. The plan divides itself naturally into two concentric ellipses, of which the inner constituted the arena or space for the combats, while the ring between this and the outer circumference was occupied by the seats for the spectators. The lengths of the major and minor axes of these being respectively 287 feet by 180 feet, and 620 feet by 513. The stone used was a species of treventine: some of the blocks are as much as 5 feet high, and 8 or 10 feet long, fastened together where necessary with metal clamps: it is remarkable that all the stones forming the exterior have inscribed upon them small numbers or signs, either indicating the place of each in the building, and which, according to Dr. Smith, prove how great was the care taken to adapt every single stone to the form of the whole building, or may be simply "mason's marks," to which we have before now adverted.

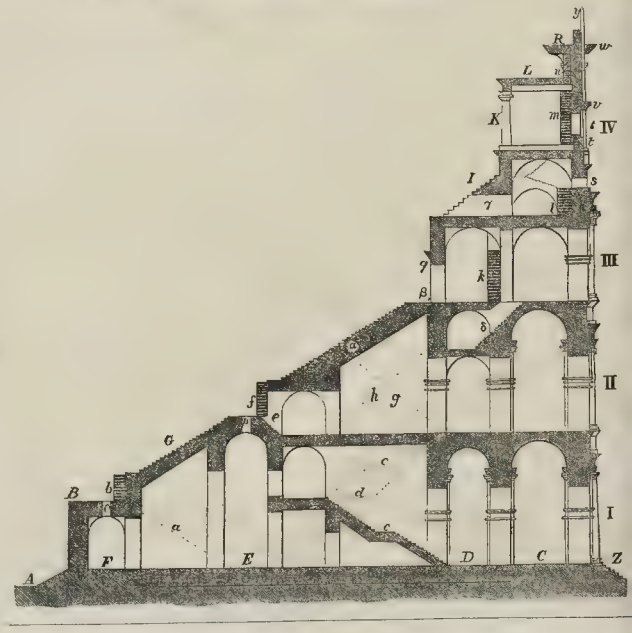
The exterior needs little description; it is divided into four stories, corresponding to the tiers of corridors by which access was gained to the seats at different levels. These corri-

THE FLAVIAN AMPHITHEATRE.









dors are connected with the external air by eighty arched openings in each of the three lower stories. To the piers which divide these arches are attached three-quarter columns, presenting a continuous façade, in three stories, of eighty columns, backed by piers with eighty open arches between them, each tier being of a different order of architecture,—the lowest of plain Roman Doric, or, perhaps, rather Tuscan, the next Ionic, and the third Corinthian. The highest tier is of quite a different character, as it merely consists of a wall, without corridors, against which, instead of columns, are placed pilasters of the Corinthian order, and in the wall between them are windows, in the alternate intercolumniations only, and therefore, of course, forty in number. The whole is crowned with a bold entablature, pierced with holes above the brackets which supported the feet of the masts upon which the *velarium* or awning was extended, and above the entablature is a small attic. The total height of that part of the building which remains entire,—about three-eighths of the whole circumference,—is 157 feet; the stories being respectively about 30, 38, 38, and 44 feet high.

The internal arrangement can be best understood by referring to the section of the corridors, stairs, and seats:—

I. II. III. IV. The four stories of the exterior.
A The arena.
B The podium.
C, D, E, F The four corridors.
G, H, I The three mæniana.
K The upper gallery.
L The terrace over it.
R The space on the summit of the wall for the managers of the velarium.
Z The steps which surround the building on the outside.
a Stairs from the third colonnade to the podium.
b Short transverse steps from the podium to the first mænianum (compare the plan).
c, *d* Stairs from the ground story to the second; whence the second mænianum was reached in two ways, *e* and *g*.
e Steps to the first præcinctio, from which there were short transverse steps (*f*) to the second mænianum.
g Stairs leading direct from the corridors of the second story to the second mænianum, through the vomitorium *a*.
h Stairs leading from the floor of the second story to the small upper story, whence other stairs (*δ*) led to the third story, from which access was obtained to the upper part of the second mænianum by doors (*β*) in the upper wall in the second corridor, *g*.
k Stairs from the second story to the mezzanine, or middle story, whence access was obtained to the third mænianum by passages (*γ*).
l Stairs in the mezzanine, leading to the upper part of the third mænianum, and to the gallery, K.
m Steps from the gallery to the terrace over it.
n Steps from that terrace to the summit.
o, *p* Grated openings to light the two inner corridors.
q See under *h*.
r Windows to light the mezzanine.
s Windows of the gallery.
t Rest, and
v Loop, for the mast of the velarium, *g*.

Although, from the time of its erection, it was the only amphitheatre in Rome sufficing from its immense size for the entire population, there were several in the provincial towns—some built like the earlier ones of Rome itself of wood, and of which there are now, of course, no remains; but there are in many of the larger cities of the Roman empire important ruins of amphitheatres of stone, the principal of which being at Verona, Pæstum, Pompeii, and Capua in Italy; at Nimes, Arles, and Frejus in France; at Pola in Istria; at Syracuse, Catania, and some other cities in Sicily; but as they were mostly constructed after the Flavian model, farther mention would be unnecessary.

The means by which Rome and other cities of the empire were supplied with water we shall find described under the heading "Aquæductus:" of this structure the Greeks had probably little knowledge before the Roman conquest, although that there was amongst them at an early period powers of hydraulic engineering is shown by the drainage tunnels of the lake Copaïs,—and the similar works of Phæax at Agrigentum; and we have an instance, too, of a channel of water being carried through a mountain 900 Greek feet high, to supply the city of Samos, the length of the tunnel being 7 stadia, or about 1,420 yards. By the Greek regulations water might be fetched from the public fountains or wells to a distance of four stadia: beyond this persons were compelled to dig their own wells, but if any one dug to a depth of 60 Greek feet without finding water he was permitted to take from his neighbour's well six χοῦς (equal to about 36 pints) twice daily. The Romans were in a different position with respect to the supply of water from most of the Greek cities. They at first had recourse to the Tiber and to the wells sunk in the city; but the water obtained from those sources was very unwholesome, and must have proved insufficient from the growth of the population, to say nothing of the supplies afterwards required for the Naumachiæ and public baths. It was this necessity that led to the invention of aqueducts in order to bring pure water from a considerable distance, from the hills in fact which surround the Compagna. The writer properly scouts the notion that the Romans built aqueducts because they did not know that water finds its own level! The date of the first is assigned by Frontinus to the year 313 B.C., and was known as the *Aqua Appia*, being commenced by the Censor Appius Claudius Cœcus (to whom Rome also was indebted for her first great road), the number gradually increasing, partly by the munificence of individuals and partly at the public expense, till in the time of Procopius they amounted to fourteen: of these by far the most magnificent were the Aqua Claudia and the Anio Novus, both commenced by Caligula in A.D. 36, and finished by Claudius, A.D. 50, the length of the former was 46,406 passus (nearly 46½ miles), of which 9,567 were on arches. Of still greater length was the Anio Novus, it being the longest, nearly 59 miles (58,700 passus) and the highest, some of its arches being 109 feet high, of all the aqueducts. In the neighbourhood of the city these two were united, forming two channels on the same arches—the Claudia below, the Anio Novus above: an interesting monument connected with these aqueducts, is the gate now called Porta Maggiore, which was originally a magnificent double arch, by means of which the aqueduct was carried over the Via Labicana and the Via Prænestina. The Porta Labicana was blocked up by Honorius; but his barbarous constructions have lately been cleared away. Over the double arch are three inscriptions, which record the names of Claudius as the builder, and of Vespasian and Titus as their restorers. Great pains were taken by successive emperors to preserve and repair the aqueducts. From the Gothic wars they have, for the most part, shared the fate of the other great Roman works of architecture; their situation and purpose rendering them peculiarly exposed to injury in war; but still their remains form the most striking features of the Compagna, over which their lines of ruined arches, clothed with ivy and the wild fig-tree, radiate in various directions. Three of them still serve for their ancient use; and these three alone supply, according to Tournon, the modern city with a quantity of water much greater than that which is furnished to Paris by the Canal de l'Ourcy for a population six times as large.

As we have considered the means by which immense quantities of water were brought into the city, it may be as well for us to see to what purpose it was so extensively applied, or where was its grand outlet; this we shall, no doubt, find to have been in the *Baths*. It would be hopeless to attempt to arrange the information obtained from the writers on this subject,—Vitruvius, Lucian, Pliny the younger, Statius, and others—were it not for the help afforded us by the existence of extensive ruins of ancient baths, such as the Thermæ of Titus, Caracalla, and Diocletian, but above all of the public baths at Pompeii, excavated 1824 and 1825, and which were found to be a complete set, constructed in all their important parts upon rules very similar to those laid down by Vitruvius, and in such good preservation that many of the chambers were complete, even to the ceilings. Such was the estimation in which the bath was held by the Romans, that until their establishment for public use, we are told that those who sought the favour of the populace gave them a day's bathing, free of expense. Faustus, the son of Sulla, furnished warm baths and oil gratis to the people for one day; and Augustus, on one occasion, furnished warm baths and *barbers*, for the same period, and on another, for one whole year to the women as well as men.

In turning over the pages, we happen on the word *Thesaurus* (θησαυρός), a treasure-house, concerning the use of which there is some doubt. That buildings for the depositing of precious metals, arms, and other property were required, especially by kings and states, in the earliest period of civilization is evident; and tradition points to subterranean buildings in Greece, of unknown antiquity, and of peculiar formation, as having been erected during the heroic period for that purpose. Such are the treasures of Minyas, at Orchomenus, described by Pausanias, and of which some remains still exist; and those of Atreus and his sons, at Mycenæ, the chief one of which, the so-called treasury of Atreus, being still in almost a perfect state. But he concurs in our notion, that it is very questionable whether *these edifices* were treasuries at all, many of the best archæologists maintaining that they were tombs. The question cannot be entered into here; a full discussion of it, with the buildings themselves described, will be found in Müller, *Archäol d Kunst*, and in the *Rhein Mus.* for 1834 and 1838. In the historical times, the public treasury was either in a building attached to the *agora*, or in the *opisthodomus* of some temple.

With this we must close the volume, recommending it to the *general student*, as a perfect encyclopædia of ancient jurisprudence, manufacture, and of the religious, social, and military manners of the Greeks and Romans; and not simply, as he may perhaps be led to imagine from our sketch, purely architectural.

INFECTED ELEMENTS OF LONDON.

In this country of fogs, during the winter season, for three months, a mantle of haze envelopes our plains, added to which the smoke of carbonaceous fuel, called sea-coal, thickening the vapour, invests with melancholy dulness both town and city.

Were it not for the paved superficies, London would be scarcely habitable, but owing to the non-absorbing surface of granite and flagging, the metropolis is, in point of health, not inferior to other towns, and at night-time, when the fires are for the most part extinct, the atmosphere is clear, and the stars may be numbered equally well as from levels of similar elevation.

If the drainage were perfect, as it might and ought to be, certainly no part of the United Kingdom could be more favourable to longevity than this industrial hive of two millions of souls. But it is, with sewage of a very imperfect nature, stagnant; and, giving back noxious effluvia even in some of the choicest localities, those advantages which might easily be assured by an uniform and regular outfall are wholly lost, the cleanliness above only moderating the baneful effect of the oozy pestilence below.

Many of the poorer streets, lanes, and courts are as yet wholly without outlets in them: the sullage is still hoarded in cesspools, and some terraces in the very best position in the same predicament, appear to evidence either the indolence of local authorities or the inadequacy of sanitary statutes to carry out the first requisite for health—good sewage.

The noble river that traverses the bills of mortality is notoriously a common sewer: it is every year becoming more fetid: it is wholly unfit for alimentary supply nearly up to Staines: it is intolerable as a medium of traffic, and has long since ceased to be resorted to by bathers and pleasure-boats, partly from the same cause.

Something should be done to mitigate this growing evil, and as nothing short of a total abduction of the polluting sources (*the sewers*) can remedy this, some of the plans propounded in The Builder for *tunnels* or

sewers, bearing off the contamination to the Essex or Plumstead Marshes, must ere long be set about.

As I suggested some years back, and as many others have re-echoed very lately, such main ducts might be made useful as the foundation for rival causeways and quays, tending at once to the convenience of increased traffic, the beauty of the river, the inestimable advantage of tidal docks in the marginal reserves (as between Westminster and Waterloo-bridges), and above all, to the improved health of the whole population.

There is no necessity for a reach of mud-bank (a "*mare morto*") in a width of 200 feet at Whitehall, increased beyond the breadth of the river at Westminster or Blackfriars. It is true that the constant undulation caused by steam paddle-wheels has washed all the mud away, save at one point (the flaggers at Buckingham-stairs); but the constant agitation keeps the filth in solution; and as population increases, so the disgusting tribute thickens, befouls, and blackens the flood, until it has become so noxious that passengers by the boats avoid it on business, and so appalling is the baneful reek that parties of pleasure have long since migrated with the Thames Yacht Club beyond the Nore.

These facts are palpable and unmistakeable, and must lead to something like a conservancy of the Thames, in a sense more serviceable than corporate swan-hopping.

Next in order, though more serious in importance, is the *total revision* and regulation of the vital (or victual) water-supply. This is in many hands, and great is the company of the experimenters. Little has, however, been practically done; and probably until some other dire visitation impel the community, through fear of contagion, to make a combined and earnest effort, the supporters of Artesian wells, of gathering grounds, and other aqueous speculations, may continue to wrangle and amuse themselves—the citizens remaining content whilst trade prospers and debts only are *liquidated*.

More intimately in combination with the *air* of London the *smoke* acts on the constitution of the civic family: by night there is a partial immunity, save where tall chimneys vomit incessant volumes, begriming the fairest structures, and covering the furniture of inmost chambers with a sooty deposit. Why the Act of Parliament has not been carried out to redress this inconvenience seems strange, seeing that some manufacturing towns in the north have abated the nuisance, and that it is perfectly practicable.

The City, which is now but a limb of this commercial capital, has taken precedence in reforming the fuliginous plague: already our mornings are extended by a full half-hour, our evenings prolonged half an hour more, and the intervening day, unveiled of fog, is 20 per cent. more telling under sunny heaven. From and after the 1st of January, all opaque smoke is absolutely interdicted, and it will be found that the proprietors of factories, smelting-houses, and all establishments requiring large furnaces are gainers and not losers by the prohibition!

As the cost of the newly-applied principle of construction, as applied to coal combustion on a large scale, is found to be trifling, why, then, has not the Act been extended in its operation to the breweries, distilleries, soap, bone, oil, &c. &c. factories, which lift on high their towering shafts, and belch forth obnubilating vapours to the prejudice of health, the spoliation of architecture, and the abridgment of blessed day amongst the oppidans dwelling along the Thames from Greenwich to Battersea? or why are those externs ("*fuori le muraglia*") between Limehouse and Camden Town, and thence to Brentford, still unredressed? Nevertheless, the change, *quoad* the City, makes even to these suburbs a difference in length of day of an hour—in thickness of fog, two candles for a matutinal shave!

Water supply has been long a moot question. This matter has long been a grievance to the whole community; but, like the gas companies, supplying a bad commodity at high charge, the nuisance will enforce its own remedy and abatement: the water will find its level both in sewers and pipes. Old companies have improved their supply, and will yet go on amending; yet new ones *will spring* into life; the necessities of a growing population will demand, and will effect a reform.

So in sewage: what municipal care omits, the ravages of an epidemic enforces; what charity to crowded pauperism forgets, self-preservation puts in practice. The scientific have given plan after plan—tunnels, sumpts, engineering projects, *centripetal* borings,—nevertheless the system to be adopted, and that *will be* adopted, is simple, and, mayhap, easy, as the application of any new power in modern science. Governmental boards will not do it: they have tried it amongst them: they have given the problem for solution to public competition, but the end is not yet. Doubtless the intentions of all public bodies is good; but London is paved with good intentions.

How calamitous is it to reflect on the inadequacy of public boards! I forbear to name them, whether their walk be in the *woods* or on the *waters*. The Victualling Board is certainly not the Board of Health, nor the Admiralty the Irish Board of Control; yet imperfect as all human institutions are, it might be expected that great public works should be carried out in the richest city of earth, since we see such cities as New York and many of our English second-rate towns amply if not perfectly provided as to the requirements of *sewage* and *water*. Next to these the great desideratum is pure *air*: some may class the last first; and those who have admired the clean aspect of Paris and other continental towns,—who have breathed the light, exhilarating atmosphere of Brussels and other capitals even more northerly than our own, cannot fail to appreciate any invention as a blessing that should remove or lighten our own London particular fog. Mr. M'Kinnon laboured long to achieve the illustration of this newest of all London news: he was at first ridiculed, derided, bantered—nay, persecuted—but he still maintained his point, and may now affirm that "*it moves.*"

None can be more gratified by a progress of improvement in these particulars than the artists, builders, and architects of the day, for their works will reap the benefit in enhanced lustre, whilst the generation of the time will breathe, drink, and smell the purer media. Fancy London expurgated as to sewage, the river *disinfected*, the dull fleece of smoke dispersed, the blacks emancipated from Whitehall, throughout the circle of penny post and cab fares, the limpid gatherings from rainfall flowing fresh and free to every dwelling, the parks attired in nature's purest hues of leaf and blossom, people might become happy and content to live like John Gilpin "twice ten years" within the precincts, and cease to sigh for rural scenery, although enamoured of it as

QUONDAM.

NOTES IN THE PROVINCES.

Boston.—The restoration of St. Botolph's Church is proceeding under the superintendence of Mr. G. G. Place. The whole of the old pews are now levelled, and the excavations prior to laying down the new floor are progressing: the workmen will soon be able to commence the tower groining. The committee have intrusted the great east window to Messrs. O'Connor.

Essex Coast.—An extensive project of improvement is proposed to be brought before parliament, having for its object the embankment and reclamation from the sea of the vast green and samphire marshes, mudlands, flats, and shoals, on the eastern and southern coasts of Essex, together with the improvement of the rivers Colne and Blackwater. The subscription contract has been signed, we are told, for 162,000*l.*

Chelmsford.—The survey and map of Chelmsford made by the Board of Ordnance for the Board of Health, are completed. The map, which is in duplicate, one being on an extended, and the other on a reduced scale, is very minute, every house and its levels being shown. The cost will be about 400*l.* The local *Chronicle* says it is probable that a plan for the effectual drainage of the town will be carried out in the coming summer.

Ryde.—A plan of the esplanade from the clubhouse to the bottom of George street connected with the pier approaches has been prepared. The cost has been estimated at about 5,000*l.* to be raised by subscription.

Brighton.—The inauguration of the extensive range of educational buildings known as the Brighton School, took place on Wednesday week. The dining-hall is 66 feet by 32 feet, and capable of dining 250 boys. In the dormitories, which are fourteen in number, the space allotted to each pupil is from 40 to 50 square feet. The corridors, which extend to nearly 300 feet in length, are covered with a glass roof.

Wells.—The works at the cathedral, after another long delay, are again in progress.

Bridgewater.—A painted glass window from a design by Mr. W. Brakspear is about to be presented to St. Mary's Church by the mayor, Mr. Thomas Ford. A circular window has been put up over the south porch by Mr. H. Salmon, a plumber and glazier in the town, at his own expense, and the same gentleman has been promoting a subscription towards the erection of another.

Cheltenham.—The *Gloucester Chronicle* states that there are now 350 houses untenanted in this town, and that the rents of those occupied have fallen at least 40 per cent., twenty-five of which have fallen within the last three years. It seems to be suffering from the effects of over-speculation in building, and in the dependance on the landed interest. Not many months since, a fine villa in the park, which cost 2,500*l.*, was sold by auction for under 1,000*l.*

Taunton.—The enlargement of the Archæological Museum is in contemplation, according to the local *Courier*. It has been proposed that the present entrance to the rooms on the ground-floor should be rendered available as a reading-room, whereby the upper range of the building might be appropriated to the purposes suggested. Messrs. Carver and Giles are preparing a plan and estimate of the probable cost.

Kidderminster.—The church of St. Mary is being re-pewed by Mr. Thompson, builder.

Colton.—The parish church of St. Mary, Colton, near Rugeley, was consecrated on 27th ult. The architect for the rebuilding was Mr. George E. Street. The new edifice consists of a chancel and aisle, nave, and two aisles, with porch. The old tower stands at the west end. The style is that of the 14th century. The glass in the windows has been executed by Wailes. The chancel is paved with Minton's tiles. The roof is of oak.

Birkenhead.—Messrs. Brassey and M'Cormack, the contractors, have undertaken to complete the Birkenhead Dock works on the original plans. It is understood that they will have for security a portion of the Dock Estate, and that the railway companies will guarantee the interest.—*Liverpool Albion.*

Manchester.—The chief stone of new overseers' offices has been laid in Fountain-street. Mr. Thomas Worthington, architect: Mr. Froggatt, builder. The new offices which will also be occupied by the churchwardens of Manchester, will be a three-story building of brick, with stone facings; comprising one large room on the ground-floor, arranged much like a bank, for the general clerks; on the first floor, a board-room, a waiting-room, and assistant overseer's office. On both these floors there will be fire-proof safes. The second floor will be the porter's dwelling. The cellars are to be arched and fire-proof.

Lancaster.—Mr. Thomas Ripley, of Liverpool, formerly a merchant in Lancaster, is about to build a school here, and endow it with 10,000*l.*

Skipton.—On 22nd ult. the first stone of the church of St. Mary, Skipton, was laid by the vicar. The new church is on a site given by Mr. James Sidgwick, the proprietor of the Kirk estate, and very near the probable site of the ancient church of St. Mary and St Cuthbert, in Embsay, built A.D. 1123, but removed (1150) to Bolton. The funds for the erection of the new church were raised chiefl

by the late curate of Embsay, the Rev. C. Spackman; and the church is intended for a population exceeding 1,000. Mr. Shaw (of Leeds) is the architect.

Aldborough.—The standing orders have been complied with by the promoters of a measure for constructing a harbour of refuge at Aldborough, and to improve the drainage of the lands by the rivers Alde and Ore. The undertaking is proposed to be carried out by Town Commissioners. The estimate of Mr. Bruff, engineer, for constructing the harbour and works, is 60,000*l.*, and the probable amount of tolls and rates 5,000*l.*

Newcastle.—The committee of the Newcastle Mechanics' Institute, of which the late George Stephenson was a founder, and many years a member, have accepted our hint. They have convened a meeting of the members, to consider the propriety of procuring a building for their accommodation, to be called "The Stephenson Institute," and serve as "The Stephenson Monument."—*Gateshead Observer.*

Dundee.—The royal arch is now about to be handed over to the keeping of the harbour trustees. The architect, Mr. Rochead, and the builder, Mr. Harvie, have been paid, and other balances cleared off, and a plate alone remains to be engraved recording particulars.

Glasgow.—Early in 1850 a Smoke Committee was appointed by the authorities to vindicate the law. They have now appointed an inspector, and the war against smoke has commenced in earnest. All parties continuing to offend after 1st March are, it seems, to be proceeded against *en masse*.——Three plans have been submitted to the Police Board for improving the approach to the Infirmary and Cathedral. They were prepared by Mr. Brown, architect, and contemplate the depression of the mound of earth to a depth of 10 feet, thus excavating 10,000 square yards of rubbish, and opening up the foundations of the Old Bishop's Palace. The approach to the Infirmary would then be by two flights of steps, winding round in front of the entrance, and the sunk floor of the Infirmary would either be covered with a screen wall and parapet, or veneered as a basement story, having in front a low screen wall. ——Can anything, says the *Gazette*, be more barbarous than the manner in which many footpaths in Glasgow are covered with cinders, including great quantities of clinkers as large as brickbats? These are strewn over the footpaths, and left without any attempt being made to level or break them. Surely the authorities might afford a garden roller, to be passed over the surface, to smooth and consolidate it. George's-road is worth going to see, as a specimen of *intelligent* footpath mending.—— The trustees of the bridge over the Kelvin, at the end of Woodlands-road, intend to apply to Parliament for powers to erect a new bridge on the present site, and to improve and widen the approaches.——The annual meeting for the distribution of prizes to the students attending the Government School of Design was held on Tuesday in week before last,—Mr. Sheriff Alison, president of the institution, in the chair. Mr. Wilson, the head-master, read the report, which stated that the number of students who had attended since the vacation ending on 1st September last, exceeded all former experience. During November 476 students were entered on the books. The great majority are "pattern drawers" or artizans. The chairman mentioned that he would give a prize of five guineas for a subject to be chosen by the Committee of Management, and though he had had no communication either with the Lord Provost or Mr. S. Dalglish, he ventured in their names to offer similar amounts for prizes.

ARCHÆOLOGICAL DISCOVERIES AT LANTONY PRIORY.—Some remains of the chapel have of late been found in excavating for a branch railway: two stone coffins have also been dug up.

RAILWAY AT HYTHE.—A public meeting was held at Hythe on Tuesday week to consider as to the adoption of a branch line of railway from the South-Eastern to Hythe. A report on the proposed route, drawn up by Mr. J. Messenger, was read at the meeting.

SIGHTS AND SCENERY.

Theatre Royal, Drury-lane.—Mr. Bunn has made great efforts to secure public support. On one night we have had the *début* of a whole body of new singers in "Robert the Devil," and all, to a certain extent, successful; on another, the re-appearance of the most refined actress on the English stage, Mrs. Theodore Martin, or, as she is still called, Miss Helen Faucit; and on a third, the advent of our best tenor, Mr. Sims Reeves, in "Fra Diavolo:" the latter piece is well got up, and has some very pretty scenery. In "Robert the Devil" the usual anachronism is shown in the scenery, a style of building being represented which did not arise till long after "Robert" died. This, however, did not interfere with the complete success of the performance. A new ballet is announced, in which the scenic artists will have an opportunity of showing what they can do.

Theatre Royal, Haymarket.—The scenes in Mr. Howard Glover's new opera "Aminta," painted by Messrs. Morris and O'Connor, are exceedingly good, especially the first and last. The first is a Spanish landscape of mountain and wood, studded with villas and campaniles; the other, a colonnaded court-yard, not far in character from the engraving we give in our present number of the arcade of the "Generalife," near Granada. The music of the opera is pretty, rather than learned, and is very pleasingly sung by Miss Pyne, Mrs. Caulfield, Harrison, and Weis.

AMERICAN BUILDINGS.

FROM a compact and useful little book, called *The Boston Almanac for* 1852, we glean the following scraps of information:—

The Library of Harvard University.—Gore Hall, Cambridge, Boston, was begun in 1837 and finished in 1840. The building is in the Gothic style of the fourteenth century. It forms, in its plan, a Latin cross; the length of the body being 140 feet, and that of the transepts 81½ feet. The towers, buttresses, drip-stones, and all the parts which form projections, or the sides of openings, are finished with hammered Quincy granite; while the walls are rough, but laid in regular courses. The principal fronts are towards the south and the north, with octagonal towers 83 feet in height. The general design of the exterior is taken from that of King's College, Chapel, Cambridge, England. In the construction of Gore Hall, great care was used to guard it from destruction by fire in after ages. Wood was not used in the roof, except the boards or laths to which the slates are fastened. No timber was used in the main floor, which rests upon brick vaults, fitted to a level upon the spandrels; and wood was rejected in all parts of the building wherever stone, brick, or iron could be substituted with due regard to economy and permanency. The library at this time contains about 60,000 volumes. There are three other libraries or branches belonging to the University, making a general aggregate of 90,000 volumes. The entire cost of the building was 73,512 dols.

U. S. Armory, Springfield, Mass.—The main building is the new arsenal. This is 200 feet long by 70 feet in width, and 50 feet in height. This building is three stories high, and is sufficiently large for the storage of 100,000 muskets. The front is ornamented by a pediment 70 feet wide by 12 feet in depth. The tower is 89 feet high, and 29 feet square, above which the flagstaff rises 60 feet. Another prominent building, 400 feet long by 55 feet wide, and two stories high, is used for the storage of musket stocks and lumber. A sufficient supply of seasoned timber is kept for four years' manufacture of gun-stocks. On the hill are erected ten dwelling-houses, and six workshops, all owned by the government.

The M'Lean Asylum for the Insane.—This is a branch of the Massachusetts General Hospital. It was opened in October 1818. The asylum is located on one of the prominent hills in the new town of Somerville, about one mile north-west of Boston. 2,030 patients have been admitted during the fourteen years ending Dec. 31, 1850. Of this number 1,901 have been discharged from the institution; of these 1,026 had entirely recovered, and 644 had partially recovered. During the same period 227 died. At the close of the last year there were 200 patients remaining under treatment, while the average number for the year was 201. The lowest rate of board is 3 dols. per week. The expenses of the asylum for 1850 were 40,623 dols.—expended as follows: for stores, 17,627 dols.; wages, 6,173 dols.; salaries, 4,500 dols.; furniture and improvements, 10,310 dols.; diversions, 1,332 dols.; miscellaneous, 681 dols. The asylum has undergone considerable improvements during the past year. It has been recently furnished with two billiard tables for the use of the insane, and a conversation and reading room, where the inmates may daily meet for recreation and intercourse. The male boarders and female boarders have apartments in buildings entirely separated, and attended solely by persons of their own sex. A large portion of the inmates are sustained, and with all the essential advantages which any can enjoy, at rates much below the actual cost; while the calls upon the rich supply the deficiency between income and expenditure.

The State Lunatic Asylum, Worcester, Mass.—This building was partly erected in 1831 and 1832, under an Act of the Legislature. It was afterwards at various times enlarged, especially after 1842, when a large bequest by a Mr. Johonnot was realised. The present buildings have an entire front of 520 feet. There are five wings of 100 feet in length. The centre of the building is four stories high, with a front of 76 feet. The remainder are three stories high and 36 feet in width. The entire cost of the buildings, with the furniture and the several enlargements from time to time, was about 157,600 dols. The number of rooms provided for the use of patients in August 1851, was 386. There are forty-one rooms for other purposes. The entire number of patients at the same time was 472, viz., 239 males and 233 females.

The State Reform School, Westborough, Worcester County.—This institution, for the reformation of juvenile offenders, was established in 1846. It is intended for boys under sixteen, and will accommodate 300. In 1850-1, 331 have been at times within its walls. The school, in all its departments, bears no resemblance to *a prison*: the boys are led to forget the *past*, and to look forward with hope to the *future*. There are four grades in the school. When a boy enters the institution, he is placed in the third grade: if his conduct is not good, after admonition, he is degraded to the fourth, as a punishment. If he improve in his behaviour, he is promoted to the second grade; and should he continue to improve, he is promoted to the first grade, after a lapse of two months. There is also a subdivision of the first grade, known as the class of *Truth and Honour*, a degree which indicates the highest rank in the school. These grades do not refer to intellectual progress, but are confined to the moral standing of the inmates, and apply to their conduct in the schoolroom, in the workshop, on the playground, or the farm. The expenses of the institution for 1849 were 29,991 dols., and for 1850, 29,261 dols. This sum is larger than it will be hereafter, because several thousand dollars were expended in buildings, improvements, &c., which will not be repeated. The average expenses of each boy at the school are about 34 dols. per annum; while the average cost of the inmates of eleven different state prisons is 67 dols. per annum. Westborough is near the Boston and Worcester Railroad, about 32 miles from Boston.

THE ARTISTS' CONVERSAZIONE.—The first of the meetings under this name, for the present season, was held on the 31st ult., at the Freemasons' Tavern, when, as usual, there was an interesting collection of works of art. The second is fixed for the 28th inst.

AN APOTHEGM.

THE Architect, who raises in the air
Enormous structures, massive, grand, and fair,
Leaves to the world the genius of his mind;
And is a benefactor of mankind!

ANDREW PARK.

WARMING RAILWAY CARRIAGES.

It appears that the Great Northern Railway Company have commenced to warm their carriages on the "through" trains by the introduction of "foot-warmers." This is a start in the right direction; and, what is more, it is truly the beginning of a system which must become general on every railway throughout the three kingdoms. There is no practical difficulty to be overcome in making a railway carriage warm and perfectly comfortable; so that the most delicate person may travel from "Land's-end to John o' Groats" as snugly and cosily as if he had his feet on the hearth-rug of his drawing-room, with the curtains drawn and a warm fire in the grate. It is now upwards of six years since I detailed a plan for the accomplishment of this, and brought it before the public through the columns of the *Liverpool Journal*. The article was extracted by more than one metropolitan journal, and was commented on pretty generally, but nothing came of it. Railway directors, in the days of their prosperity, were not prone to patronise the schemes of an outsider, especially where there would be a little extra trouble to the officials, much comfort to the passengers, but probably no more pay, the full toll being already exacted. A little wholesome competition will, however accomplish wonders; and we shall not be obliged to pay the terrible penalty of being half-frozen through a long journey, when it is proved to demonstration that at a very slight extra cost to the companies, we may be carried swiftly, safely, and warmly.

Robert Rawlinson.

P.S.—The warming-feat (qy. *feet*) has long been accomplished in the swift boats on English and Scotch canals, as also on American and continental railways.

LECTURE ON MACHINES AND TOOLS, FOR WORKING IN METAL, WOOD, AND OTHER MATERIALS.

In continuation of the course of lectures on the results of the Great Exhibition at the Society of Arts, Professor Willis, on the 28th ult., delivered a lecture "On Machines and Tools." He observed that whilst the departments of raw material and products in the Exhibition were copiously illustrated, and generally understood and appreciated, that of actual processes was not at all well represented, and still less were the objects displayed, understood, or admired by the myriads who thronged the building. Much distrust at present existed between the scientific man and the practical mechanic; and for this each was to blame. Self-taught and ingenious men were too apt to despise the advantages of scientific knowledge, and to hold themselves above all teaching; and with a degree of presumption which brought its own punishment, they attempted the construction of complicated machines, for the conception of which they might possess a natural gift; whereas, without scientific knowledge they might fail in combining the different motions required, or produce ultimately something which had been done long before. Scientific men, on the other hand, too often forgot the proper mode of addressing their advice and instruction to mechanics; and by a want of judgment in the selection of their illustrations, excited a prejudice which it was difficult to counteract.

There were three principal modes of working raw materials into shape; by cutting off their superfluous masses, in chips or large pieces (and to this mode time would compel him to limit his observations); by moulding or kneading the ductile; and by casting the fusible materials. The turning-lathe was one of the most ancient and simple machines applied to the former purpose. The lecturer described its operation in scientific terms, and proceeded to notice the history of machinery, in reference to some of the more important inventions. The watchmakers were among the earliest inventors of shaping-machines, in proof of which he referred to the tools they used for forming the toothed wheels of clocks and watches, and to the fusee-engine, an instrument of great ingenuity. He stated, that the first complete set of shaping-machines for the manufacture of goods in metal, were those introduced for the construction of Bramah's locks. He noticed also the famous block-machinery at Portsmouth; and in reference to the adoption of cast-iron instead of brass for astronomical instruments, he argued that the makers of such instruments must necessarily understand the use of various machines for boring, slotting, &c. which they had hitherto been unacquainted with. This general knowledge was of the greatest consequence.

The Professor proceeded, by the aid of certain simple models, to illustrate the mechanical process for obtaining a plane surface in any material, particularly by the circular saw, and the planing-machine. In the latter he illustrated ingeniously the different methods of regulating the motion which brought the work in contact with the tool, a matter of the greatest importance to the result. Some of these applications were shown in the Exhibition by Mr. Whitworth. The shaping-machine was also described, and its action shown, as also the slotting-machine, Brunel's mortising-machine, and other modern inventions.

WORDS TO WORKMEN.*

No sensible person of the working (or any other) classes will envy the higher ranks the enjoyment of luxuries—champagne and the like; things which the best men of all ages have been without, many by even premeditation, and the awe of the deleterious effects of stimulants, &c. Neither can we begrudge the higher ranks their exemption from toil and labour—an assumption only gratuitous and exceptional, because who ever eats his bread more in the sweat of his brow than the wealthy or noble sportsman?—the traveller for science or art sake in distant climes?—the overworked and fagging (*erschöpfte*) statesman and financier? Or shall we envy them their spacious dwellings, knowing that Goethe (though not poor) mostly lived in one room, in which there was no sofa, and reposed in a small iron-framed bedstead? Or shall we envy them the slakeness and tidiness of their occupation, which they often perform without "wetting their feet?" This preference also will, on closer examination, be found illusory, considering, for instance, the dire occupation of medical men, work so ominous, both physically and morally, that we will not dwell on it any further.

What working men may really envy the higher ranks for is, then, the quiet and orderly way in which they (mostly!) perform their work; the quiet and comfort, in fine, they enjoy after that work is done. Both, we say, are at the command of the working men of the present time, if they choose to think, to reflect, and to act judiciously and prudently—essential attributes, after all, of humanity; and any one, in fact, who does not possess them, places himself forcibly out of that pale he still wills or means to reach. First, then, every person ought really to possess that qualification (profession) he eventually professes to be capable of. Do you wish to obtain the reward (wages) of skilled men? Be such, and then the world will belong to the courageous (*Die Welt gohört dem Muthigen*). We do not speak of that dogged courage of the battle-field, but that energy of life and exertion to which, after all, we repeat, the world belongs. Will you possess the external rewards of the higher ranks of society; take them at once,—by acquiring their internal stamina and impulses. Act judiciously, prudently, and with skill, and you will surely be raised, because it is a curious observation, that men (mostly) soon cease to do that work they perfectly and eminently are able to perform, and rise to that which is above it!! Of course, this has its limits, the centripetal force controls the expansive one, and wisely ordained it is.

But let us reflect on the quiet and comfort the higher classes enjoy in their leisure hours at home; and so can the thinking human-like (*menschliche*) workman. It is not the range of rooms we may occupy which makes man happy, but the comfort of that one or two he actually uses and dwells in. That regularity, tidiness, systematicity which a sensible man displays in his work, he mostly transfers and conveys home. Clever men of all ranks have done wonders also in this respect. When the chemist Scheele had become famous all over the world, and visitors were anxious to see his laboratory, where he had made such great discoveries, he led them to a few shelves and cupboards of his room, a few furnaces placed outside the windows, when and wherewith all these grand things had been accomplished—all orderly, all tending and arranged for one purpose and end. The dwellings of the industrious classes have, of late, become matter of States' attention in most parts of Europe. If working men will have respect for their places of abode, they will not hire any human-unworthy (*menschen-unwürdige*) habitation. Surely architects and landlords will soon become aware and alive to that; and so also may be the internal arrangement of their dwellings,—"the luxury of order, cleanliness, tidiness," &c. To conclude, the man who will prosper in life, must make himself capable of being prosperous.

* Translated from the German,—"A New Year's Gift to the Working Men of Europe."

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

The Petersburg and Warsaw Railroad.—The Russian Government have decided on completing these huge works even in a shorter time than was originally proposed. Hence, therefore, the line has been divided into eight sections, which will be separately under an especial direction, for thus expediting the works as much as possible. In imitation of the Romans, the earth-works are to be executed by the soldiery of two separate *corps d'armée*, by which a great saving of wages will be achieved. A space of nearly three years is now assigned for the completion of this hugest European line. That between Warsaw and Moscow is also to be put into immediate execution, also assisted by the labours of the soldiery. It is a question, however, unresolved yet, whether the intense cold of these regions (at times 25 degrees Réaumur below the freezing point) may not affect, by too great a contraction of the iron in the machinery, and even the rails, the regular traffic during the winter months.

Glass Palace on the Continent.—The committee of management for the Silesian Industrial Exhibition, to be held this year at Breslau, have decided that a building similar to the London Glass Palace should be erected for that purpose. It will occupy a superficial area of 25,000 square feet, but be covered with slate, on account of the northern latitude, and as it will be probably kept for other ulterior purposes. The contractors will erect the building quite at their own risk, but receive 12,500 thalers for its present use, which will have to be obtained by the admission fees.

Brussels Academy of Fine Arts.—M. de Nievekerke has published a new set of regulations for the fine art exhibition, to be held this year in the Belgian capital. No one person can exhibit more than *three* articles, these being considered quite sufficient for the ambition or gain of any one artist. The committee on the adjudication of prizes to consist henceforth of one-half elected by the artists, and the other half by the academy. No member of the academy nor any person *decorated* can take part in these exhibitions, destined to encourage and raise nascent talent. An additional prize of 4,000 francs has been added by the minister of public instruction.——A paper by Mr. W. P. Griffith, "On the Proportions employed by the Romans in forming the Temple of Vesta, at Tivoli," has been read before the class for the Fine Arts in the Royal Academy of Belgium. It was referred to M. C. Bock, M. Baron, and M. Roelandt, who have drawn up lengthy reports upon it.

Lecture by Mr. Macready.—A lecture on poetry was given on Wednesday in week before last, by Mr. W. C. Macready, at Sherborne-house, to the members of the Sherborne Literary Institution, of which he is president.



THE ARCADE OF THE GENERALIFE, SPAIN.

THE GENERALIFE, NEAR GRANADA.

This drawing is a view of the Arcade of the Generalife, a summer palace built by the Moors about a mile out of Granada. Its architecture is of a graceful character, and its present warm cream-like tint adds vastly to its charm—a charm ruined by the use of gold, red, and blue, as exemplified by the restorations now going on at the Alhambra. This palace is likewise remarkable for the most exquisite gardens which, by means of an ingenious irrigation, enjoy a perpetual summer. It is now, though the property of a noble family, in a state of decay and desertion. The accompanying illustration is from a drawing made for us on the spot.

TAXES ON PRUDENCE.

SIR,—I hold a situation in an eminent London Fire Assurance office, and am forcibly struck with the injurious effect of the duty and charge for the policy stamp.

A working man entered the office the other day, and inquired what was the charge made by the society for assuring 100*l.* on personal effects and furniture. The answer was, "One shilling and sixpence, if a brick-built house." "And is that all? Why, I thought it cost a deal more than that. Five or six shillings, at the least." Upon this it was explained that though the charge made by the company for the assurance of 100*l.* was only 1s. 6d., the *cost* of effecting such assurance was really 5s. 6d. This naturally led him to ask how that could be; and I leave you to judge of the perplexity of the honest man, when informed that the Government duty was 3s., and the policy stamp 1s.!! Finding this sum beyond his means, he thanked us for our civility in explaining the matter, but regretted to say he must remain as he had hitherto been—uninsured.

Such barriers to the extension of prudence ought surely to be removed, and encouragement held out by Government to all who desire to play the important part of self-helpers in the great social drama.

AN INSURANCE CLERK.

THE ASSESSMENT OF THE HOUSE-TAX.

THE principles of the assessment of dwelling-houses, tenements, and all other hereditaments, however correctly defined by the Legislature, or expounded and further illustrated by the decisions of the Court of Queen's Bench, in their relation to the assessment of beneficial occupations generally to the house-tax, now involve an anomaly, and therefore a complexity of adaptation in the latter case, to which public attention may be rightly directed. The house-tax can be taken either upon the returns under the property-tax, or upon the actual rental returned by the tenant. This actual rental may be received from various tenures; viz., from tenancy commonly called "by will," or more properly from year to year, or on lease, &c. If on lease, the actual rental may include a sum charged to the tenant for goodwill, for the use of fixtures or machinery; in short, for premium in any shape. The question, therefore, arises, should the house-tax be paid upon the amount returned by tenants in possession, upon sometimes arbitrary tenancies, or upon the sum at which such properties may be assessed to the poor-rate, where such assessments are made according to the Parochial Assessment Act? The object of this Act is, that all assessments should "be fair, just, and uniform," and therefore a practical coincidence between the impost of the house-tax and all rates made for the relief of the poor should first be sought to be established, and if so, as rigorously maintained. By thus proceeding, much complexity would be obviated, uniformity might be secured, and each assessment, if correct, would mutually sustain the other, and the determination of the amount rated upon having been fixed before the house-tax came in force, all suspicion of *adjustment* to alleviate the latter effectually removed.

Among many instances of the unjust assessment of the house-tax are chambers and premises attached and belonging to the Temple, Lincoln's-inn, the various other Inns of Court, and all similar occupations. Covent-garden Market, also, is now the subject of much controversy, and these, *cum multis aliis*, present additional illustrations of the unjust, unfair, and unequal pressure of the house-tax, especially where the window-duty has heretofore never been paid. As such instances are of frequent occurrence, not only in the metropolis, but throughout the whole kingdom, the consideration of the subject is a matter of great importance, wherever house property is affected by the impost.

It may not, by way of illustration, be irrelevant to state that in Covent-garden Market each shop, tenement, or occupation, including three public-houses, is held direct from the Duke of Bedford at only weekly rentals, varying from 9*s.* to 2*l.* 10*s.* Each tenancy, where chargeable to the house-tax, has been charged by the collector at a sum which is the result of such weekly rental multiplied by the number of weeks in the year, and upon this sum the house-tax is now proposed to be collected. This circumstance has been more noticeable since it is perfectly at variance with the principle of uniform rating, and which principle one parochial surveyor is represented to have adopted in a survey completed since Christmas last under the direction of the churchwardens, &c., for the purpose of the "rector's-rate."

Should this principle be correct and legal, it hence must follow that all occupations, whether weekly, monthly, or annual, like chambers in the Temple or Inns of Court, or any other similar holdings, where held upon the gross estimated rental of the Parochial Assessment Act, can only be correctly assessed when assessed upon their real or net annual value, which must be at a sum less the proportionate charge of rates, taxes, repairs, and insurance (the "statutable deductions" before mentioned) all of which are necessarily included in the gross sum received by the landlord, and for the amount of such "statutable deductions" (*gross*) paid by the tenant, he is unjustly charged when so charged to the house-duty, since these items invariably influence a tenancy, and therefore, when deducted, show the "annual rateable value from year to year," upon which the house-duty ought only to be paid. Now, the objection to the adoption of the poor-rate is the want of uniformity which pervades parishes in "union," as it is termed, with each other, and also those contiguous in the same county, inasmuch as the data of assessment in one parish may be high as according to the Parochial Assessment Act, or net annual value; whereas in another it may be the reverse, and only the result of addition to or alteration of a general assessment, made so long since that no traces of its record can be found in archives of such parish. To wit, adjacent to Covent-garden Market is the parish of St. Martin, which was surveyed for the purposes of parochial assessment by Mr. Cantwell, wherein the high standard was adopted. Immediately after the survey of St. Martin's in the Strand Union, the parish of St. Paul was surveyed by Mr. Paine, who about ten years ago also surveyed the parish of St. Clement, which abuts on the Temple, and comprises New Inn, St. Clement's Inn, and a large portion of Lincoln's Inn; in which latter class single rooms or suites of rooms, or chambers, are proposed to be assessed, like the Temple and Covent-garden Market, to the house-tax upon the *gross estimated rental*, instead of *real* annual value. As chambers in Lincoln's Inn in some cases realize upwards of 300*l.* a-year, the subject becomes of the greatest importance. The anomalies presented by a comparison of poor-rate with property-tax, or house-tax returns is a serious and existing evil, which legislative enactment alone can remedy. Nevertheless, the assessment of the house-tax upon *gross estimated rental*, as herein set forth, can always be proved to be in contravention of the Parochial Assessment Act, which an appeal to the commissioners will most probably mitigate or effectually remedy.

SCULPTURED STONES IN THE NORTH.

THE Spalding Club are commendably engaged in the preservation of authentic records of the many curious and extremely ancient sculptures on stones in the north of Scotland. Drawings and lithographs have already been collected relative to fifty of them. At a recent meeting, the secretary, Mr. Stuart, stated that he had transmitted a copy of the engraving of one of these stones—that at Newton, in Garioch—to Lieutenant-colonel Sykes, who took the trouble to obtain the report of Mr. Norris, one of the secretaries of the Royal Asiatic Society. They concurred in opinion that about ten of the characters of the inscription were absolutely identical with those of the ancient Lat alphabet of the Buddhists, one of the oldest Brahminical alphabets in India!

It is said to be a curious circumstance that a greater number of the ancient vegetable and animal accompaniments of civilized life are to be found concentred in Thibet, the seat of the Buddhist pope or god—the Llama—than elsewhere throughout the known world, and it may hence be reasonably concluded that Thibet was a common centre whence they were distributed, probably along with some emigrant races, throughout the continents of Europe and Asia and their adjacent isles. A recent writer has hit upon an idea closely akin to this in the suggestion, which he works out, that a great exodus of Buddhists took place from India, by Affganistan, when the Brahminical sect overcame the Buddhistical, and that the expelled sect colonized Greece, Italy, Egypt, &c., by Buddhist propaganda, who spoke of the empire whence they came, we presume, as a *celestial* one, as well as of their Llama as its supreme *god*, Zeus, or Jupiter. It will, therefore, bear curiously on such ideas, if it be found that there are Buddhist traces in the extreme antiquity even of our own little "isle of the sea."

At the meeting alluded to, Mr. Thomson, of Banchory, remarked, that "Recent researches made it more than probable that the uncouth figures upon these stones spoke a language which might yet be deciphered and read—as had been the case with the hieroglyphics of Egypt and Mexico, and the nail-headed characters of Persepolis and Nineveh. The Spalding Club, therefore, could confer no higher boon on our ancient history and literature, than by securing correct and faithful representations of these monuments, for the purpose of study, by accomplished scholars, both at home and in foreign countries. Many of these stones were already known to exist, but many others might probably be discovered when once public attention was directed to them, and nothing was more likely to have this effect than the publication of engravings by the club."

DISCOUNT FROM TRADESMEN.

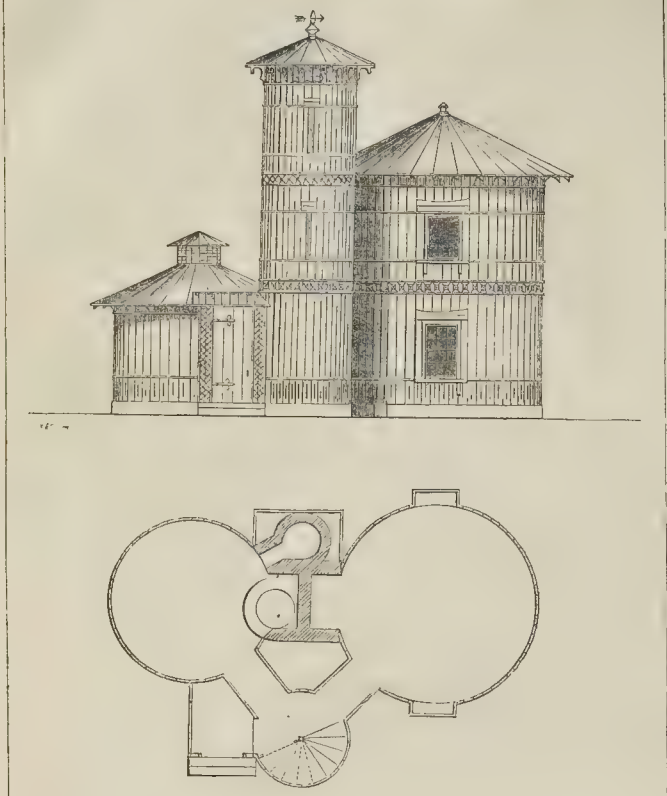
KNOWING how much you have the honour of our profession at heart, and believing that I speak your sentiments when I express my opinion that an architect can only hold the honourable and independent position which he ought to possess, by placing his conduct and actions above suspicion, and which he *must* hold, to do his duty to his employer and to the contractor employed under his superintendence,—for that he has duties and responsibilities to both, I think few will question,—I can hardly doubt that the inclosed advertisement, published in a weekly paper of respectability and considerable circulation, will give you as much pain, and cause as much indignation with you, and with the majority at least of the profession, as it did with myself. The advertisement in question is from a dealer in stoves, who, in giving reasons for being able to sell so much cheaper than other persons, says:—

"And last, not least, from the non-allowance of the *usual* discount of 10 or 15 per cent. to *architects*, builders, &c., on the amount of goods sold through their recommendation, by which arrangement the price of such goods is of course enhanced to, at the very least, the extent of the discount."

That such practices as are here referred to once unhappily were in vogue in our profession, and that much of the suspicion that even still is felt by many towards architects was very properly the effect of such practices, is but too well known, but that the disgraceful custom of defrauding an employer, for it can be called nothing else, in the mode alluded to in the advertisement, was still so much a matter of custom, as to allow so business-like an allusion to it as is here found, I was not prepared to suppose, and can hardly still believe, more especially when I remember the perfect incredulity with which an allusion to its being still partially in practice was received some months since at a meeting of the Institute of British Architects by some of the heads of the Profession. I cannot therefore doubt that you will feel yourself empowered, in the name of architects generally, indignantly to disclaim the justice of so foul a blot being thrown upon our fame and honour as a profession of gentlemen, that the advertisers may learn that architects who could lend themselves to practices so unprofessional, and destructive of all confidence from employers, would be scouted by those who love their art and feel a pleasure in considering that its practice is at once a mark of a gentleman and a man of honour. A YOUNG ARCHITECT.

UNROLLING OF THE BODY FOUND IN ST. STEPHEN'S CHAPEL.—A number of gentlemen assembled on Saturday last for the purpose of examining the body enveloped in a cerecloth or sack in the north wall of St. Stephen's Chapel; but no record, document, or any thing else of interest was found besides the crook already described. It was generally agreed, however, that the body was that of Lydwolfe, Bishop of St. David's, and, therefore, of about the date we suggested, namely, the middle of the 15th century.

TUB HOUSES. PLAN AND ELEVATION.



TUB HOUSES.

A patent has been granted to Mr. George Tate for the construction of houses and other buildings by fitting together staves, or other pieces of timber, secured together by hoops or binders, and fixed by any suitable method practised by builders, either vertically or horizontally, at any height, upon piles, sleepers, or frames, securely fastened in the ground; the joints of the pieces or staves, when necessary, being bevilled as required, and wrought either plane or rounded, and hollowed or dovetailed, or tongued and grooved, or glued up or caulked, or merely drawn close together by the hoops. In the construction of buildings of greater height than the length of the staves or pieces employed, the horizontal jointings are to be made to break joint with each other. Such houses, he says, may be formed one within the other, so as to leave spaces between.

The floors, roofs, and partitions are to be formed on the same principle as the shell part of the building, that is, by tightly wedging up staves or pieces of timber, or other material of short lengths, according to the depth of the floor, roof, &c., in concentric rows, within an external hoop or other binder, and running the interstices solid with glue or other viscous and siccative matter, mixed or not with earthy or mineral matter.

The pieces may be dyed, or stained, or moulded, so as to form patterns, and to be trennailed or fastened together if necessary. The walls, whether internal or external, the inventor states, may be ornamented by the crystals of salts being deposited in the usual way on glass, and then fastened to the walls by applying glue or cement at the back.

The annexed engraving exhibits a dwelling complete, constructed according to this invention. The hoops or fasteners, he says, should be so arranged as not to interfere with the openings required, such as doors and windows, and the staves or pieces and hoops may be painted or otherwise preserved from decay.

We have given these particulars for the novelty of the thing. The patentee sets forth that the object of his invention is to afford the working classes "cheaper and better accommodation than heretofore," and doubtless he is able to point to circumstances under which the proposed arrangement would be found useful. For our own part, however, we have no desire to see the exclusive right of dwelling in a tub, long possessed by Diogenes, interfered with, and would rather aid in obtaining for the working classes habitations of a more durable and less combustible character. A joker at our elbow suggests that the proper inscription for such a structure (built literally to "stave off" the weather) would be, "This is a house, all Butt."

Steam-Engine Improvements.—Mr. J. Hick, of Bolton-le-Moors, engineer, has just patented some improvements in steam-boilers or generators, which consist in the arrangement of two boilers, end to end, with an intermediate space or gas chamber, two of the sides of which are formed by the ends of the two boilers, while the other sides are constructed or lined with brick or some other slow conductor of heat. Mr. Hick claims the arrangement of two or more steam-boilers or generators with a gas-chamber formed or lined, and situated as described, for effecting a more perfect combustion of the products of the fuel.

OPENING OF THE VICTORIA TOWER, WESTMINSTER.

On Tuesday, February 3, Queen Victoria, for the first time, entered the New Palace of Westminster by way of the Victoria Tower. In the evening the line from Old Palace Yard to the Great Tower presented a very gay and imposing appearance, especially from the new entrance called St. Stephen's Porch, southward, the whole of the new buildings being brilliantly illuminated, including the large storied window at the end of Westminster Hall (or, more properly, which flanks St. Stephen's Porch), and the Great *Porte Cochère*, formed by the Victoria Tower, in each corner of which was a lofty standard gas light enclosed in a lantern. The lights outside the windows of the House of Lords were, of course, in use, converting the rich stained-glass windows into transparencies—a novel and happy idea, which we have every reason to believe was first proposed in our pages. In reply to some inquirers: so far as we know, the Tower is intended to be continued of its present plan, square, with octagonal angle turrets, to the top. The ultimate design of the upper part is not yet fully determined. The present height we believe to be about 160 feet from the ground.

THE SOCIETY OF ARTS' PRIZE COLOUR BOX AND CASE OF INSTRUMENTS.

There has been a strong competition, it appears, amongst British and foreign colourmen and instrument makers for the prizes offered by the Society of Arts, and the consequent profits of the sale to the public of the selected articles. The quality of the articles in general is really surprising, considering the prices. The committee, however, had to guard against the motives, in some cases, to the production of such excellence, inasmuch as the award of the prize might mainly be striven for as an advertisement to forward the general interests of the manufacturer, without much practical or permanent benefit to the public. The Society, however, will enter into stringent arrangements with the successful candidates for the unlimited public supply of articles fully up to the mark of the prize specimen. They have not yet decided on the successful candidate for their approbation in the manufacture and sale of instruments; but that the offer of a prize in the circumstances will lead to the adoption of sets of instruments of remarkable cheapness, the display on the Society's tables sufficiently assures us. The committee may be said to have decided as to the colour-box, having chosen Mr. Rodgers as the recipient of the silver medal offered for the best that can be made for one shilling; but the award is not yet published, as the committee have remitted the prize specimen to Mr. Rodgers for some minor modifications.

Notices of Books.

A New Gazetteer or Topographical Dictionary of the British Islands and Narrow Seas, comprising concise descriptions of about sixty thousand places, seats, natural features, and objects of note, founded upon the best authorities; full particulars of the boundaries, registered electors, &c. of the parliamentary boroughs; with a reference under every name to the Sheet of the Ordnance Survey as far as completed, and an Appendix, &c. By James A. Sharp, Esq. Part I. Also complete in Two Vols. London: Longman, Brown, Green, and Longmans. 1852.

The main objects of this work appear to have been to include as many headings as possible, with a small type and numerous abbreviations, in a compass as small as possible. To these very useful objects everything else is sacrificed,—perhaps, in these days of railway ramifications, and of local guides and other topographical and geographical publications, very properly so. A gazetteer may now very fairly be limited in its uses to mere reference, as an indicial skeleton to all that is most practically useful or interesting as to any one locality; and to this end we may say that we have never seen anything like this new work, although

many such have passed through our hands. The compiler has gone the right way to work in the production of this compendium. He has taken everything he required from the best of previous authorities, as he frankly admits; and, thus standing on the labours of previous compilers, he could not but well accomplish his end of extracting the quintessence of each, and, with industry and intense condensation, combining the results of their labours into one focus,—at a sacrifice of many of the excellencies of each assuredly, but with an immense accumulation of their varied stores. Most especially of all we can perceive that this author has made good use of the idea first embodied in the Parliamentary Gazetteer of England and Wales, published by Fullarton, of ransacking all sorts of Parliamentary blue books for valuable statistics of every kind connected with the localities described; and the dissection of the ordnance surveys may be regarded as a suggestion based on the same idea: indeed, the author acknowledges his obligations to the work in question in a general way, as well as to Lewis, Chambers, Carlisle, and other "general writers," as "the best authorities." He has also made good use of the multitude of special guide-books. In thus acknowledging the general merits of this work, however, we take it for granted that the author has carried his plan throughout quite up to the mark of the portion which is now before us.

Painters, Grainers, and Writers' Assistant. By E. Barber, Patentee of the Granite and Graining Machine. Elliott, New Oxford-street. 1852.

This *brochure* consists of a number of receipts and instructions for mixing various colours, imitating woods, &c. A correspondent from Jersey asks us to give him "the ingredients (and the proportion in which they are to be mixed) for tinting ceilings of a clear and delicate French grey." The book we are mentioning says of the colour in question,—"Whiting predominates in this colour; it is treated as the other greys, but with this difference, that it admits of lake instead of black. Take the quantity of whiting necessary, and soak it in water; then add Prussian blue and lake which has been finely ground in water. The quantity of each colour should, of course, be proportioned to the warmth of colour required." A superior colour, we think, could be made from French ultra marine, and a very small quantity of Indian red. If lake be used, a little yellow would be useful.

SERIALS.

The Journal of Design (Chapman and Hall), is brought to a close with the present number, which completes the 6th volume of its useful career. It contains many valuable essays on the principles of design, and will continue to be a book of reference. A writer in the present number bears testimony to the value of the drawing classes at the London Mechanics' Institution.

The Journal of Physical Regeneration. (Gilpin.) No. I. This purports to be "a monthly epitome of public health." Sanitary measures on the part of its conductors will be needed if long life be desired. The present part is weakly in constitution.

Curiosities of Industry. (C. Knight.) The fifth part of Mr. Geo. Dodd's very interesting work treats of the modern varieties of printing, and a contrast between cotton and flax *apropos* of the Claussen process. The writer gives the following description of Messrs. Marshall's flax mill at Leeds:—

"Instead of having several stories, tiers, or floors, one above another, as is usually the case, the whole is here thrown upon one floor—to insure convenience of supervision, facility of access, uniform temperature, good ventilation, and simplicity of machine arrangements. This monster room is nearly 400 feet long, by more than 200 broad: it is five times as large as Westminster Hall; and, until the Crystal Palace was built, this Leeds room was deemed the largest (or nearly so) in the world. The room has a vaulted ceiling, formed of about seventy domes, having skylights at their upper extremities, and being supported by iron pillars. These pillars, as at the Crystal Palace, serve also as water-pipes, to convey the drainage from the roof. The roof, presenting an area of nearly two acres, was a few years ago covered with mould and grass, so that one could literally take a walk in a green field on the roof of a factory: whether this arrangement is still maintained, we are not aware. The interior of the room is filled with beautiful machinery, for performing all the various operations on flax; and beneath are vaulted passages, which contain all the arrangements for supplying steam power, warmth, and ventilation to the hive of busy operatives working above. It is certainly a triumph of engineering and mechanical skill, when such a building is filled with the finest machines which modern ingenuity can produce. How much mind, how much capital, how much labour must have been thrown into such an assemblage! How do we here trace the accumulation of many years' experience—the bringing to bear upon one object of so many distinct agencies and sources of power, mental and material, social and commercial!"

Cyclopædia of Useful Arts. (George Virtue.) Part VI. brings us up to "Candle,"—a good omen for the light that is to be thrown on all things and ways by Mr. Tomlinson. The article "Bridge" contains a full exposition of the Britannia Tubes.

Miscellanea.

Builders' Benevolent Institution.—The annual ball of the above useful charity, to be held at Willis's Rooms, St. James's, on Thursday, the 19th inst., under the patronage of the president, Mr. Thomas Grissell, F.S.A., Lord Dudley Stuart, M.P., Sir Benjamin Hall, Bart. M.P., Mr. Alderman W. Cubitt, M.P., and other influential gentlemen, promises to be on a scale of completeness that cannot but ensure approval. We trust the public will not be slow to patronise this valuable and deserving charity which has afforded relief to many decayed members of the trade, and to encourage the officers of it in their endeavours to extend its benefits. We have also the gratification of announcing that another election of pensioners will take place in the month of May next; and that the directors have recently made a bye-law empowering them to appoint distinct committees in the provinces, thus extending the benefits of the institution to all parts of the kingdom.

Rugby Water supply and Drainage.—On Saturday week the new works of water-supply and drainage under the Public Health Act, for the sanitary improvement of the town of Rugby, were inspected by the Commissioners of the General Board of Health. The Earl of Shaftesbury, Mr. Chadwick, and Dr. Southwood Smith, attended by some officers of the General Board, visited the works. The most conspicuous of these is a high water-tower, containing a tank to supply the town during Sunday, or in case of fire, or in the night, and to give pressure in the distribution of the water, and avoid the necessity for continuous pumping. The next work inspected was an under-ground reservoir, covered with groined arches. A portion, yet unclosed, of the cuttings of drains for the collection of the water was then visited. Deep drains have been cut into gravel, and the water may be drawn off at will, as from a reservoir, for the supply of the town. The property of the water, in respect of hardness, was said to be equal to eight degrees, while that of the existing town wells varies from sixteen to twenty and even thirty degrees, and that of the streams in the neighbourhood is generally of eighteen degrees. The length of main collecting pipage now laid is 2¾ miles. The drainage works were afterwards inspected. The sewers are of impermeable stoneware tubes. In several cottages the cesspools had been filled up, and a water-closet apparatus substituted. The water service-pipes are of tin. The average expense of improvements for each cottage, it is estimated, might be repaid in the shape of a private improvement rate of about ¾d. a week.

Accident to a Railway Viaduct.—On Friday week part of the trussings at the railway viaduct, Hoo Brook, Kidderminster, was blown down. The damage extends over about five of the abutments, which being placed 51 feet apart, makes a total of between 80 and 90 yards.

Birmingham New Workhouse.—In our article under this head, last week, we stated that by private subscription of the guardians, *the officers of the workhouse*, and the contractors, three stained glass windows had been placed in the chancel and aisle of the chapel. We are asked to say, however, that the subscriptions were by no means limited to the officers of the workhouse, four only of whom, —namely, the late master and his clerk, the matron, and surgeon contributed; whereas, among the officers generally who subscribed, and some of them rather largely, to the fund, were, the clerk to the board of guardians, the treasurer, the district auditor, the six district medical officers, the several officers of the infant poor asylum, the four relieving officers, the out-relief pay-clerk, the levy clerk, assistant overseers, and collectors, four in number, and other officers, none of whom come under the denomination of "officers of the workhouse," and to whose willing and liberal aid in promoting the object in question it is only an act of justice to record the fact we now place before our readers.

Liverpool Architectural Society.—The usual fortnightly meeting of this society was held on Wednesday, 28th ult., Mr. Picton in the chair. Mr. F. Howard exhibited five drawings of candelabra, which he had executed for the Goldsmiths' Company in London. These designs were each adapted to a particular cost, the highest of which was calculated at 3,000*l.*, and the principal subject of which was Richard II. granting the charter of incorporation.—The Ventilation of St. George's Hall was explained by Mr. M'Kenzie, who exhibited, by a drawing, the whole machinery by which that extensive building is supplied with cold and hot air. The chairman said that the working of the whole affair would be very expensive. A discussion followed, in the course of which it was stated by Mr. M'Kenzie that it required a week to get up the proper temperature.

Statistics of Strikes.—In 1836, the operatives of Preston, to the number of 8,000, struck work for thirteen weeks, and the loss, in a mere monetary point of view, to the town and trade of Preston was calculated at no less a sum than 107,196*l.*, whilst from twenty to thirty thousand individuals were reduced at once to a state of starvation. In the same year the cotton-spinners of Glasgow struck for a period of seventeen weeks. The total loss to Glasgow amounted to 194,550*l.* In 1834, the result of the combination of colliers in Lanarkshire and the two adjoining counties, was equivalent to a tax on the inhabitants of 489,000*l.* for a period of eighteen months, besides a loss to the colliers themselves, their employers, and others, during a strike of six months, of 189,000*l.* In this strike it is also calculated that between forty and fifty thousand human beings were rendered destitute.—*Liverpool Mercury.*

Provincial Schools of Design.—On Monday week a general meeting of subscribers to the Norwich School of Design was held, when it was resolved to appoint a new working committee, five to be a quorum, and the three who had attended the least number of times to go out at the end of the year and not be re-eligible. The school now comprises 83 students, and is on the increase.——A movement has begun amongst the operatives at Wolverhampton, for the purpose of contributing towards the establishment of a school of design in that district. A preliminary meeting was held on Friday week, when various appropriate arrangements were made to forward the object in view.——The annual meeting of the Manchester school was held on Wednesday week, Mr. J. Brotherton, M.P., the president, in the chair, when the usual reports were read, and the meeting was addressed by various speakers. The report of the head master, Mr. J. A. Hammersley, states that there has been a slight increase in the number of pupils, an inconvenience to too small a staff of teachers.——A movement is being originated at Bradford in favour of the scheme for the establishment of elementary drawing and modelling schools for artisans.

PARTIAL DESTRUCTION OF THE WHITEHAVEN JUNCTION RAILWAY.—A serious injury was done to the Whitehaven Junction Railway on Saturday week, when the sea washed down a high strong wall, and rushing over the embankment, tore up the rails to the extent of some 30 or 40 yards, and also destroyed the wall which protected the other side.

A LENDING LIBRARY OF DESIGN.—The committee of the Suburban Artisan Schools have commenced the formation of a lending library of works on design for the use of the students. Any assistance that can be given, by subscriptions for the purchase of books, or by the gift of books and works of art, will be very thankfully received.

PORTLAND BREAKWATER.—A correspondent from Portland, in explaining the present state of the works there, informs us that they are now carried out to a length of 1,750 feet from the shore line (not 7,750) out of 7,900 feet, the entire length to be executed. The engineer in chief, as we think we have before stated, is Mr. J. M. Rendel, F.R.S.

EXTRAMURAL INTERMENT.—Deputations from the parishes of Marylebone and St. Pancras waited on Lord John Russell last Saturday at the Treasury, for the purpose of suggesting arrangements advisable for carrying out some measure in favour of extramural interments. In his reply Lord John stated that he had instructed Lord Seymour to prepare a measure and carry out its details on the general principles on which they were all agreed; and that so far from its being the object of the Government to have any control in such matters, they had quite enough to do already, and had no wish to be incumbered with more.

BANK CELLARS.—The Directors of the Bank of France have just had constructed extensive cellars, the masonry of which is 9 ft. in thickness. These cellars, which, at the slightest alarm, it is said, may be immediately filled with water, are intended to receive the immense mass of gold and silver, both in coins and bars, which forms the reserve of the Bank.

[ADVERTISEMENT.]

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[ADVERTISEMENT.]

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TO THE LADIES OF THE KINGDOM AND THOSE UNLEARNED IN ARCHITECTURE.—We propose to commence, in the next number of THE BUILDER, and to continue until completed, a popular sketch of the history of architecture from the earliest times to the present day, in the shape of a series of Letters to a Lady, giving the characteristics and dates of the various styles, with occasional illustrations, references to existing examples, and brief notices of eminent structure-raisers. Our object will be to make these letters interesting and amusing as well as instructive, and to give a stock of useful knowledge in a pleasant form to some who would be otherwise deterred from acquiring it.

TO CORRESPONDENTS.

"New Buildings Act: Referees, &c." (we have several items of information on these heads in type, but postpone them for reasons) "J. M.," "C. B.," "J. C." "E. S." (thanks), "F. C. P.," "G. W." (is the society in operation? Have any houses been built?) "F. R." "W. F." (we are sorry we cannot usefully advise), "J. T." (we will look in), "F. L." "J. A. G." "T. J. H." (declined, with thanks), "A. P." "J. B.," "L. C. M.," "G. R. L." (an eaves-tile to form gutter has already been made. The proposed arrangement for keeping out the water is imperfect), "T. G." (the epitaph sent has been often printed), "F. S." (ditto), "A. B." Bristol (apply to a competent architect), "F. S.," "A. B." (under the circumstances we should trap each pipe), "T. C.," "G. R.," "G. J. R.," "B. F." "W. G. E." "A. G. H." "W. W." (see present number for reply), "Two Readers" (ditto), "A. E. H." "S. C." "J. C." "An Old Subscriber" (it depends on circumstances; but it will be safer to trap each pipe), "T. N." "C. H." "R. J."

ERRATUM.—In report of a recent trial, Mr. Lett was erroneously described by plaintiff's attorney as "district" surveyor.

ADVERTISEMENTS.

THE LATE FIRE at Messrs. COLLARD'S. The official return of the recent fire at this eminent establishment shows that, in addition to the large amount of property destroyed belonging to the firm, the working tools of their men have been likewise sacrificed. It appears, also, from the proceedings of a public meeting held for raising subscriptions to meet the heavy losses sustained by the workmen, that they were wholly uninsured. With the hope of preventing a similar calamity, the SCEPTRE LIFE AND FIRE ASSURANCE SOCIETY will grant to the persons employed in the above manufactory, and in all other manufactories throughout the empire, Fire Policies for small sums; in order to afford every facility to assurers, will appoint the foremen of such establishments special agents of the Society. Prospectuses, and all other information, may be had of the Managing Director, at the Offices, 27, New Bridge-street, Blackfriars, London.

EVENING LECTURES on ENGINEERING CONSTRUCTION.—For particulars, apply to CHARLES MANBY, Esq., Institution of Civil Engineers, 25, Great George-street; or to Mr. CLEGG, 11, Buckingham-street, Adelphi.

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The First Edition of this Work was received with much greater favour than the author had at all expected; and the sale was large, for so technical a work. To extend the use of this edition as a hand-book for the Engineer, in matters relating to Hydraulics and Hydrodynamics, many new Tables have been constructed, and Tide Tables are inserted at the close of the book, chiefly compiled from the data offered in the Admiralty Tide Tables and from the Nautical Almanac.

The introductory remarks on the use of the Tables, have been amended, and more information is interwoven, chiefly on our English rivers—the drainage areas of the more important of which have been especially computed from the Ordnance Map. In the original remarks on tides and rivers, experience and practice are the great guide; and therefore, to obtain the best data for practical results we have carefully collated all the well-authenticated data within our reach or personal experience, and had them condensed into tabular forms.—*Preface to Second Edition.*

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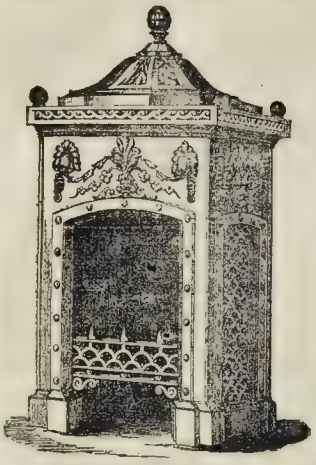
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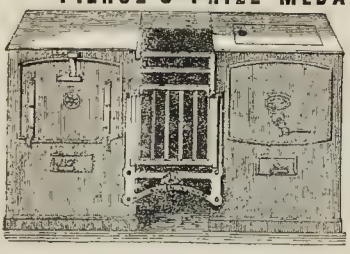
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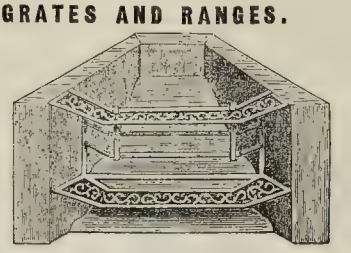
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No. CCCCLXXI.

SATURDAY, FEBRUARY 14, 1852.

ALTHOUGH the session is yet very young, several matters connected with our specialties have been brought forward in Parliament, and should not be lost sight of by our readers. On the 4th inst. in answer to a question by Mr. Osborne, as to the intended course in regard to the Metropolitan Buildings Bill laid on the table at the close of last session (and reviewed by us at the time), Lord Seymour (first Commissioner of Works and Buildings) said he had brought in the Bill with the view of obtaining opinions regarding it; and he meant again to introduce it in the present session, in order to its being referred to a committee, with the view of obtaining such information as was not to be procured in any other way. It seems strange that this should be necessary, after the many attempts that have been made: still by the means proposed (if the evidence be of the right sort, and ample,) the materials will be collected, out of which, in practical hands, a practicable Bill may be constructed. Even if this be done, as many persons qualified to afford valuable suggestions will have no opportunity of doing so before the proposed committee, or be unwilling to expose themselves to the annoyance of cross-examination and badgering; and as those who will be called to do so, however skilful and judicious, cannot be expected to represent all the experience and wisdom capable of being brought to bear on the subject; it behoves all who are in any way interested, directly or collaterally, as much as in them lies, to address themselves to its consideration, and contribute their practical deductions for the common good; to the end that a statute be obtained which shall protect the lieges, obviate official abuses, clear up legal and technical ambiguities, and withal offer no obstructions to the progress of art, and harass or trammel as little as may be private judgment and enterprise. It might even be a consideration how far the fact that any Buildings Bill, like all man's 'best laid schemes," must still be but an imperfect work (the more especially seeing the rapid strides of constructive science, which is constantly liable to render obsolete in a day our set formulæ, and thus to invoke fresh amendments), should prompt the institution of a permanent Court, not merely to carry out the letter of the law, but, having that as its basis, invested with discretionary powers, rendered safe by diffusion amongst a body elected by the united voice of proprietors, architects, and builders.

The Master Carpenters' Society have met several times on the subject, and have discussed the propriety of presenting petitions against the Law Court proposed to be established by Lord Seymour's Bill, with its dangerously arbitrary powers, and praying that the Bill to be brought in may be limited to enforcing incombustible walls and roof-covering, and that the district surveyors be remunerated by a fixed salary instead of fees. That previous Buildings Acts for the metropolis have produced confined and miserable houses for the working classes, and have failed to ensure sounder construction than is found in places where there are no legislative enactments on the subject, is certain; but the possibility of narrowing the Act to the limits mentioned is not at first sight obvious: of this hereafter. The aspect of affairs in the present Metropolitan Buildings Court has not improved. The referees and the registrar, unfortunately, still "agree to differ," and much obstruction is necessarily the result. A rule has been obtained in the Bail Court to show cause why the referees should not be compelled to adjudicate upon a requisition sent in to them relative to the erection of what was Moufflet's Tavern, on Knightsbridge-green. When this matter is argued, some of the results of these differences will probably be shown. Our business, however, is not with them just now, but with Parliament.

On the same evening it was stated that the Corporation of London had undertaken the formation of a new metropolitan *cattle market*, in place of Smithfield.

Directly after, came complaints as to the ventilation of the New House of Commons, and Mr. Hume made an attack on the stained glass windows and the metal work. As a sequence, Dr. Reid was called to the bar of the House on the 6th, when he threw the whole blame on Mr. Barry, maintaining that, although deputed to ventilate the house, obstructions were thrown in his way, so that he could not possibly effect it.

"The interior of the house," said he, "is subject to currents of air from every side, that blow hot one moment and cold the next. On the first evening that the House met doors were torn off in some passages leading to the house, from which gusts of air came into the house from every side. You might as well ask me to regulate the winds and currents of the Bay of Biscay, as expect me to ventilate the house if the doors and windows of the entrances leading to the house are not placed under my control. The second difficulty is, that there are numberless chimneys surrounding the house, which poison the atmosphere by the carbonic acid they send forth. There are torrents of smoke coming into the house and its approaches from these chimneys, so that the house stands in an atmosphere of carbonic acid. The next condition is, that the lights in and about the house should be placed under such limitations as should permit of due ventilation. I appeal to any member who will go into the corridor; there are eight doors leading into it, and not a light in it is ventilated. It is like sitting here above a gas-lamp."

For 7,000*l.* Dr. Reid said he would undertake "to build, warm, and ventilate a chamber for the Commons which would hold all the members, and allow them to see each other," and would relieve them from their principal annoyances in the present House.

On the 11th the matter was again brought forward, when the House authorised Dr. Reid to make such temporary improvements as he thought necessary. The tone of Dr. Reid's remarks was unjustifiable. We are informed on good authority that every requisition he made, with the exception of the removal of the paint on the floor, which the Commissioners of Works would not sanction, was attended to; and that the drains complained of by him were put in by his own men from his own drawings.

There have been many mistakes made in this matter, much mismanagement and bad feeling shown on one side or the other, and it is quite time that further waste of money should be stopped. We are unable to recognise the difficulty said to exist in ventilating such a chamber, when money is no object, and provision for it contemplated *ab initio*. It will scarcely be believed when we say, that 58,000*l.* have already been spent on the ventilation of the new House of Commons, and that a staff, costing, we are told, 1,300*l.* a year, is engaged to work it.

We must, at the same time, take the liberty of begging members of the House to be a little patient and reasonable, and to give new arrangements a fair trial. The inconsiderate way (if it be not a breach of privilege to say so), in which they rushed into an expenditure of thousands last session for the alteration of an untried house, might lead some to doubt gravely both their sagacity and prudence.

We may add here in parenthesis, that on the 11th her Majesty was pleased to confer the honour of knighthood on Mr. Barry.

Before the ventilating discussion took place, Lord Seymour obtained leave to bring in one Bill to regulate the supply of water to the metropolis; and Mr. Mowatt another, with the same end in view, adding to it the improvement of the drainage.

Lord Seymour said that he thought the Thames water *beyond* the tidal influence would be found a fit source of supply. He was opposed to the course recommended by the Board of Health, that of going to the sands of Surrey for a supply; did not think that the supply of water should be left to Government, but to private enterprise; that these works would be carried out with more efficiency and more economy by companies than by municipal corporations, which would be always liable to be guided by questions of expediency instead of purely by the real objects to be accomplished, namely, that of protecting the consumer from bad water, from an insufficient supply, and from extravagant charges, and that the Bill he would bring in would simply control; he thought that the source of the supply should be under the inspection of the Government, that the supply should be ample, that means for filtering the water should be provided, that the reservoirs should be covered, and that the rate of charge should be under the control of Parliament.

Mr. Mowatt said his Bill would be essentially a ratepayers' Bill. He proposed that the metropolis should be divided into seventeen distinct districts; in each district the ratepayers should have the power of electing district commissioners for the administration of affairs; that these two matters, namely, the water supply and the drainage, should be under the direction and control of such district commission; that these commissioners should have the power to elect out of their own body a given number of persons to act as special commissioners in respect to the water supply and drainage; that in addition to those special commissioners the Government should associate four other commissioners—one to represent the Woods and Forests, as the Crown property might be affected, another to represent the Poor-law Board, and the other two to represent other boards more especially under the control of the Government; in other words, he proposed that the Government should have a voice in the working of this commission. He thought that water was not a fit subject to be dealt with by a trading company. He would leave the commissioners to settle the source, and would give them the power of rating the metropolis for any sum

not exceeding 1s. in the pound for any one year.

Here, then, we have for consideration a number of important questions, in the proper settlement of which all are interested.

DISCUSSION ON POLYCHROMATIC EMBELLISHMENTS.

The paper on the Polychromy of Greek Architecture read at the Institute of British Architects on the 12th ult. and printed in our pages, has served as the text for a long and animated discussion at two following meetings of the Institute. We can only give an outline of what was said. On the 26th ult. Mr. Donaldson commenced the discussion. He said,—The great point of difference on the question of Polychromy would be found in the opinions entertained as to the extent of its application. The pamphlet which M. Semper had presented to the Institute at the last meeting showed, he believed, that that gentleman adhered to the opinion of M. Raoul Rochette, that the paintings of the Greeks were not properly mural paintings, but paintings upon tablets, which might be removed at pleasure. M. Hittorff, on the contrary, was of opinion that all the paintings, used externally and internally (except votive offerings), were strictly mural, and formed part of the walls themselves.

The subject of Polychromy was not a mere question of curiosity, or pedantic antiquarian research, but it was one of great importance in their daily practice as architects, now that there was an increased demand for the employment of colour in the decoration of houses. The general use of colour by the Egyptians was well known. The taste of the Romans was a reflection of that of the Egyptians and the Greeks, and in their architectural remains colour was universally to be traced, whilst the vases of the ancients afforded abundant proof of its employment in another branch of art. In the Middle Ages buildings were profusely decorated, not by the timid trials of inexperienced taste, but with the utmost boldness of crude, but glowing, colouring and gilding. A coloured monument in a mediæval building now appeared a spot upon the plain stonework, but it should be remembered that the whole of these edifices were originally decorated with colour, so as to render the accessories in harmony with the grand mass, in order to ensure the general effect. With regard to the modern use of Polychromy, Mr. Donaldson referred to the instance of the British Museum, the sculptures in which had received new life and animation by the coloured back-grounds introduced under the direction of Mr. Sydney Smirke. The ceilings of the sculpture galleries in the Museum had also been skilfully decorated, in unison with the walls, and it was at length possible, in some degree, to estimate the effect of such embellishments in Greek buildings. Mr. Donaldson here read a communication from Mr. Smirke containing the following passage:—

"Whatever doubt may still hang about the question of external painting in Greek architecture, there need, at least, be none on the subject of interior polychromy. I do not suppose that any one doubts as to the lavish use of colour within the Greek temple. There was, indeed, a sort of necessity for this, in order to bring into harmony the various natural hues of the raw materials used in its construction, the wood, stone, marble, and metal; moreover, the habit of constantly burning lamps, as a religious rite, would engender so much soot, that a periodic renewal of the surface decoration must have been an absolute necessity. The smoke nuisance was, you know, so great, owing perhaps to the imperfect nature of their lamps, that the atrium of a Roman's house became so named after it. I cannot imagine how ever we should have sunk, in these days, into such imbecility as regards the use of positive colours; in England, too, whose painters have long been the best colourists in Europe. But the eighteenth century was truly the Bœotian period of our art, and when the discovery of Greek excellence awoke in us new and higher feelings, the attention of architectural students was absorbed in the study of beautiful outlines and wonderful forms: it was not till long after, that the use of colour among the Greeks became an object of particular notice and research. Let the student inquire why the blossom of the rose never looks so charming as when contrasted with its own green leaves; and why the purple and yellow streaks on the corolla of the pansy make that humble little plant one of the most lovely; and let him observe with admiration the consummate skill with which the great instructress will cause peace and harmony to prevail between the most hostile tints, and by her magic touch will convert horrid discords—the greens and the oranges—the browns and the purples—into new sources of beauty and pleasure."

Mr. Penrose, Fellow, said, that although his studies at Athens had been directed rather to form than to colour, it was impossible to live, as he had, for many months under the shadow of the Parthenon and the Theseum without making some observations on the colouring of these temples. On one point in Mr. Donaldson's paper he must venture entirely to differ with him, viz. with respect to the painting of the echinus of the Doric capital. He was quite satisfied there was no painting whatever on the echinus. Then, in regard to the epitrachelium, as he would call it,—not the hypotrachelium,—the hollow curve above the small necking (the hypotrachelium being below it), he believed that that member also had not been painted in the Parthenon. He agreed with Mr. Donaldson in thinking that the cases of the doors were of bronze at the Parthenon, and that the doors were of the same material. Proceeding to consider the subject generally, Mr. Penrose said that its importance was quite evident. The architecture of the Greeks could not be thoroughly understood without studying their polychromy. A considerable advance had been made in that study, especially in M. Hittorff's work. From the nature of our climate, and even from our very veneration of the Greeks, we might be loath to admit their use of polychromy. A juster feeling, however, should make us feel that they had attained the same perfection in painting as in other arts; and we should rather doubt our own knowledge of what they did than their excellence in art. That colour was employed on the Greek temples it was impossible to doubt: the remains of it on the Parthenon were in such a state of preservation, and so correct in point of form, that the main fact was unquestionable. Mr. Penrose referred to some painted fragments discovered in an excavation made near the south-east angle of the Parthenon, and described by Mr. Bracebridge. These were coloured red, blue, and yellow, and, in his opinion, were of earlier date than the Parthenon, and, no doubt, fragments of the temples destroyed by the Persians. This might have been the site of the workshops for the builders of the present Parthenon; and, indeed, among the remains, a closed jar containing colours was found. With regard to the limits of Polychromy, he was decidedly in favour of some limits, and thought that the surfaces which were coloured were comparatively small, especially in the shade; but still, though the principal remains of colours were to be found on the soffites, there were faint lines of patterns having been used on some very exposed parts, as on the tenia and regula of the architrave, sufficient, indeed, to lead to the belief that if the abacus, or echinus, or architrave had been painted, traces of such painting also would be found. If the views of M. Semper and others, as to the use of tablets, were correct, he did not think a particular building at Athens would have been called the Pinacotheca, or the Hall of Tablet Pictures. The earlier columns of Greek temples were of limestone, and these were invariably coated with a fine stucco; but when marble was used, as at Athens, of the finest and most expensive kind, it was difficult to suppose that it would have been covered with stucco.

M. Semper then addressed the meeting, and so did M. Horeau. The latter said,—In modern times improvements in the industrial arts offered here, and on the continent, a wide field for architectural embellishments; as, for instance, in the various stuccos, in the fictile wares, and in the extended application and combination of the metals.

Mr. W. R. Hamilton said that his knowledge of Greek Architecture referred to a period when it would have been considered absolutely sacrilege to enunciate the idea, that any one of those exquisite temples could have been decorated with colour. He thought it very probable that the temples of rough stone were coloured, but not those of marble; or at all events not to any great extent.

Mr. Twining, Visitor, begged to offer a few observations on the practical application of polychromy to modern works, and to give some reasons why it should be very sparingly applied, especially in this country. If all materials, rough stone, white marble, and the more beautiful coloured marbles, such as those in the Duomo and Campanile of Florence, were to be painted, all distinction as to the relative value would be lost. Climate was also an essential consideration, and colours which would stand, and have a good effect in Greece, would not suit the climate of England. There was a danger, also, of painted decorations taking the place of carving and sculpture, which were so much more beautiful and valuable.

Mr. Fergusson considered the subject would be incomplete without some reference to the use of colour in Assyria, where the recent discoveries had brought to light paintings, and painted architectures, to an extent not found anywhere else except in Egypt. Whilst, however, the Egyptian paintings were intended to express words and ideas, colour was applied in Assyria, as in Greece, to add to the beauty and decoration of the palaces and temples. Honeysuckles, ovolos, scrolls, and other ornaments, usually called Greek, were found in Assyria, and were coloured precisely as those given in the Greek restorations before the meeting. The specimen exhibited from Metapontum might indeed have come from Nineveh. The Ionic capital also, with its volutes, was essentially Assyrian, and it was coloured as the one now shown. There was no trace of the Doric in Assyria; but all the Ionic mouldings and ornaments were found, and they were all coloured. Some of them were enamelled upon bricks and plaster. These discoveries were of the greatest importance in relation to the question of polychromy, being in fact the authority for its employment by the Greeks; and a proper study of them would go far to throw light upon the question.

To the discussion on the second evening we will return hereafter.

RAILING AT HOME AND ABROAD.

CONSOLATION FOR ENGLISHMEN.

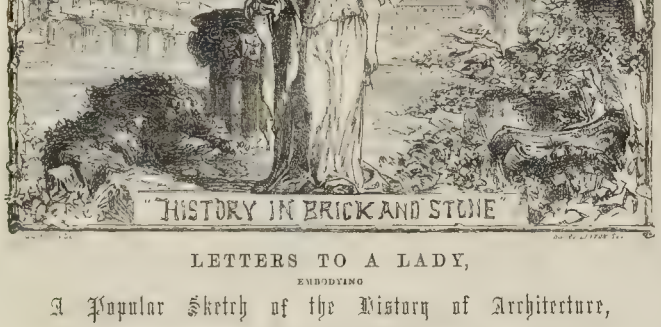
I left London in the midst of the bustle consequent on the Great Exhibition. Every newspaper was full of the heroic complaints of some traveller who had been detained "ten minutes or more" by an express train, because some vagrant excursionists *would* come to town by cheap return tickets. Well, no doubt some of the complaints were justifiable, but, whether or no, I determined to take a note of the comforts incidental to continental railway travelling, and contrast them with the miseries of such matters at home. Our route was through Belgium, up the Rhine, and thence on to Italy. The first "little affair" was at the Calais station. It is necessary to say at starting, that everywhere but in England, you have to pay for all luggage separately. Now, while this gives no greater security to the traveller, it causes him much trouble and vexation, besides adding amazingly to the length of the journey, seeing that he must be at the station from one quarter to three quarters of an hour earlier than in England. Arrived at the station, the baggage is placed on a counter, by no means large enough to hold the whole, till the methodical gentry on the other side weigh and ticket each piece. The space on the counter is so small to each party that he or she has to hold the pyramid together, and intreat the weighers to take their lot next. No rule exists as to "first come first served," so that you are galled by seeing some favourite *commissionnaire* deposit a good cart-load twenty minutes after you have been waiting, and it is whipped off while you are in an agony of despair. But you are *obliged* to wait, and

ed to get the "billet" for the baggage
e they will take your money for the places,
until you can exhibit the tickets, you are
llowed to enter the waiting rooms. Under
concatenation of circumstances, it is pos-
to fancy the confusion in the limited
outside the waiting-rooms. You can
hem, however, if you cannot enter, and
t and spruce they look. A she "official,"
e door, insists on an inspection of the
ts, and she is aided by a short, thin
cial," with a cocked hat and flexible jaw.
ne time you have paid for the baggage,
showed the billets to the money-taker for
s, and showed the money-takers' tickets
e door-keepers, you have lost all idea of
ng-rooms, for the bell is ringing, the horn
owing, the engine is fizzing, and—by
ni, I have forgotten my duty to THE
DER, and have taken no note of "the
on accommodation." At Lille there was
confusion about who was for Belgium
who for Paris; no time to alight, and on
to the station within the Belgian fron-
Here all parties had to descend and unlock
ackages, and the time consumed was
derable, with this and a sort of double-
le of the trains on the rails. As we had
travelling since the early morning, I
ed about for a "ladies' room," but in vain;
shame to say, we all had to stand about
t was our turn to deal off. Station
station was reached, and not till four
k in the afternoon, at Malines, was there
ies' room to be found. Another shame
nese Belgians, who are so near civilization
yet unimproved in these matters. The
want of attention to the convenience of
female passengers is manifested through-
ne Belgian and Rhine railways. At Verviers
is a very large station, with a commo-
building, but no ladies' room: at a dis-
from the platform, in a sort of garden,
uilt two rustic cottages, separated by a
plantation, severally inscribed *Pour les*
s, *Pour les Hommes*, not legible, how-
till blunders are frequently made.
e Germans now "take up the running,"
their arrangements deserve the severest
re, for the only attention they pay to their
llers' wants, except at the very largest
ns, is a small lean-to building, divided
e centre with two doors, labelled, *Für da-*
Für männen. At the first-class stations
rs are not much better, as no ladies'
is to be found to place your ladies in
in while you look after the baggage and
ge. The railway from Heilbronn runs
gh Wurtemburg on to the Lake of Con-
e. To make any progress, you must
at six o'clock, and as the stations on the
nent are generally some distance from the
s or the best hotels, this entails rising
an hour and a half to two hours earlier.
ng this in mind, and that the train reaches
ke between four and five in the afternoon,
is no ladies' room thoughout the whole
. There are at the extreme end of the
ns small places, as before described, with
doors actually acting on the same door-
altogether an outrage on decency, and
ng an undeserved indignity on one portion
e passengers. I observe in your paper
our London institutes receive foreign en-
rs and architects, and take delight in
uring them and showing them attention.
I protest, after the above and what fol-
that it is altogether unmanly to treat
common courtesy or good feeling any of
arties engaged in any way in the omis-
and commissions which are so abomi-
: And it is less excusable from having
station arrangements made long before
s, and which their heads of departments
have seen.
is only fair to state that this railway is
rably constructed, describing three-
hs of a circle occasionally, to mount an
ne and overcome what, but a few years
would have been thought impracticable
ients. The carriages are on the American
—very long, and having a walk up the
e, with double seats on each side. They
four wheels at each end, two and two
close together; and the break seems to be a simple wedge between these contiguous wheels, with the point upwards, and which is raised by a lever as circumstances require. The rate they travel at is about half our speed, and therefore these arrangements may answer, while they would be totally inapplicable with increased velocity. The passenger fare is generally very much below our tariff.

The next line we came to was between Como and Milan, and is too short to require, or deserve, particular remark, other than to say that the rooms were very prettily painted in fresco, and were well furnished; but there were no separate rooms, as before. From Milan, the railway is open to Treviglio, and thence it is being made to Verona; from which place it is open to Venice. The hiatus between Treviglio and Verona is about a day and a half's land journey, and will take a considerable time yet to complete. The station at Milan is altogether mean, and unworthy of so considerable a city On arriving at Treviglio there were no horses to be had, in consequence of a tour the Emperor was making in that neighbourhood. We were invited very politely to wait in the "Sala" for the "prima classe." As we had to wait a very considerable time I had an opportunity to remark on the building. It must be borne in mind that this station being but 29 English miles from Milan, weary travellers must frequently arrive and have to wait for the next train. The room, then, serves for "out" and "in" passengers: it is of considerable dimensions, square, and mean. Now think a little: there is a door to arrive at, and a door next the rails, but there is no other door or outlet of any sort to any other apartment whatever. Comment is unnecessary—is the bastinado? From Verona to Venice the traffic is tolerably worked: you have too little room in the carriages, and it is inconvenient to ascend from the level of the rails, as also to descend. Indeed, it looks very unsafe and unfinished where, as is generally the case, there is no platform. Our next experience was at Naples. On arriving at Capua our carriage was detained a very long time in the town surrounded by beggars, till inquiry was made at the station whether a carriage could be taken to Naples. There were no trucks; so we posted over one of the most villanous roads in Europe. While at Naples we meditated a trip to Salerno and Pæstum, and the most practicable course is the railway to Nocera and thence by Vetturini. I wish to goodness I could have had half-a-dozen of the gentry who "write to the papers" to see how matters are conducted here. I will keep within the most exact truth, for while I like to tell my story my own way, I will not exaggerate. Some matters can only be alluded to: those who are interested must, therefore, give full force to what is said. The terminus is fair-looking enough externally. The first process is to pay at a little window as usual: then there is but one entrance for all classes of passengers, and as the fare is very low indeed, the company, consisting of a Neapolitan crowd of savory second and third classes, may better be imagined than described. But this is not all: the examination of tickets at the *one* door necessarily causes great pressure as the train is about to start. In this mob the beggars ply their profession lustily. Thus are you jammed in between people but little distinguishable from mendicants, and close to you is a loathsome vagrant in actual contact with you, soliciting charity. Once past the door, you are assigned to the several divisions to which you belong. The first class is a tolerable square apartment, without ladies' room. I went to look at the second-class accommodation. It was little better than a boarded pen with seats round it. There were a good number of passengers waiting, of both sexes. In a small garden, in full view of all, was a single sentry-box with the entrance turned from the passengers, but no door, the approach to which was altogether disgusting in the extreme. Let us get away. The train once started, we accomplish the *eighteen miles* in about *one hour and a half*. The exit at Nocera was by a door *in a corner* of an unpaved yard, so that, of course, carriages could not draw up flush to the door to take up passengers. It rained heavily, and carriages and conveyances being in request, the confusion was complete. The bawling of drivers, the want of order, the importunities of loathsome beggars, and a tall official, with a considerable cane, unmercifully *beating the drivers and touters*, made up a scene not to be equalled. Having at length got a carriage, we scrambled through the mud, touters, and beggars, grateful that we were not robbed also. Two days' experience of our driver and conductor convinced us that they were both civil fellows, working very hard for but moderate pay, and intelligent enough to follow any reasonable instructions. But the driver had wheals on his back, inflicted at the caprice of the before-mentioned official for some infraction of unwritten regulations. On our return by the same railway, at one station a gentleman got into our first-class carriage smoking a cigar, and *spat* on the carpet. It was a saloon carriage for ladies and gentlemen, and, excepting the surprise of our party, this proceeding was taken by the rest quite as a matter of course. On our return from Naples we determined to come by the railway to Capua; to do which, and to get on reasonably during the day, you must start at six o'clock in the morning. It is a regulation that carriages must be at the station one hour before the train starts. Ours was sent on in good time, and we followed about ten minutes before the train started. There was a very fine saloon for first-class passengers, but no ladies' room, as before. As we approached the train, what was our surprise to find that although the courier had been there with the carriage for an hour, it was not yet attached to the train. By dint of his swearing and bawling, at length this was accomplished, when he was surrounded by the men to be paid for what they had done. The tickets say, as ours do, the servants are paid, therefore do not pay again; yet under the very noses of the superior officers, every porter bullied the passengers to be paid for carrying the smallest portion of luggage. But the best is still to come. Having travelled at the rate of twelve miles an hour, we at length arrived at Capua. After alighting and waiting some time, the train being cleared, went off, leaving the truck on which was our carriage alone: there was no place on which to get the carriage off! A little way up the rails was an inclined plane, at right angles with the rails, and with no means whatever of communicating with the railway truck. While men were being collected to tranship the carriage, there was an opportunity afforded of observing how the latter had been kept on the truck. Four or five *stones* of various sizes had been placed under the wheels, and two or three pieces of rope had been cunningly twisted, in no order whatever, about the various accidental points of attachment. By this time sufficient strength had been collected, and the truck was wheeled as nearly as possible to the inclined plane, the latter being at an angle of 45 degrees. Then there was some wood wanted to make a bridge between them: when this was collected it became necessary to turn the carriage half round on the truck that it might come with the wheels revolving in due order. After several attempts, the various pieces of wood nearly letting the wheels through, down came the carriage with a run, and all was safe but sadly shaken. Some alacrity was shown in putting the horses to, and then began the claims of all parties for their assistance,—the railway porters, accidental helpers, and beggars for looking on. Whether there was paid as much as the whole cost of the railway charge from Naples, or the value of the carriage itself, the courier's accounts can only tell, for by this time the sweetest temper of the party had given way, and at any cost we desired to be flying homeward.

CHARLES HILL.

CONVERSAZIONE AT THE ARCHITECTURAL EXHIBITION.—The committee have issued cards for a *conversazione*, to be held at the Portland Galleries, Regent-street, on Wednesday evening, the 18th instant, and have included ladies in their invitations. It promises to be numerously attended, and will, doubtless be a pleasant evening.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.

My dear Sorillah:

When we walked through the Architectural Exhibition together the other day you seemed interested by the glimpses of history which became visible through the chinks, so to speak, of a running commentary on the drawings there collected, and asked me to give you some general notion of a study which promised to be more agreeable than you had anticipated. I willingly comply, delighted to have such a pupil, and proceed to put your new-born enthusiasm to the test, beginning from the earliest times, and intending to trace the progress upward till we reach our own days. Should some parts of the road prove dusty and barren, you must not at once abandon the journey, but trudge over them contentedly for the sake of the prettier country they will lead to.

The term "Architecture" suggested to you, probably, as to many others, nothing more attractive than a dry study of the most efficient modes of heaping one stone upon another to form a building. But, as you saw, there are other and totally different points of view from which architecture is seen to afford matter of interest on which the most refined and powerful intellect may exercise itself, and which may worthily occupy the attention of any one who possesses a cultivated mind. I mean architecture as a fine art,—a producer of beauty; and it would be well if more attention were given to it in this respect by the general student than is usually the case: advantages of no common kind would result, and fresh sources of pleasure would be opened to the inquirer almost boundless in extent. With this most interesting part of the subject, however, I do not propose to deal now. There is a third light under which it may be considered, namely, *historically*, and thus it is I intend to place it before you in the following letters. If it fail to interest you, the fault will not rest with the subject, but with me.

From the earliest period in the history of the world (when the number of men was few), the love of society, to say nothing of fear of the tigers, led them to congregate in particular spots. Sustenance was of course the first consideration; but this being provided, a protection from the rays of the sun, the wind, or the rain, according to the climate of the country, would be the next object of attention. The shelter provided at first was naturally rude and incomplete, and was necessarily regulated by the habits of the people, the nature of the country, and the materials attainable on the spot. As civilization proceeded, brought about by the communion of intellect,—the exchange of ideas and the increased means of transmitting information, so that the labour of one generation served as a foundation on which the next might commence their work—religious feelings induced the erection of certain buildings in honour of their gods, which should visibly convey the importance of their purpose. Principles were ultimately laid down for their construction, ingenuity was exerted, and all the other arts so far as they were understood, were brought to aid in their embellishment.

In tracing the history of architecture, then, we thus, in reality, examine the progress of the various parts of the world towards civilization, and, in many cases, their relapse into barbarism. All that remains of many once powerful nations are a few ruins, which, although isolated and dismantled, yet enable us to form correct ideas of the religion, recreations, manners, and ability of the people by whom they were erected. Ideas expressed in earth and stone by the contemporaries of the Pharaohs, which have exercised strong influence on society, remain to us almost uninjured. How powerful are the images which they raise! A link in a great chain, they serve by association to repeople the wastes wherein they stand, and call back to the mind remembrance of the whole course of past events.

We are apt, in the business and bustle of to-day, to forget too entirely the past: everything which serves to take us back to the early periods of the world's history, to force upon our notice the age of prophecy, the foundation of christianity, the rise and fall of states,—must tend not merely to interest but to expand the mind; enable us to estimate rightly our present position, and, by showing what *has* been done, assist in making further advances. You will see at once, too, that by a knowledge of architectural history, and the peculiarities which characterise the works of various people and epochs, the pleasure of travel is greatly increased: every stone is suggestive of an idea, and every old building becomes an open book, wherein, with this knowledge, those who run may read. I must not dwell longer, however, on what you may perhaps consider "the puff preliminary," but which is, in truth, said with strong feeling on the subject. That we may begin at the beginning, let us refer, though briefly, to some statements in the Bible as to our subject before the Flood.

According to Archbishop Usher, it was 4004 years before our era when Cain built the first city, and called it after his son Enoch. A considerable degree of skill in the constructive arts seems to have been attained, and artificers in brass and iron are spoken of, you will remember, as having been instructed by Tubal Cain.

There is great difference of opinion as to the date I have mentioned. Kennedy, in "Scripture Chronology," says there are 300 various statements concerning it to be found. Some chronologers have calculated that it was much as 6,984 years before our time; Usher's reckoning, which is founded on assumption that the Hebrew text remains c rect (not corrupted, as others have suppose will serve our purpose. I do not intend interrupt the course of the narrative by ference to chapter and verse of authoriti that heaven-born confidingness which, acco ing to the poets, belongs to your sex, and one of its holiest charms, will enable you receive my statements without proof. Let here say, too, that if I tell you much that know, it will not be because I believe ignorant of it, but for the sake of connect in the story.

The pursuits of the people, I said, regula the nature of their habitations. Those sought sustenance from the cultivation of land, remaining stationary, would seek to app priate natural hollows and caverns, and mately to form them, or to pile up such ma rials as the situation might afford to mak substantial place of refuge; whereas th tribes who pastured flocks (nomadic you wo term them), and were consequently compel to change their quarters as food began to would make use of temporary or more porta constructions. Thus, where we find it recor that Jabal "was the father of such as dwell tents," it is added, "*and* of such as h cattle." This point we shall see further de loped in tracing the progress of vari nations.

The ark built by Noah is described a structure of considerable size and importan It was divided into three stories, and was less than 300 cubits long (say 450 feet), cubits wide, and 30 cubits high,—dimensi which show an attention to proportions so what singular, one-sixth of the length be taken for the width, and one-tenth of it for height. This we will call 2,348 years bef Christ.

When the ground was dry, Noah left ark, and, as his first act, built an al Although not mentioned previously, altars l evidently been in use before this time, may be regarded as the germ of all religi temples. This is worth noticing. A pavem about the altar for the sake of cleanliness, then a slight inclosure of upright sto around that, as a protection, would be e additions, and yet would require very few ther steps, so far as arrangement is consider to result in the temples of the Druids, Egyptians, or the Greeks. This will be evid to you hereafter.

In our notice of what may be called Bibl Architecture, we must not overlook *stone memorial*. Josephus relates that Adam, hav prophesied the universal deluge, the child of Seth erected two pillars, one of brick the other of stone, whereon they engra memorials of their discoveries and inventi for the benefit of after ages. Not to dwell this statement, however, Jacob, after his dr of the ladder reaching to heaven, set up a pillar" the stone on which he had rested head, poured oil on the top of it—thus co crating it, and said: "This stone which I h set up for a pillar shall be God's house." therefore called the place Beth-el; and i interesting to find that cromlechs in Irela and many single stones in Cornwall, a buted to the Phœnicians, retain the n Bothal. It was in use, too, amongst Greeks.

Again, when Jacob and Laban were c nanting one with another, "Jacob too stone and set it up for a pillar;" and furt said to his brethren, "Gather stones; they took stones and made a heap." W God communed with Jacob and called Israel, Jacob again raised a pillar; and t when Rachael died he set up a pillar on grave. Here, you see, we have pillars rai as an offering to God, in witness of a com between men, and as a sepulchral monum

About 200 years later, 1491 B.C. Mo after receiving the divine message, built altar under the hill, with "twelve pillars, cording to the twelve tribes of Israel." in Joshua it is recorded, that the childre Israel took twelve stones out of Jordan

er of the tribes), and pitched them in , and that Joshua set up twelve other in the midst of Jordan, to commemorate g the waters (1451 B.C.). The place was *Gilgal*, to keep in memory that God had lay *rolled away* from the children of the reproach of Egypt. The term Gal, (signifying a wheel), is doubled, the sts say, to convey a more perfect notion action.

ay be called a curious circumstance that Ursuick, in Furness (Lancashire), there ne remains of what is apparently a ical circle, the interior of which is divided several compartments by curved walls, a small circular enclosure in the centre he nave and spokes of a wheel. Fig. 1 outline of its form. The diameter of this s relic, which is known in the neigh- ood, I understand, simply as "Stone ," varies from 350 to 315 feet.

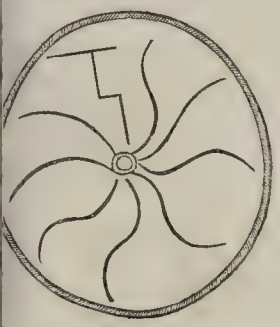


Fig. 1.

eral hundred years later than the time of ia, Absalom, it is recorded, having no keep his name in remembrance, "reared r himself a pillar, and called it after lf." The *heap of stones*, like that formed cob and his brethren, just now referred d the simple mound of earth, have been as monumental memorials from those times till now, and are found in all parts e world. Greece, Italy, America, Eng- present numerous examples of barrows sizes. The sepulchre of Alyattes, father œsus, which is in the plain of Troy, had ement of immense stones on which was l an enormous mound of earth, having ermini on the summit, with inscriptions. dotus, who says this monument is second ne but those of the Egyptians and Baby- ns, states that the circumference of the nd (of which remains are still to be seen), qual to more than half a mile.

will occur to you, I have no doubt, to e how generally buildings in honour of ead have outlasted those erected for the of the living. Shakspeare's clown in mlet" inquires who builds stronger the mason, the carpenter, and the ship- t; and answers, the gravedigger—for his ings last till doomsday. Those construc- which have been formed *over* the grave to be nearly as lasting. In the particular nce of which we are speaking, reared by wealthiest monarch of the East, in the vned and magnificent Sardis, this sepul- is the sole relic of a once mighty people, e empire has long since passed away, whose name is nearly forgotten!

e Druids, according to Cæsar, prohibited se of written characters, and preferred the ise of the memory; so that we have little mation as to their manners and opinions. inately, however, they have left us, in simple barrows and sacred circles, mate- from which something may be deduced. connection between the Celtic tribes of rern Europe and the Scandinavians and cythians of the north, is supposed to be usively shown by their barrows. The were the great barrow-architects of an- y. The description by Herodotus of the in which they buried one of the kings confirmed in a remarkable manner by the nts of some barrows in Siberia opened by the Russian Government. Herodotus mentions coolly amongst the articles placed in the chamber, "one of the king's wives strangled," and even this fact seemed to be proved by what was found. In one which was opened both the male and female body were laid on a sheet of pure gold, and covered with the same material. The gold weighed as much as 40 lbs. In the barrows opened in England such costly matters are not found; but considerable insight into the habits and manners of our British and Saxon progenitors, and the state of their arts and manufactures, has been obtained from examination of their contents.

In America there are large numbers of these tumuli: it is stated that there are nearly 3,000 of them, from 20 to 100 feet high, between the mouth of the Ohio, the Illinois, the Missouri, and the Rio San-Francisco. Some of these monuments are two or three stories high, and resemble in their form the Mexican *teocallis* and the pyramids with steps of Egypt and Western Asia. Some are constructed of stones heaped together.

In England we have an enormous example of an earthen memorial, called Silbury-hill, in Wiltshire, close to what used to be the Bath road, and which is probably connected in some way with the temples at Avebury and Stonehenge. It has been ascribed by some to the third century of our era, and other writers consider it of much earlier date. This singular work covers a very large area, its circumference being 1,550 feet, and its perpendicular height, to the flat surface which forms its summit, is not less than 120 feet. In 1849, excavations were made in it, under the direction of the late Dean Merewether (of Hereford) and a party of archæologists, but nothing was found. It corresponds in purpose, I have no doubt, with the temple mounds of Mexico. The pyramids of this last-named country, and the still earlier pyramids of Egypt, of which I shall speak presently, are but elaborations of the same type,—the simple mound of earth.

The practice of setting up pillars in commemoration of certain events, as described in the Bible, was an universal custom, both in savage and civilised states, and has been continued to the present day. I annex a sketch of an example in Yorkshire, which has been often quoted,—the pillar at Rudstone, which is about 24 feet high out of the ground.



Fig. 2.

This description of memorial was much used by the EGYPTIANS, and was brought by them to great perfection. We shall see, when treating of that marvellous people,—those giants in architecture,—that they raised obelisks of enormous size, and rendered them, by great labour and skill, objects of beauty as well as eloquent records of the past. Confining ourselves, however, for the present to the ruder efforts of early nations, we are led by a consideration of the altar formed by Moses, with twelve pillars about it, to those extraordinary temples found in various parts of the world, termed DRUIDICAL, and of which Stonehenge, on Salisbury plain (although it may be comparatively a late specimen), will serve us as a perfect example.

You have here a plan of this extraordinary monument as it appeared, probably, when it was whole. The outer circle consisted of thirty upright stones of large size placed at nearly equal distances, and bound together at the top by the same number of stones in a horizontal position, forming a continuous entablature, so to speak. Within this was a second circle of smaller upright stones without entablature. And again, within this, an arrangement of large and small stones, which will be better understood by examining the plan than from words. There are five pairs of upright stones, each pair carrying a horizontal stone (the three together have been termed a *trilithon*), with three other small upright stones before them; and in the central space you will observe a large flat stone, 16 feet long, 4 feet broad, and 20 inches thick, which has been called the altar.



Fig. 3.

I send you a sketch of a portion of the temple, which will give you some idea of the present state of this surprising monument.



Fig. 4.

Its order and regularity are destroyed, but the effect produced by these masses of stone, huddled together in the midst of an extensive plain (the flat expanse of which is only broken by numerous barrows), is very striking. Your lively imagination would lead you to view them as things endowed with life, which, having outlived their age, had gathered themselves together for mutual countenance and support. Most vivid is my recollection of the hours I spent some years ago amongst these old stones on Salisbury Plain. I have a little more to say about them, but as I have already exceeded the limits to which I shall in future confine myself, I must reserve this for my next communication. We shall be more lively by and by, as we advance.

In concluding this letter, I will but say that the idea embodied in the head-piece I have adopted is, the Genius of Architecture contemplating the works of past Ages,—and then subscribe myself,

Faithfully yours,

Reggeo.

OXFORD ARCHITECTURAL SOCIETY.—A meeting of the Architectural Society took place in the society's rooms, on the 4th. Rev. S. W. Wayte, M.A. treasurer, in the chair. Several communications had been received by the secretaries, among which a letter from the Rev. T. Woodrooffe was read, announcing that a desecration of one of the chapels of Winchester Cathedral, which has obtained some notoriety, was about to be in part at least, if not wholly, removed by the chapter. The Rev. T. Chamberlain, Christ Church, read a practical paper "On some Principles to be observed in Ornamenting Churches, as regards Illumination, Stained Glass, Encaustic Tiles, &c." After this Mr. Parker rose to suggest the employment of the revived art of mosaic work for providing dorsals to altars. He also noticed that in parts of France great use was made of different coloured stones.

THE BRITISH INSTITUTION FOR PROMOTING THE FINE ARTS.

The Exhibition of the Works of British Artists now open here, although deficient in works of the highest class, contains many excellent pictures, and is superior, as a whole, to the collection last year. Sir Edwin Landseer has one picture, "Deer Pass" (58), which looks as if it had been knocked off in a hurry: it has much beauty, but is not up to the artist's own mark. Mr. Pickersgill, R.A. sends two: "A Monk of the Order of St. Francis" (151), is finely painted. Linnell's "Boar Hunt" (45), is a splendid piece of colour, but verges on coarseness. T. Danby's "Lake of Thun" we covet. In whatever room it hangs, the winter will pass pleasantly. J. Holland has some brilliant sketches, we can scarcely call them paintings. Ansdell has, amongst other works, a careful and effective picture of sheep, "The Common" (73). G. E. Hering has made a considerable advance; "The Island of Cappri" (244), and "*La Solitaire*," may be instanced. We may say the same of E. A. Goodall, "The Interior of Cabaret, Brittany" (20), is one of his best works. Hodgson's "Choir of Norwich Cathedral," is an effective view, but shows want of knowledge of forms. Branwhite is most at home in the snow; (328) "The Snow Drift," is a good specimen. "Scene during a Festa, Naples," by Clement Burlison (475), ought to have been on the line. "Snake Catchers of Syria" (317), by Willes Maddox, very properly is so; it is one of the cleverest works in the gallery. Sant has two, "A Mother's Hope" (162), and "Music" (503), both of great merit. John Wilson, jun. has produced a large picture, "On the Coast of Normandy" (310), fresh and breezy. Frost has two delicate pictures of Nymphs; and J. D. Wingfield a sparkling view of the "Interior of the Great Exhibition on the memorable 1st of May." M'Innes, in 517, "The Festal Band," has not kept the promise of his earlier works; and Inskipp will damage his reputation by such exhibitions as "A Bird Tender," whose feet and legs evidently do not belong to the head they carry. "The Princess Elizabeth examined, touching her Religious Opinions, by Gardiner and others" (57), by F. Newenham, is the picture of largest endeavour in the collection, and has parts of excellence. (113) "Lady and Child," by Le Jeune; (140) "Italian Peasant Girl," by Buckner; (209) "Hush," by Mrs. Carpenter; Jutsum's "Ivy Bridge" (69), and "Mountain Spring" (321); Brocky's "Whistle" (236); "The Acropolis of Athens," by Lear; heads by Gale; G. Hardy's "Cottage Interior," (455); "The Port of London" (157), by H. Dawson, are all noticeable works.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.

Professor Cockerell, in his fourth lecture, dwelt with considerable emphasis on the importance of honesty of purpose, and truth of expression, in an architectural design. Controlled in his works by absolute utility, the architect was bound to explain their purpose by their external physiognomy. If the frame-work of the design was skilfully put together, the motive for ornament would be thereby obtained, and the building would invest itself with that appropriate decoration which belonged to it as a complete work. This important principle had been successfully carried out by Vignola in a villa near the Porta del Popolo at Rome; the plan and elevations of which edifice the lecturer explained in detail. That work he described as full of beauty and grace of conception, and worthy of the most careful attention of the student. It was the common error of ambitious architects to develope form and beauty first, and conform to use and necessity afterwards; a course which could only lead to mannerism and poverty of conception. Nothing indeed could be more essential than a careful attention to the purpose of a building, in order to adapt the design to that purpose, whether in the case of a church, a theatre, a palace, a villa, a mansion, or a cenotaph. The front of St. Peter's was a notorious instance of a sin against character; presenting the aspect rather of a gorgeous palace than a sacred edifice. Its principal floor has balconies of an ordinary kind, whilst a mezzanine floor, and an attic order, add to the incongruity of the design. St. Paul's, on the contrary, is far superior in that respect. The uniformity of the double order throughout the exterior and interior of the building is an especial merit, producing an admirable effect of strength; whilst the upper order in the west front would be far better adapted for the ceremony of the papal benediction than the window of St. Peter's, from which it is now performed.

In the church of St. Andrea, at Mantua, by Alberti, the section of the nave and aisles was reproduced in the principal front with excellent effect; but this arrangement might be seen in a much earlier work,—the west front of Peterborough cathedral.

Propriety of expression and adaptation of form to purpose were much neglected in England in the early part of the present century; when the rage for Grecian architecture almost led many persons to fancy themselves gods, dwelling in heathen temples, without windows or chimneys. The fenestral order, so essential in this climate, had been thus completely lost sight of; but its great importance to architectural effect would be at once acknowledged by referring to the church of San Michele, at Venice, which abounds with windows, although the order employed is Doric. As a striking instance of misapplied design, the mansion of a nobleman not far from London might be held up as a warning: whilst a part of its exterior bore the appearance of a chapel, the interior of that portion was appropriated to a servants' hall, with a billiard-room above, and over that a kind of barrack-room for servants.

After some eloquent remarks on the great importance of fixed principles in art as well as in morals, the lecturer proceeded to point out some of the sources of architectural grandeur or greatness. The actual magnitude of a large edifice often failed to produce grandeur, or even an appearance of great size. Of this, again, St. Peter's was a striking instance; the first impression of that gigantic structure being generally one of disappointment. Ancient writers had noticed the same defect in the Colossus of Rhodes, and the Farnese Hercules; which they compared to great disadvantage with much smaller works of grand design and expression. The nave of Westminster Abbey, on the contrary, might be cited as realising a grand result, with little comparative magnitude. The power of producing grandeur of proportion was, indeed, the gift of genius; and the painter who possessed it could convey the idea of a space equal to that of the Crystal Palace in a drawing only 6 inches square.

An important source of architectural grandeur might be found in the number and quantity of inferior elements. This principle of multitude was acted upon by the Gothic architects, who produced great effect by employing stones of small size; and a chief cause of failure in modern Gothic structures arose from the use of stones too large in their scantling for the due effect of the style of design. So strongly were our ancestors impressed with this feeling, that where they used a plaster ceiling, as they sometimes did, they marked upon its surface an imitation of the joints of stones; and where large stones were necessarily employed, their surfaces were engraved in a reticulated pattern, as in the main spandrels of Westminster Abbey. The effect of the Alhambra depended much upon the same principle; for, although that edifice had filled the world with its renown and beauty, it was comparatively a small building, and was, in fact, judged by an artificial scale.

Gradation was another element of grandeur. The grouping of the different buildings of various sizes on the Acropolis of Athens, so as to increase the dignity of the Parthenon, was a striking proof of this. It was seen also in the admirable shawls of Cashmere in the late Exhibition, in which the magnitude of a large scroll was apparently increased by its being placed in juxtaposition with a small one.

use of a minor order by Palladio, in sub
nation with the main one, was another i
tration of the rule. Sansovino produced
same effect by using a small order for
openings; and Vignola, by producing winc
and other important features on a small s
and by the use of quoin stones. His s
order was always perfect and complete,
carefully placed out of the reach of any pe
of comparison with the surrounding buildi
The upper decorated portions of Gothic ca
drals were highly elaborated, with the s
results,—as might be seen in the sculpture
the west front of Wells; the figures in wh
though only three or four feet high, appe
much larger, and filled the mind with imag
grandeur and importance. In the cathed
also, the gradation from the large arches of
nave to the smaller arches of the aisles,
thence to those of window, the triforium,
the decorative canopies, was ever present,
the best effect.

Commensuration, or the geometrical p
ciple, in art, was next adverted to, with re
ence to the same end. The application of
square and the triangle to the plans of anc
buildings, especially Gothic, was elucidat
and the use of geometrical arrangement by
architects of the Revival, pointed out.

The last element of grandeur might be
scribed as arising from the association of id
which imparted a large and massive effe
small edifices built of large stones. The ar
tects of Rome and Egypt understood this r
and so great was the impression of size
veyed by the Pantheon and Carnac, from
use of large materials, that it was difficu
believe their actual smallness when draw
the same scale as the cathedrals of Antwer
Salisbury. The late Mr. Brunel was first
to adopt England as his home from an a
ciation of ideas of this kind. Seeing in Fr
an immense cylinder, which had been
from England, he placed upon his head
cocked hat which he then wore, and *wo*
through it. He was thus impressed with
extraordinary character of British skill
science, and became a citizen of the cou
upon which his works have conferred
glory and renown. The effect of large st
was doubtless great in a heroic age.
were frequently adverted to in the Script
and by Homer; and it might be remar
that their employment had much increase
this country within living memory. Sir
Wren was in part compelled to adopt a do
order for St. Paul's, by the difficulty of obt
ing large blocks of stone; but by the exar
of Rennie and Sir Robert Smirke, they
been largely introduced, and in the Bri
Museum upwards of 800 stones had been
ployed, weighing from five to nine tons ea

The lecturer concluded by enforcing
necessity of careful and laborious study, w
out which all rules of proportion must be
from perfect.

THE FATE OF THE EXHIBITION BUILDING.

The Commissioners appointed by
Treasury to inquire and report on the propo
purchase and appropriation of the G
Palace have concluded their investigat
They have taken the evidence of Sir Cha
Fox, Sir Joseph Paxton, Mr. Dilke, Mr. C
Mr. Hawkins, of the British Museum,
Kelk, and others; and the various suggest
for the future use of the building were
considered: among these, were the proj
for a winter garden,—a gallery in aid or
of the British Museum,—and an indus
and educational institute, to combine the l
ing scientific societies of London, the Sch
of Design, &c. The questions of site and
were necessarily carefully considered,
appears that there is a project for removing
transept, with a certain portion of the
east and west, and re-erecting it in Kew-
dens; but we are not able to state that
Commissioners have yet agreed upon
report. The ultimate decision (subject to
sanction of Parliament) will rest with the L
of the Treasury.

NOTES IN THE PROVINCES.

Chelmsford.—The old conduit has been renovated and altered in its re-erection at the broad space near "The Black Boy," in this town, according to the local *Chronicle*. The structure is changed from the Grecian to the Roman Doric order. Mr. Fenton planned and carried out its re-erection in its present shape. The work was executed by Mr. Wray, in part gratuitously.

Northampton.—The local *Mercury* says:—"We understand that a single ironmaster in the neighbourhood of Dudley is conveying away the ironstone of this county at the rate of 2,000 tons per week. The firm in question is making a railway siding at our Northampton station, at a cost of 800*l.* for the express purpose of facilitating the conveyance."

Worcester.—The design by Mr. Preedy, for the long-talked-of Adelaide Window, is said to be now nearly completed.——Mr. J. Thompson is now engaged in repairing the side aisles and nave of the old church of St. Mary. This was contemplated when the stained window was purchased and other alterations made at a considerable expense; but a vested right in certain pews interfered with the work. The old high-backed pews are now giving place to open seats.——The gas company has recently announced the usual dividend of 8 per cent. free of income tax.

Warwick.—The chancel of St. Mary's Church, nearly the whole of which, together with the groined roof, was covered with paint and whitewash, is now being restored. Fifty men are at work upon it. Originally the walls were of ashlar, and in some places they appear to have been tooled rough, in order to enable the whitewash to adhere. It is much to be wished that the restoration of the whole of this church could be effected.

Longridge (Preston).—A stone, 13 feet long, 7 feet wide, and 1 foot 6 inches thick, has been conveyed from Longridge to the river Loud, to be placed in the bed of the stream, for the purpose of forming a weir and raising the river, that the more water may flow down the culvert, now being formed from the Loud to the Alston reservoir. The stone contains more than 140 solid feet, and weighs more than twelve tons. It was obtained from the quarry of Mr. Fletcher. Messrs. Cooper and Tullis, of Preston, the contractors for the work, have to place another stone of only a little less proportions in the same culvert.

Leeds.—On 2nd inst. the new church of St. Thomas, erected in Melbourne-street, North-street, was consecrated by the Bishop of Ripon. It is of brick, although the West Riding abounds in stone. The style is Decorated. Mr. Butterfield, of London, was the architect. The nave, aisles, and lower story of the tower (which for the present is finished as a porch) is the only part completed. The chancel foundations are laid in. The materials, inside and outside, are red and black bricks, with stone windows and doorways, banded and tied together with stone. The stone is used in no other manner. The black bricks are said to be jet black throughout, and without any glaze. The roof is cruciform by means of large transeptal lights to the clerestory at the east end. The aisles are lofty, with long three-light windows in each bay. The west window is of three long lights, with tracery in the head above a doorway. The pavement throughout is of Minton's red and black tiles. The building will accommodate 750 persons—sittings all free. It was begun in 1849 by a retired tradesman of the Leylands district of the town, who meant to build a church, school, and parsonage, and endow the incumbency, but the nave only of the church and the churchyard wall were completed at his cost. Upwards of 2,000*l.* has been raised in aid of the benevolent design.

Edinburgh.—In Candlemaker-row some men, while making a sewer recently, discovered a covered well. They incautiously let a candle down in it, when an explosion took place. The street has been torn up to a considerable extent by the force of the gaseous matter. No lives were lost, but two men were badly hurt.

Glasgow.—A warehouse of glass and iron is being constructed here, by way of imitation of the Great Exhibition Building, and to attract customers. The central promenade will be 80 feet long and 12 wide.

Guernsey.—From a paragraph quoted in the *Jersey Times*, we observe that a gentleman from the establishment of Mr. Rendel, C.E. has been at Guernsey on business connected with the new harbour of St. Peter's Port. Sections and specifications were to be ready by middle of February, when the harbour committee will issue their tenders for the construction of the first section of Mr. Rendel's plan. Messrs. Tostevin, of St. Pierre-du-Bois, are preparing two blocks of stone for the foundation of the harbour. Each block will weigh about six tons.

Chatteris.—A correspondent of the *Cambridge Chronicle* advocates the necessity of a reform in the gas-lighting of this town by the establishment of a new company with moderate prices. The present company charge 10s. a thousand cubic feet; and the consequence is, that in the main street, which is a mile and a quarter long, "there are but four lamps, which, with three private ones and one on the Ely road, form the actual quantity of lamps lighted in Chatteris." Anything more glaringly illustrative of the truth of what we have so often said on this subject could not well be. We have no doubt, however, that the company absurdly imagine that they cannot afford to reduce the price *because* so little is consumed.

GAS.

Gateshead.—At a recent meeting of the corporation, a report was made by the town surveyor, Mr. Hall, "upon the extent of gas-pipeage at present laid in the borough, with a view to consider the expediency of erecting gas-works." At the outset, he called attention to the new description of pipes for the transmission of gas and water, now in satisfactory operation in Paris, where none other are now used. These pipes are made of sheet-iron, strongly rivetted, galvanised, and coated with asphalte. The price is somewhat less than that of cast-iron pipes, and, being impermeable, leakage is all but obviated; while, with cast-iron pipes, the leakage is so considerable as to amount, in the case of one of the largest gas-works in London, to two-fifths of the gas produced, to the great loss of the shareholders and injury of the public health. The gas-works for Gateshead, the report stated, may be constructed, with a complete system of pipeage, for 17,000*l.* The annual working expenses, including 5 per cent. upon the capital invested, would amount to 4,600*l.* The receipts from the sale of gas at 2s. 9d. per 1,000 cubic feet, together with the residual products, would exceed 5,000*l.* Were the cost of construction to be repaid in thirty years (in terms of the Public Health Act), and the gas to be supplied for public and private consumption at 2s. 9d. per 1,000, there would still remain a balance, applicable to further reduction or to public improvements; and the balance would increase from year to year, by the gradual discharge of the debt and extension of consumption. The reporter entered into statements as to the cost to Gateshead of the public lights, and presented estimates showing that gas *can* be manufactured and supplied, including 5 per cent. interest upon capital invested, at 2s. 3½d. per 1,000, or that the prime cost is 1s. 9½d. The present charge is 4s. 6d. per 1,000, with a discount of 10 to 20 per cent., the average price being a fraction less than 3s. 10½d. The discount of 20 per cent. is, however, only allowed to the very largest consumers. In conclusion, the surveyor remarked that "unless the Gas Company (as Mr. Rawlinson, the superintending inspector, observes,) see their true interest in a more equitable arrangement, the corporation of Gateshead, in self-defence, will be obliged to obtain powers, and to construct works for the borough." "Should the company, however," adds the *Gateshead Observer* in reporting the proceedings of the authorities, "see the necessity of a considerable reduction, there is no doubt, from the past experience of similar cases, that the increased consumption will more than compensate the shareholders. We believe we may state that the gas directors have now under consideration the question of a reduction of price, and we have no doubt that they will '*come down* handsomely.'"

Manchester.—The Gas Committee have applied to the corporation for power to extend greatly the capabilities of the gas works, as the demand for gas is immensely on the increase. The corporation agreed to a resolution, empowering the Gas Committee to borrow 30,000*l.* for the purpose. Councillor Stracy regretted that these extensions had not been made earlier. He then alluded to the present price of gas, and said that ere long this question must come before the council. The price now paid was 5s. per 1,000 feet, whereas in Liverpool, where they had not the coal so near at hand as Manchester had, the price was 4s. 6d. In Liverpool, the three gas companies, now amalgamated, paid 10 per cent. per annum to their shareholders. He attributed this greater prosperity in Liverpool than Manchester to the fact that they had a more liberal way of treating their customers. In Liverpool they leased their meters at 1s. per quarter. All round Liverpool, for a distance of four miles, gas was introduced, but in the neighbourhood of Manchester this was the exception. In London, the charge was 4s., and a great quantity of the coal was brought from Wigan. In Leeds, the price was 3s., and the last dividend was 10 per cent. among old subscribers, and 6 per cent. among new. In Wakefield, the charge was 3s. and in Stockton only 2s. 6d., and yet the latter paid a dividend of 8 per cent. In Gloucester, too, the price was only 2s. 6d. per 1,000 feet, and they paid 7½ per cent. The highest price which he could find, as being paid for gas, was at Gravesend, where it was 6s. per 1,000 feet. He wished the Gas Committee to look at these facts, and to consider whether they could not reduce the price.

Dunstable.—The price at Dunstable is to be reduced from 10s. to 7s. a thousand cubic feet, and a new gasometer is to be put down to meet the anticipated increase of consumption.

Cambridge.—The Cambridge Company have announced a reduction of price from 5s. 6d. to 5s. During the last six years they have come down from 9s. to 5s. 6d.

Doncaster.—The following particulars, quoted from the *Doncaster Gazette*, may be instructive:—"On Monday last, the general meeting of the shareholders of the gas-works was held at the Guildhall, in this town; but such is the confidence of the proprietary in the committee of management, that not a single individual was present except the executive. From a statement of accounts produced by the clerk, it appeared that the receipts of the past year were, for gas by meter, 1,911*l.* 5s. 5d.; street lamps, 645*l.*; public clock, 10*l.*; coke, 267*l.* 7s. 0½d.; tar, 27*l.* 6s. 3d.; lime, 15*l.* 18s. 8½d.; old metal, 12*l.* 9s. 4½d.; fittings, &c., 55*l.* 13s. 3½d.; sundry discounts, 79*l.* 1s. 10d.; rental of meters, 161*l.* 19s. 4d. The expenditure was, for coals and slack, 1165*l.* 16s. 4d.; freights and dues, 233*l.* 2s. 1d.; tradesmen's bills, 1,133*l.* 9s. 2d.; wages, 763*l.* 11s. 8½d.; making a total of 2,615*l.* 9s. 5½d.; and leaving a surplus of 570*l.* 11s. 9½d. in favour of the company. Besides this, there is due a considerable sum for the last quarter which would make in round numbers a clear 1,000*l.* There is no wonder that the shareholders should be satisfied with this state of prosperity." They contemplate extending their works by an addition of a gasometer capable of holding from 60,000 to 80,000 cubic feet, and other improvements which the increased necessities of the town require.

LIVERPOOL ARCHITECTURAL SOCIETY.—A meeting of this society was held on Wednesday evening, the 4th. Mr. J. B. Edwards explained a new pharmaceutical apparatus, invented by Coffey and Smith, of London. The machine is worked by gas, having a peculiar burner, which causes the oxygen of the air to consume the carbon of the gas. The burners were stated to cost about 8s. or 9s. a dozen, and the apparatus itself varied in price from 5*l.* to 30*l.* Several papers were postponed. The evening's proceedings terminated by reading a paper on the laws regulating the use of ornament.

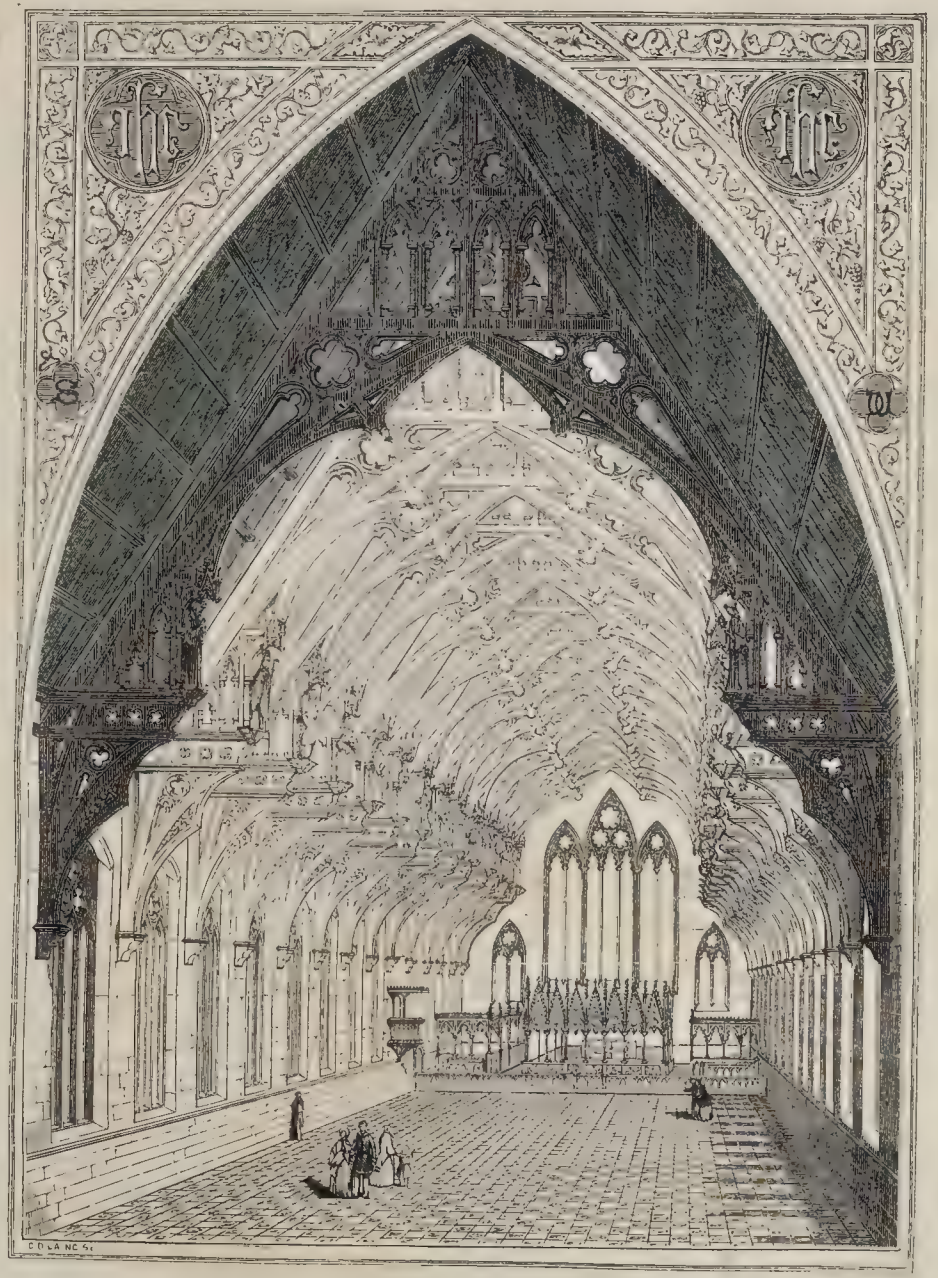


ST. WALBURGE'S NEW CHURCH, PRESTON, LANCASHIRE.

Mr. JOSEPH HANSOM, Architect.

ST. WALBURGE'S (R.C.) CHURCH, PRESTON.

The accompanying engravings represent the exterior and interior of St. Walburge's Church, Preston, which is now in course of erection, from the designs of Mr. Joseph Hansom, architect. The plan of the church is a rectangle, 165 feet long by 55 feet wide. It is divided into thirteen bays, which are marked on the exterior by fourteen buttresses, projecting about 6 feet 6 in. from the walls, and 10 feet 6 in. apart. The stone made use of in the erection is a self-faced, even-bedded stone of a dark purplish colour, which contrasts strongly with the light tone of the ashlar in the windows, buttresses, quoins, &c. The western façade is divided into three portions by two lofty buttresses, which run up on the gable to-



ST. WALBURGE'S NEW CHURCH, PRESTON, LANCASHIRE.

a height of 69 feet. The chief point in it is the wheel window, 22 feet in diameter, filled with geometric tracery. On each side of this is a triangular window of the same description, and over it is a small arcade of five lancet-headed lights. The archway of the main entrance is 8 feet 6 in. wide, and about 8 feet high to the springing. It is divided into two trefoil-headed doorways by a centre mullion, over which is a pierced quatrefoil, to be filled with stained glass. On each side of this is a smaller doorway, 4 feet 6 in. wide, and over the whole runs an arcade of nine windows, each of which contains two lancet lights and a small pierced quatrefoil. The whole is flanked by two staircases at the angles, each covered with a stone roof, and terminating in a crocketted finial. The total height from the ground to the top of the cross is 91 feet. The roof rises from the parapet to a height of 83 feet from the ground, and is terminated by elaborately ornamental ridge tiles. On the south side, near the east end, is the tower and spire, the masonry of which has not yet progressed beyond the foundations. This will rise from a base nearly 40 feet square, to a height of upwards of 300 feet. The foundations to support this immense structure are strong and massive, consisting of substantial inverted arches along each side from angle to

angle, and similarly from angle to angle through the centre, the whole resting upon a solid bed of masonry, and each terminating under the heavy corner piers nearly 10 feet square at the base, and upon which mainly the weight of the tower and spire will be thrown. In the lower part of the tower are three massive archways, each 10 feet wide.

Within, the roof is the chief feature, and consists of fourteen massive principals of ornamental design. On the hammer beams of each principal will be placed sculptured figures of saints, and over each an ornamental canopy. It is due to the liberality of several generous individuals to state, that not less than nine of the fourteen principals, each of which is valued at about 70*l.* have already been promised as presents to the church, and it is expected that before the roof is on, the remainder will have been similarly disposed of. There is a small gallery at the west end of the church, to contain about 100 youths as choristers. The organ-loft and orchestra will be in the tower, where there is a large open archway, about 50 feet high. The gallery here will project into the church, supported by carved brackets. The pulpit, carved in stone, is entered from steps built in the wall, the roof over which is supported by arches of a similarly ornamental character. There will be three altars within the church, each surrounded by carved oak screens.

Messrs. Cooper and Tullis, builders, of Preston, have contracted for the masons work.

A VOICE FROM A FOREIGN VISITOR.

THE following remarks of a German periodical represent London under a new point of view:—"Any one who had not lived but in a little German town, and still acquired English to some degree, will undergo unfelt sensations and thoughts on sojourning in the world-city of the present age—being such a huge aggregation of matter animate; at least moving in such exertion, that it staggers the mind. It was some minor arrangements which surprised me the most, on seeing them in actual operation. You post a letter (half an ounce) for one penny to the remotest of the Shetland or Orkney islands—*ad ultima Thule*. You may drive in a second class railway carriage about 20 miles out of town, paying for a return ticket, available the whole day, one shilling. Then, the whole south and east circumference of the town is encircled by a railway. I went to Blackwall, for which distance a return ticket is also only sixpence. Still, there are millions of our money which must be realized by such trifles. It will equally surprise my countrymen, that one may get in the world-city a cup of coffee for one penny, in places where French, and even German, periodicals are at hand. You can take a decent clean bath for one penny, if cold; for two-pence a warm bath. I heard that a few years since Jullien gave concerts, where Sivori (the pupil of Paganini) played, the admission being one shilling. All these things are, by themselves, minor affairs, perhaps, unobserved by the general sight-seer; but I had come to London just to study *Londinum populare*. Now, any one may perceive, that such public accommodation pre-supposes a variety of schemes and social agencies of the deepest complexity—a nation educated and cultured, at least as far as business goes; a certain quiet *aplomb* and steadiness of national character. The continent has not such a town, because it has not such a people as the English: this all remounts, however, to the period of the Magna Charta, the Commonwealth, &c. Consider a social organism of comparatively small extent, consisting of two millions and a half of human beings—how this has been all formed, preserved, how it exists. Enterprises and schemes in operation, which everywhere else would surpass the might and treasure of monarchs; all accomplished by a few modest-looking, spare-worded (*wort-kargen*) citizens; Messrs. Fox and Henderson, accepting the proposal of the Royal Commissioners about the building of the Crystal Palace with the words, "this will do for us." But while things have been conducted here to the *utmost limits* of the present social system, I think that some novel, unexpected change or revulsion is at hand. Can any one think that we will say, anno 1860 or 1870, London has now three millions of people, and so on *ad infinitum*. No, no! Truly said our great thinker, *Göthe*, "there is provision made for trees not growing up into heaven." I do not speak politics; still, on seeing London, its under-water Tunnel, the New Houses of Parliament endless pile, the Egyptian(?) granite terminus near Euston-square, 90,000 people (the army-number of Darius and Cambyses) congregated simultaneously under the same roof; the East-India House, whose few officials govern more land than Alexander the Great, or Napoleon; the offices of the Missionary Societies, who have agents further than any state of Europe; seeing and considering all these things, the thought of "*anne ultra?*" struck my mind. Surely not in that and the same track. Nowhere else, and nowhere more than here, the idea struck me, that we stand on the threshold of some great social crisis, such as that formerly brought on by Moses, the Egyptian priesthood, &c.; and then we Catholics may conclude with our old liturgic refrain:—"*Domine salvum fac Populum tuum.*"

THE PRINCESS'S THEATRE.

SHAKSPEARE'S "King John," as first played before her Majesty at Windsor under the direction of Mr. Kean, and now at the Princess's Theatre, is one of the most complete performances that has ever been seen in England. A list of authorities for the dresses and decorations at the head of the bill, including Meyrick, Planché, Strutt, Fairholt, Fosbroke, Shaw, Montfaucon, and Willemin led us to expect that more than ordinary pains had been bestowed upon it, but did not prepare us for the extent to which the care and expenditure have been carried. The acting, the scenery, the costume, the grouping, were all equally good, and produced a whole of great excellence. Mrs. Charles Kean as *Constance*, Mr. Kean as the *King*, Mr. Wigan as *Faulconbridge*, and last *and* least, Miss Kate Terry as *Arthur*, left nothing to be desired. The first scene, a hall in the palace, with open wood roof, stained windows in the sides, and *tiled floor*, is very effective. Angiers, Northampton Castle, and the last scene (Swinstead Abbey), though the architecture is a little too late, also deserve warm commendation.

DEFECTIVE EMBANKMENTS.

APPALLING CATASTROPHE AT HOLMFIRTH.

ON Thursday last, a fearful catastrophe took place along the line of a valley leading from a great reservoir at Bilberry-mill, where the waters of the Holme river and the Digleebrook were impounded, in a deep gorge between the lofty hills in this part of the West Riding of Yorkshire, by means of an embankment about 150 to 200 yards wide, and with a depth of 85 to 90 feet of water behind it. On the early morning of the day named this embankment entirely gave way, and although its insufficiency was too well known, and although at least fifty persons were near it, watching at the moment, so sudden was the break down, that about 100 lives were lost as the body of water swept down through the valley, carrying away residences, mills, machinery, and other valuable property, it is said, to the amount of 500,000*l.* to 600,000*l.*

It so happens that the commissioners who are considered responsible for this awful calamity are the principal mill and other owners and occupiers themselves, who got power in 1837 to erect five great reservoirs, of which this is one. The commissioners subscribed 40,000*l.* towards completing them, and afterwards did construct three of them by means of 30,000*l.* additional money raised on mortgage. The contract for constructing the reservoir in question, according to a local correspondent of the *Times*, was let to Messrs. Sharp and Sons, Dewsbury, in 1840; but before they had completed the embankment the contract was broken, in consequence of an alleged and too well ascertained defect in the foundation. This defect was supposed to arise from a spring of water under the embankment, which rendered the puddling ineffectual, and there was a leakage underneath in proportion to the pressure of water in the reservoir, causing the embankment to give and to settle down unequally. A Chancery suit was the consequence, which has not yet been settled. The contract was afterwards relet to Mr. David Porter and Brothers, and by the advice of Mr. Leather, engineer to the commissioners, a cofferdam was sunk in the centre of the embankment to get at the seat of the spring, and means adopted which it was hoped would remedy the defect. This remedy, however, never satisfied the public and the owners of property, and from that day to this, public distrust only increased down to the moment of the catastrophe itself. The commissioners, too, as a body, got into official arrear or difficulties, and the reservoir became dilapidated, till at length it is alleged that had not a screw become useless which opened a valve to relieve the pressure, the embankment, defective as it was, would have been still standing, together with the valuable property of those who thus allowed the means of their own certain destruction to accumulate and come to a crisis, in the face of a perfect knowledge of the fact.

There is but too much reason to distrust the sufficiency of many other embankments, about which not the slightest fear is entertained; and we earnestly trust that the supine fatuity of those who passively allowed such a catastrophe to overwhelm them in the present instance, and to sweep away all their property, will be a warning to others, inducing them timeously and liberally to contribute a portion of *their* means to save the whole.

HOUSE AGENCY.

HUGHES *v.* WOOD.

IN the Shoreditch County Court, on 26th ult., a peculiar case, *Hughes* v. *Wood*, was ultimately decided by Mr. Serjeant Storks, who refused to disturb a verdict for 30*l.* given to the plaintiff by a jury empannelled before the same judge in the same case, previously tried in the Shoreditch County Court, and the main particulars of which, as then reported, were as follow:—The plaintiff had ten houses to sell, and agreed with the defendant, a house-agent in Kingsland-road, to employ him as his agent to endeavour to effect a sale of them for him on the usual per centage. The owner wished to obtain 1,000*l.* for the property. On the part of the plaintiff it was alleged that the defendant had, in the first place, demanded 1,150*l.* for it; that in the afternoon of a day (24th October) on the morning of which a Mr. Gibbs had offered him 800*l.* for it, the defendant called on the plaintiff and told him he had had an offer of 500*l.*, of which he advised the acceptance, as the property was in a dilapidated state; and that as the defendant had made no mention of Mr. Gibbs's name, or of the sum he offered, the natural inference was that he intended to deceive the plaintiff, and to take an undue advantage of him. The defendant, it was admitted, had afterwards stated he had had an offer of 700*l.* On the part of the defendant it was alleged that he was not aware of Mr. Gibbs's offer when he went to the plaintiff; that this offer had been made to the defendant's clerk, although Mr. Gibbs had declared it was made to the defendant himself; and that the offer of 700*l.* had been made by Mr. King, an auctioneer, and as the defendant himself, in evidence, called him, a "client" of his. The defendant, however, in giving his evidence, further stated that he saw Mr. Gibbs with the plaintiff in the afternoon, when he called (Mr. Gibbs had gone to the plaintiff and got the property for 770*l.*, after negotiating with the defendant), and that he, the defendant, "was disgusted with him." On further examination, the defendant declared that he considered his "client," Mr. King, to be entitled to preference, as his offer was made before he was informed of Mr. Gibbs's offer, and that on this account, he had still proposed to the plaintiff to sell his property for 700*l.* although he then knew that Mr. Gibbs had offered 800*l.*

MARYLEBONE BANK FOR SAVINGS.—At the twenty-second annual general meeting of this Institution, held on the 5th inst. it appeared from the report read to the meeting, that the balance due to depositors is 350,554*l.* 0*s.* 7*d.*

REFORM OF EPITAPHS.

In your late numbers you have published some instances of curious and inappropriate epitaphs on tombstones. I have a collection of such in my possession, and now send you a few from it. From Dorchester, Oxfordshire:—

"Here lies the body of ——, an honest man,
And when he died he owed nobody nothing."

From Bideford, Devonshire:—

"The wedding-day appointed was,
And wedding-clothes provided;
But when the day arrive did,
She sickened and she die did."

From Ulverstone:—

"Here lies my wife,
Here lies she:
Hallelujah,
Hallelujee."

From Sevenoaks:—

"Grim death took me without any warning,
I was well at night and died in the morning."

From Doncaster:—

"Here lie two brothers, by misfortune surrounded,
One dy'd of his wounds, and the other was drownded."

J. S. P.

Finding that your readers are interested in epitaphs, I send you two or three extracted from a work published by "William Snow," in 1817, containing a great many taken *verbatim* from different parts of England and Wales.

The first is an epitaph on a poor woman who kept an earthenware shop, taken from a churchyard at Chester:—

"Beneath this stone lies Catherine Gray,
Changed to a lifeless lump of clay:
By earth and clay she got her pelf,
And now she's turned to earth herself.
Ye weeping friends, let me advise,
Abate your tears and dry your eyes;
For what avails a flood of tears?
Who knows but in a course of years,
In some tall pitcher or brown pan,
She in her shop may be again."*

The following is taken from Newcastle churchyard:—

"Here lies Robin Wallas,
The king of Good Fellows,
Clerk of All-hallows,
And maker of bellows.
He bellows did make till the day of his death,
But he that made bellows could never make breath."

Here is a curious one from Hendon churchyard:—

"Beneath this stone Tom Crossfield lies,
Who cares not now who laughs or cries:
He laughed when sober, but when mellow,
Was a har'em-scar'em heedless fellow.
He gave to none designed offence,
So '*Honi soit qui mal y pense.*'"

Most epitaph writers try to find out the best qualities of the departed; not so the writer of the following, taken from a churchyard at Manchester:—

"Here lies John Hill,
A man of skill,
His age was five times ten:
He never did good,
Nor ever would,
Had he lived as long again."

I cannot recollect where I saw the following, but I can answer for its being genuine.

"Sacred to the memory
Of Miss Martha Gwynne,
Who was so very pure within,
She burst the outward shell of sin,
And hatched herself a cherubim."—R. J.

*** Several other correspondents have favoured us with collections of similarly distressing outrages of good sense, good taste, propriety, and right feeling; but we do not think it desirable to print them. Our object was to aid in awakening attention to the errors that have been committed in this respect, with the view of inducing the adoption of a better course. The case is fully proved, and needs no strengthening.

* Another version of Shakspeare's—

"Imperial Cæsar dead and turned to clay,
Might stop a hole to keep the wind away."—Ed.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

February 11.—The Hon. Robert Meade exhibited a siege piece struck at Newark in the time of Charles I. and a brass coin of the Emperor Macrinus; and Mr. Rolfe, a silver medal struck in commemoration of the triumph of the bishops who were sent to the Tower by James II. Mr. Horace Burkitt exhibited a drawing of a Roman urn of a novel type, discovered in making the recent excavations in Cannon-street, London; and two drawings of sepulchral slabs, with crosses sculptured on them, from the same place. They were of remarkably small dimensions. Mr. Briggs, of King's Newton, communicated a drawing and description of a curious knife, or *couteau de chasse*; and Mr. Carrington, some further remarks on the cross of John Trembras, of Renkeril, Cornwall, exhibited by him at the last meeting. Papers were read from Mr. H. W. King, on the antiquities in Runwell Church, Essex, and the inscriptions and curious coats of arms on bells in other churches; from Mr. Lukis, of Guernsey, on the discovery of two sepulchral caves in that island, in August, 1851, accompanied by two drawings; and from Mr. Pretty, of Northampton, on recent discoveries of Roman and Mediæval antiquities in that city. Mr. Black exhibited a fragment of tapestry which he had found in the Roll's Office, representing the figure of Penelope. It was of the close of the fifteenth century. Mr. Planché read some observations on tapestry in general, and particularly those pieces which are still in existence in this country at Hardwick and Haddon Halls, Hampton Court, and other palaces and mansions. Mr. Pettigrew concluded a very interesting evening by an account of his recent unwrapping of the body of the ecclesiastic discovered in the crypt of St. Stephen's Chapel, Westminster. A cast from the face was on the table, and also the soles of the shoes or sandals found upon the feet.

Notices of Books.

Notes on the Organization of an Industrial College for Artisans. By T. Twining, Jun. For Private Circulation.

The letter of Mr. Twining to Lord Shaftesbury, on the subject of industrial schools, which came before the public through our pages, has expanded in the author's hands into a specific and formal outline of an organised system of industrial education for the working classes, with a central metropolitan college and local schools throughout the country. In his introduction the author says:—

"The form which I have adopted in arranging my remarks is that which seemed most likely to render them convenient to those who might be desirous of giving a full consideration to the subject of a National College of Trades, and more particularly to any committee which might be appointed for advising on that important desideratum. I have given *seriatim* most of the topics which it would be desirable to discuss, adding a few observations in a merely suggestive form, and less with the object of advancing my own views than with the hope of eliciting valuable opinions from others. My suggestions are based on the principles and preliminaries contained in my letter of the 21st of August, given above. They chiefly relate to the organization of the Central Industrial College, which, I assume, might, allowing free scope for progressive enlargements, be made to accommodate at the first about 300 students, representing in duly apportioned numbers a considerable variety of Trades,—Artistical, Chemical, and Mechanical. They would enter as good workmen, being required to give previous proof of such abilities as can be derived from an ordinary apprenticeship: they would be instructed, collectively, in general information, and, by groups, in special knowledge: they would be trained to work with head as well as hand, and to appreciate and apply the advantages of science and the graces of art, and they would leave the College fully qualified to become, some masters in trade, others foremen or first-rate workmen, whilst others again, carefully selected and instructed for the purpose, would become teachers in their turn, and diffuse throughout the country the advantages of Industrial Education."

The establishment of an Industrial Museum is also suggested; and on this subject Mr. Twining says,—

"If the walls of the National Gallery were dismantled of their pictures, which every one wishes to see transferred to a less smoky atmosphere, the building might be enlarged, by additions for which peculiar facilities present themselves; and whilst one portion would be allotted to the Royal Academy, with its school of Fine Arts, the other portion, including the barracks, might accommodate the expanding dimensions of the Society of Arts, together with the proposed Museum of Industry, of which the management would so naturally devolve on that Society, and space would be afforded for annual exhibitions of the nature of those now cramped within the walls of the house in John-street, Adelphi. . . . . In accordance with these adaptations of existing establishments, I hope to see arise the new elements of industrial organization imperatively claimed by that manufacturing pre-eminence which we would fain perpetuate; and first in importance, and with name and proportions by which we may at once recognise the offspring of the Great Exhibition—The Albertine College of Trades."

An Account of the Danes and Norwegians in England, Scotland, and Ireland. By J. J. A. Worsaae, For. F.S.A. London: Murray, 1852.

Notwithstanding the intimate connection in early times between this country and Denmark (anything but agreeable in some respects, it must be admitted), and the numerous memorials of this connection which remain amongst us, very little was known of Modern Denmark by the majority of English readers until recently. Mr. Peto's endeavour to establish a more ready means of communication by means of a line of steamers from Lowestoft (an endeavour, which, we fear, has not been very successful up to this time in a pecuniary point of view), had the effect of directing public attention to Denmark, and led to the wide dissemination of general particulars of its present condition and aspect.

The book before us originated with the late King Christian VIII. of Denmark, who was desirous that an inquiry should be made respecting the monuments and memorials of the Danes and Norwegians remaining in Scotland and the British Isles. The task was entrusted to Mr. Worsaae, who visited England in 1846, and travelled in the kingdom for twelve months. Mr. Worsaae brought with him the reputation of a distinguished archæologist, and fully confirmed it to those who had the pleasure of meeting him.

Denmark Court, Denmark-street, and Copenhagen-street, remind the wanderer of more recent connection with this country, but the memorials of the early occupation of London by the Danes and Northmen are numerous. At St. Clement's Danes in the Strand, called in the middle ages *Ecclesia Sancti Clementis Danorum*, the Danes had their own burial-place; and here, after vicissitudes, were interred the remains of Canute's son, Harold Harefoot. Southwark (or Sydvirke) had a Danish origin. Here there is a church to Olaf, the Norwegian king; and Tooley-street is a corruption of St. Olave-street. To Olaf and Magnus, the latter also a Norwegian, various churches were dedicated. Mr. Worsaae shows, as might be expected, a desire to magnify the influence exercised by the Danes over the people they harassed: he has, however, produced an interesting book, calling for the attention of all students of history.

Murray's Official Handbook of Church and State. Murray, Albemarle-street. 1852.

Mr. Murray is determined, it appears, to provide guide-books for every one to every thing. In its nature this new work is essentially and unavoidably periodical, and subject to changes; but it will prove in one sense to be a standard one for multifarious reference and general use. Mr. Samuel Redgrave is the compiler. The work appears to be a complete *omnium gatherum* of all that relates officially to church and state. It contains the names, duties, and powers of the principal civil, military, judicial, and ecclesiastical authorities of the united kingdom and colonies; with lists of

the members of the legislature, peers, baronets, &c. Appended is an index of the names of the chief officials in the various departments in the state, so that conversely the office may be ascertained, or the fact whether an office is held at all, wherever a knowledge of the name is associated with a doubt as to the office. The body of the work is not made up of mere lists, however. It contains a well-digested and condensed historical account of all the chief offices and institutions in the state; a description of the duties attached to each; and a great mass of miscellaneous information, constituting in all a handsome volume, clearly printed on good paper, and in all respects well got up, as all Mr. Murray's books are.

Miscellanea.

Sanitary Condition of Plymouth.—The average mortality of Plymouth being seriously beyond the general average,—25 per 1,000, in fact, in place of 12 to 16 per 1,000,—the Central Board of Health, in virtue of their powers under such circumstances, instructed Mr. R. Rawlinson, one of their superintending inspectors, to call for a preliminary inquiry into the general state of the borough, which has lately been gone into agreeably to notices issued to the inhabitants, the evidence of many of whom has been taken by the inspector, who has also received reports on the questions of water supply, gas, &c. In reference to the subject of a question put to the inspector, as to whether the Board had in certain cases taken into consideration the mortality by cholera, Mr. Rawlinson very properly remarked, that so far from an accession of disease created by cholera or typhus, and an irruption of Irish, being an excuse for increased mortality, there was so much the greater reason why there should be an inquiry, and why further powers should be obtained. A great many ingenious theories had been propounded from time to time to account for cholera: one person said it was in the water, another stated it to be in the tracks of rivers, a third said it settled in particular stratifications, whilst some said it was electric, and others that it was in the atmosphere. Every reason had been assigned which could be assigned, except the right one, and that was *filth*,—a commodity, we may add, of which there appears to be more than enough in Plymouth and its neighbourhood.

A Perforating Machine.—The tunnel of the Troy and Greenfield Railroad, through the Hoosac mountain, is made with one of Wilson's stone-dressing machines. This machine is worked with a steam engine, and will enter from 6 to 15 linear feet per day. The cutters are circular plates of cast-steel, of 14 inches diameter, half an inch thick, and ground, with a bevil on each side, to an edge. They are placed on the rock, at the angles of about 45 degrees, and roll over the surface with great rapidity. The edge is pressed into the rock with great force, and acts as a wedge, prying up and throwing off the rock in a surprising manner. A block of granite, 10 feet long and 4 feet wide, was placed on a carriage, and submitted to a single cutter, gauged to cut 2 inches from its surface. It passed over the entire stone in 22 minutes, and cut off 1,600 lbs. of rock, leaving the same as smooth as any hammer-dressed stone.—*Albany Argus*, U. S.

Application of the Thermometer.—Dr. Spurgin, who is always inventing or contriving something new, has formed a neat little instrument for ascertaining the amount of increase of temperature of the various internal organs of the body under inflammation, as compared with those that are not, and the like in fever, where different organs are hotter than others. As far as he has tried it, the results are curious and valuable. It is merely a thermometer fixed in a *hollow cone*, so that the bulb can rest on the part of the body nearest to the inflamed organ, and the heat collected all around it; and the Dr. has even detected one part of the brain hotter than another under fever, and applied leeches accordingly with good effect in reduction of the fever in general.

"Is low-priced Gas cheap Gas?"—Under this rather significant and "taking" but not very sensible or logical title, Messrs. John Tallis and Company have published a sheet of letterpress, in which they state their case of complaint against the Central Gas Consumers' Company for charging them 237*l.* odd for one year's supply of gas, in place of 129*l.* odd charged previously by the Chartered Gas Company. The gas of the former company, they allege, has less powerful *heating* properties than that of the latter; and as their principal use of gas appears to be for heating purposes, they have hence required to consume a great deal more gas than before. On this ground they not very correctly conclude, that as the gas complained of yields less heat, it must also yield less light, which does not necessarily follow, but rather the very contrary. We do not mean to constitute ourselves special pleaders for the Central Gas Company, however, whose unseemly proposal of amalgamation with an antagonist to whom they stood opposed as consumers against monopoly and overcharge, and who made desperate endeavours to destroy them as such,—at once threw a stain of suspicion on them which could not but cause a withdrawal of confidence from them. For all that we know, their gas may be inferior in every respect to the Chartered Company's *equally cheap*, or "low priced" rather, be it noted—nay, according to Messrs. Tallis's statement, their still cheaper—article; but there is something glaringly inconsistent in the conclusions Messrs. Tallis wish thereby to establish. Some "low-priced" gas may be bad; but equally "low-priced" gas, according to their own admission, is good: indeed the Chartered Company, to whose gas they have returned, not only charge just 4*s.* a thousand cubic feet, as the Consumers' Company do, but, more than that, have engaged to supply all Messrs. Tallis want for 110*l.* a year instead of 237*l.*! The fallacy, however, does not rest here merely. Much *high-priced* gas is *also bad*. Are we to conclude, then, that high-priced gas is cheap, even though it were proved that low-priced gas is dear? The whole argument is a tissue of inconsequent absurdity. The quality of the gas of the Central Consumers' Company ought nevertheless to be closely criticised and tested, both as to its heating and its lighting quality; for the statement of Messrs. Tallis is assuredly startling, and it is alleged to be by no means a solitary or exceptional one.

The Curvilinear Omnibus.—A new build of omnibus has been on private view at Mr. Tucker's, New Kent-road, which seems to have some good points mixed with as many bad. The seats are divided, but are not wide enough, especially the furthest one on each side from the door, and the old objectionable end seat increases the inconvenience, though otherwise very comfortable. The interior is ventilated both above and beneath, and the glasses are therefore fixed so as to prevent either rattling noise or disputes about opening and shutting them. The back of each seat is curved outwards, so that a greater width of passage is obtained. The feet sink into boxes, to prevent treading on them, but the openings are apt to trip one on entering, if not occupied. Between and above each seat is a bell-pull acting on a single bell near the conductor's place. Access to the top is facilitated by steps.

Hoardings.—An inhabitant of Edgeware-road complains of a hoarding being erected in front of a house under repair, without having a railed-in footway for the convenience and safety of passengers. We would advise him to give notice of the fact in a formal complaint to the surveyors of pavements.

Wages in the Middle of the Week.—According to a Glasgow paper, the principal ironfounders of that important place have commenced paying their workmen on Wednesday, at two o'clock, instead of Saturday; and we learn that the expectations of the humane and patriotic masters have been more than realised. The workmen returned after dinner, almost in every instance, leaving their wages behind them with their families, who have now leisure and daylight to seek for the cheapest markets and spend the money to the best advantage.

English House in America.—A house is about to be built for Mr. Shipley, in a beautiful district near the town of Wilmington, in the United States, and distant about twenty miles from Philadelphia, from the designs of Mr. G. Williams, architect, of Liverpool. The windows of the entertaining rooms command extensive views of the Delaware river and the country through which it flows. The back ground consists of primary rocks, covered with woods. The external walls of the house are to be built of granite rubble, coursed every 12 or 14 inches in height; the quoins and window dressings of white marble. A verandah of wood projects 8 feet, to afford shelter from the rays of the summer sun, as well as an agreeable place for recreation and enjoyment. The house is heated by the English system of open fires, in addition to the American method of stoves, which are to be made use of as auxiliaries in severe weather. Attached to the drawing-room is a spacious conservatory, at the end of which is a polygonal apse, containing a fountain, which forms a termination to the vista through the room.

Office of Surveyor of Public Buildings at Birmingham.—In council, last week, the mayor brought forward the subject of a proposal in a report by the General Purposes Committee that Mr. D. R. Hill should be appointed to this office, at a salary of 250*l.* a year. He read a memorial from the Society of Architects, signed by Mr. S. Hemming, as chairman, deprecating the appointment as proposed, and praying that an architect should be chosen at a fixed salary, and that he should devote his whole time to the duties of the office. Alderman Hawkes presented a similar memorial from eighteen of the resident architects of the town; and the mayor then moved that the whole question be referred to the committee itself to report. Alderman Muntz moved an amendment, to the effect that that part of the report which recommended the appointment of the surveyor of public buildings be not approved, such officer not being required at present. After some discussion and difference of opinion on the subject, expressed by various members of the council, Alderman Muntz's amendment was finally adopted by a majority of twenty-eight to twenty-six.

Internal Quoins — Churches.—At a meeting of the Ecclesiological Society (on the 13th January), it was suggested, with reference to the great difficulty frequently found in the attempt to show the stonework of quoins, &c. on account of the face of the quoins being flush with the face of the wall, and so the plastering having some projection beyond the quoins, that this might well and easily be got over, by following what was an old practice, and a very good and rational practice too,—the termination of the plaistering in a pattern at the edge. Examples of this still remain round most of the windows at the chapel of S. Cross' Hospital, and in a chapel in Gloucester Cathedral, and doubtless elsewhere also. In both cases the plaister shows an edge about a quarter of an inch in thickness, finished either with a zigzag or a wavy line, or in a succession of scollops and other patterns.

Proposed Geological Museum for Scotland.—The Treasury has been memorialized by the Highland and Agricultural Society of Scotland, on the subject of establishing a Museum of Economic Geology and Chemistry in Scotland. The memorial sets forth "that there does not exist in Scotland any Museum of Economic Geology and Chemistry, and that the establishment of such an institution would be of great public benefit, by affording the means of obtaining definite and correct information with regard to the mineral wealth of Scotland, its ores and coals, its building, paving, and ornamental stones, granites, and marbles; the localities and composition of its soils; the qualities of its different clays for brick, tile, or ware; and of its limestones for building purposes and manures; and generally, by developing the industrial resources of its territorial products." The subject has also been taken up in the city council of Edinburgh. The memorial quoted also prays the Government to extend the geological survey to Scotland.

"Men of the Time."—The publication, entitled *Men of the Time*, treats the architectural profession very slightingly, not to say scurvily; for although it professes to include *architects*, with regard to that class its promise should have been made in the singular instead of the plural number, Mr. Barry being the only one belonging to it who has obtained a niche in its pages,—and an exceedingly meagre and evasive notice it is. Yet there are others whose names are not unknown even to the general public, and who have quite as good a right to figure among the celebrities of the day as some of the people who are there dragged in. There is Welby Pugin, for instance, who has been not a little zealous and influential in the cause of mediæval art. There is also his opponent, Mr. Ruskin, who was surely entitled to notice, not indeed as an architect, but as an author and a critic, whose writings are, it seems, as popular as they are original. Still more strange, perhaps, to say, even the celebrity of Paxton has not obtained him admission into this literary Valhalla. Poor Sir Joseph! After all, however, the excluded may reconcile themselves somewhat philosophically to their lot, when they discover who are some of those who have got in, and also some of those who have been kept out; among which last are the Earl of Carlisle, Sir Charles Fellowes, Haghe, Powers, Thorburn, and many other men of mark. As to the women, they are all put under an extinguisher.—Q. in the Corner.

Smoke Nuisance.—I have read your recent article on this subject, and ask your leave to call attention to the action of the reverberatory furnace heated with hot blast (recommended to be used in the working of my patent for making pipes, bricks, &c.): the waste heat of one furnace is sufficient to generate steam for an engine of ten-horse power (or three furnaces will work a forty-horse power), and afterwards to heat the air-pipes for hot blast. If properly worked, no uninflamed carbon ought to escape through the flues, thereby remedying the nuisance you speak of. —Wm. G. Elliott.

Engineers, Birmingham.—The Royal assent has been given to the supplemental charter of the Queen's College, in this town, and the Great Seal attached to it. Amongst other privileges conferred on the town and midland district, the supplemental charter enacts, in order to promote the mining and manufacturing interests, "That students who have completed not less than a three years' course of instruction in the engineering and architectural departments of the said college, and have passed, to the satisfaction of the examiner or examiners to be appointed by the council of the said college, three public examinations, shall be entitled to the academic rank of civil engineer in the said college, and receive from the principal a diploma under the seal of the college." "Her Majesty's further will and pleasure is that two members of the Institution of Mechanical Engineers and two members of the Architectural Society established in Birmingham, to be elected by their respective societies previously to the annual general meeting of the governors of the said college, shall be members of the council of the said college."

Lectures to Working Men.—Dr. Lyon Playfair lectured on 9th inst. at the Museum of Practical Geology, to artizans, on glass and its composition. It seemed to us that Dr. Playfair did not come up to the standard of previous efforts. We have had some communications on the subject of these lectures, but they reached us too late for consideration.

APOTHEGM.

"The Architect, who raises in the air
Enormous structures, massive, grand, and fair,
Leaves to the world the genius of his mind,
And is a benefactor of mankind!"

Andrew Park.

"Builder," Feb. 7.

Oh! Andrew Park, your apothegm is rare,
For few indeed the mighty truth would find,
That those who build their castles "in the air"
Become the benefactors of mankind.

P. De T.

Glass.—The ferro-vitreous order of construction, it appears, is now about to be applied, not only to horticulture, but to zooculture. Light is an important agent in the animal as well as in the vegetable economy, and cattle have been found to thrive and grow far better under a transparent roof than under one of impervious material. An experiment of a glass cow-house, 96 ft. long by 18 ft. wide, has recently been made by Mr. Lawford, F.H.S., of Tirydail, near Llandilo. Mr. Lawford has flowers, strawberries, grapes, &c., growing under the same roof; and the building being cheaper than others, as well as more healthful, he has erected a larger one for the accommodation of two lines of cattle.——The *Philadelphia Ledger* says that Mr. T. B. Rapp has invented a coffin of glass, which can be made air-tight, and of sufficient strength to prevent bulging. The price is higher than when composed of the universal material. The invention is to be patented.

Fire-proof Construction: Fire in a Factory.—On Sunday week a large factory belonging to Messrs. Thos. Freen and Co. cement and plaster of Paris merchants, &c. situate No. 3, Wharf, Regent's-canal, Kingsland-road, took fire. The floors were covered with large flag-stones, for the purpose of making the premises perfectly fire-proof, but these proved of no avail, and, on the contrary, are said to have retarded the exertions of the firemen. A powerful body of water was poured into the premises, but the moment it fell upon the stone, the flooring heaved to and fro in a remarkable manner, and finally parted asunder as if it had been shattered with gunpowder. The flames then shot forth with terrific fury, firing every portion of the factory, which was thus destroyed, together with a heavy stock of goods, machinery, &c.

Edinburgh School of Design.—The annual distribution of prizes to the pupils of this school took place in the Royal Institution on Friday week, Lord Rutherford in the chair. From the annual report to the trustees it appears that the number of students has continued about the same for the last three seasons, namely, 154, with 16 applicants. The occupations of the students are as follow:—Artists—Painters, 32; sculptors, 3; architects and engineers, 19; total number of artists, 54. Artisans—House painters, 6; ornamental painter, 1; engravers, general, 11; do. of pictures, 4; do. on silver, 2; do. on wood, 7; lithographers, 9; seal engravers, 3; die, stamp, and punch cutters, 3; silversmiths and chasers, 3; jeweller, 1; wood carvers, 8; ornamental modeller, 1; potter, 1; plasterer, 1; pattern maker, 1; glass stainers, 4; gilder, 1; brass-founders, 2; coach painters, 2; block makers, 2; upholsterers, 5; joiners and cabinetmakers, 9; chair makers, 2; smith, 1; tailors, 2; miscellaneous, 8; total number of artisans, 100. During the past session one artist turned picture engraver; one heraldic painter do. artist; one lithographer do. artist; two engravers do. artists; one engraver do. ornamental modeller; one engraver do. joiner; one engineer do. pattern maker. Perspective has been taught as usual to several of the students.

Art-Artisans' Institute.—Two important and influential meetings have been held at Bradford for the purpose of hearing and considering the views and explanatory statements of a deputation from the Council of the Society of Arts, Manufactures, and Commerce, with reference to a proposal of that society to aid in the establishment of Artisans' Drawing and Modelling Schools." The meetings were convened by the mayor, in compliance with a requisition signed by some fifty of the mercantile firms in the borough. Much interest was expressed in favour of the project, and various appropriate resolutions were passed. The first affirmed the great advantage which elementary drawing and modelling schools would confer upon Bradford, and the desirableness of establishing a self-supporting institution in connection with the Society of Arts. The second appointed a committee to carry out the project of such an institution. The third opened a list of shareholders. A prospectus, in which the provision of a suitable building is referred to and explained, has been issued.

Somersetshire Archæological Society.—The fifth *conversazione* of the season took place on Monday, the 2nd instant. The Rev. Frank Warre read a paper on "The early Manorial and Domestic Buildings of England," some of which he illustrated by his own sketches.

Valuation of St. Luke's, Chelsea.—The survey and valuation of this parish, prepared by Mr. Paine, has recently received the approval of the Poor-Law Board. The number of assessments is 8,665, which present a total annual rateable value of 212,777*l.* and a gross estimated rental amounting to 329,919*l.* Some idea may be formed of the nature and extent of this survey, when it is stated that the *weight of the book* (a volume wherein these assessments are set forth) exceeds 56 lbs.: it is bound and secured with clasps and patent lock, having three keys, to be disposed of as the Board may direct, so that alteration, without authority, is effectually prevented, and it is prepared on such a principle that it may become a standard document of reference in the event of assessments being *accommodated*, or otherwise, as is sometimes the case.

Dwellings for the Middle Classes.—A "Father of a Family," and other correspondents who are evidently amongst our newer series of readers, ask us to advocate the construction of a superior class of dwellings for persons with from 100*l.* to 150*l.* a year, and willing to pay 25*l.* to 40*l.* a year for rent of a separated floor, or "house," as they call it in Scotland, erected in some central situation for business. We have long and frequently urged the construction of such dwellings, and we are glad to find the want of them now forcing itself into notice, and we hope that an increasing demand will soon be responded to by some enterprising builder. That which, in a somewhat less complete state as to modern conveniences, has not only been found practicable, but has long prevailed, in Paris, Edinburgh, and elsewhere, cannot but be suitable to London. The argument sometimes adduced against it on the score of the cost of ground here is an absurd one, based on the very reverse of the truth.

[Advertisement.]

TO BUILDERS AND OTHERS.

The British Mutual Life Assurance Society, 17, New Bridge-street, Blackfriars, entertains proposals of any description involving the contingency of human life, and invites Builders and the public generally to examine for themselves the advantages gained for Assurers by the plan on which the Policies are granted, and which are indisputable except in cases of palpable fraud. It also recommends to their notice the British Mutual Subscription Loan Assurance Classes, established in connection with the Office, and which readily afford the means either for an eligible investment, or for obtaining pecuniary advances upon very advantageous terms, repayable by easy instalments extending over a lengthened period.

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[ADVERTISEMENT.]

BURGLARIES AT THE DUNDEE BANK AND AT MANCHESTER.

TO THE EDITOR OF THE BUILDER.

SIR,—Having just received the following testimonials of the practical worth and efficient security of our Patent Locks and Safes, we beg to submit them for the information of Bankers and the public generally.

We are, Sir, your obedient servants,

CHUBB & SON.

57, St. Paul's Churchyard, Feb. 7.

"Dundee Bank, Dundee, Feb. 6, 1852.

"Gentlemen,—I suppose it will be gratifying to you to receive the following testimonial of the security of your Locks. An attempt was made upon this Bank on the night of Saturday last by a set of thieves evidently quite accomplished in their profession. The part of our property which they selected for their operations was an iron door secured by one of your Locks, in attempting to pick which there can be no doubt all their ingenuity was at first expended, as the only alternative was the tedious and laborious one of boring into the lock, in order to destroy it. Before this could be accomplished a sudden alarm made them take to flight; but the work done in boring, &c. could not have occupied less than four or five hours, plainly showing that they despaired of being able to open your Lock in that time. And as in their flight they left all their implements behind them, including a perfect set of lock-picking instruments, it is also seen that they were amply furnished for their work, had they believed it practicable.

"So far as the construction of your Locks is concerned, their safety seems very efficient; all that appears to be wanting is, that they should be enclosed on all sides in case-hardened steel, and their security would seem to be complete.

"I am, Gentlemen, yours obediently,

"GEORGE C. BOASE, Cashier.

"Messrs. Chubb and Son, 57, St. Paul's Churchyard, London."

(In the Bankers' Safes made by Chubb and Son, the plan of covering the Locks with case-hardened steel plates is adopted, and has been so for some years.)

"128, Cross-street, Manchester, Feb. 3, 1852.

"Sirs,—My premises having been entered twice by thieves in the course of the last two months, and an attempt made to open my safe, which is one of your make, and has one of your Patent Locks upon it, I have the satisfaction to state to you that they did not succeed in either case in opening the same. The last attempt was made on the evening of Friday last, the 30th of January.

"I am, yours obediently,

"JOS. CLARKE.

"Messrs. Chubb and Son, 57, St. Paul's Churchyard, London, and 16, Market-street, Manchester."

(In the above instance, the thieves had picked no less than eight locks of the ordinary kind; and then tried the safe lock with such violence as to break one of their picks, a part of which was found in the lock. Finding themselves thus foiled, they attempted to force open the safe, but it resisted all their efforts.)

TENDERS

For the erection of the Plymouth New Workhouse, for 600 inmates; Mr. O. C. Arthur and Messrs. Dwelley and Son, architects. Quantities furnished.

	£	s.	d.
Jenkins, Devonport	12,794	1	6
Mitchell, Plymouth	12,600	0	0
Clift, Plymouth	12,165	0	0
Roberts, Stonehouse	11,767	0	0
T. Greenwood, Devonport	11,641	0	0
Wilcox, Plymouth	11,382	0	0
J. Greenwood, Devonport	11,370	0	0
Roach, Plymouth	10,767	0	0
Ogalbe, Plymouth	10,420	0	0
J. Marshall, Plymouth	10,396	0	0
Slitson, Plymouth	10,334	18	11

For New Baths to be erected at Brixton, Derbyshire. Mr. Henry Currey, architect.

	£	s.	d.
Holland, London	13,880	0	0
W. M. Cooper, Derby	13,781	0	0
Locke and Nesham, London	13,773	0	0
Edwin Thompson, Derby	13,677	0	0
Farrell and Griffiths, Manchester	13,633	0	0
Robert Neil, Manchester	12,558	0	0
Sanders and Woolcott, London	12,320	0	0

Tenders recived Feb. 7, 1852, for altering and extending the present building, Kent Ophthalmic Hospital, Maidstone; Messrs. Ashpitel and Whichcord, architects.

	£	s.	d.
Pollock and McLelland, London	1,888	0	0
T. Thomson, Loose	1,615	0	0
W. Cobb, Maidstone	2,510	0	0
Sutton and Walter, Maidstone	1,497	5	0
W. Shadgate, Boughton	1,453	10	0
B. Ruck, jun. Maidstone	1,429	0	0

TO CORRESPONDENTS.

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BRICKS! BRICKS!! BRICKS!!!—To save postages and letter writing to the numerous enquiries, L. DAVIS takes this medium to acquaint his friends that his Common Stocks and Place are all sold; he has only on hand about one million Wash'd, and some Paviors.

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FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an incombustible nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late Fox and BARRETT),
12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

The Builder.

No. CCCCLXXII.

SATURDAY, FEBRUARY 21, 1852.

ON Wednesday evening, the 18th, the committee of the Architectural Exhibition received in their galleries, in Regent-street, a large number of visitors, including many ladies, and men connected with science and art. We cannot pretend to give the names of all who were present (perhaps 700), but we view the matter with so much interest that we will record those that we can recall, or whose names we saw on cards, without any endeavour to put them in proper order,—namely, Earl de Grey, Mr. Justice Talfourd, Sir C. Eastlake, Messrs. Heywood, M.P. J. Bell, H. Pickersgill, R.A.; Knight, R.A.; Cockerell, R.A.; Donaldson, Charles Hill, Lord Lovelace, W. Tooke, F.R.S.; T. Pettigrew, F.R.S.; Dr. Lang, Dr. Dickson, Gaskoin, Lewis Pocock, F.S.A.; C. Pearson, B. Oliviera, Hector Horeau, Herr Licht, Beaumont, Little, Chantrell, C. C. Nelson, Rev. J. Hunter, Allom, Field, Papworth, Cantwell, Fergusson, Lamb, D. Wyatt, Roberts, Griffith, W. P. Griffith, F.S.A.; Scoles, E. Sharpe, S. Lahee, White, Talbot Bury, Laxton, Richardson, Le Keux, Wilks, Trueitt, C. H. Smith, Stevens, Fowler, Seddon, Dudley, Dr. Hodgkin, Lieutenant Lewis, Martineau, Taylor, Dr. Steggall, Col. Baillie, &c. &c.

In addition to the permanent objects of interest on the walls, bronzes, drawings, and other works of art were liberally scattered over the tables. At half-past nine o'clock, by way of giving some special point of interest to the meeting,—

Professor Cockerell begged leave to propose that the Earl de Grey should take the chair, in order that a brief notice of the Institution might be laid before them. It was quite unnecessary for him to dilate on the fitness of his Lordship for the post, for all there knew how long and worthily he had been connected with the profession.

The pressure was so considerable that note-taking was out of the question, and we must content ourselves with giving the substance of what was said.

Earl de Grey, on taking the chair, expressed the great pleasure and gratification he felt in presiding over such a meeting. He was glad to be able to address them as *ladies* and gentlemen. The Architectural Association was only an infant institution, and the charge of its infancy could not be in better hands than those of the ladies. That the society was one peculiarly wanted there was ample evidence. There had been for many years an Academy; and within its walls there was a room that had long been, and he believed was still called, the "Architectural Room;" in which many admirable drawings were annually exhibited. But such was the arrangement of them, through want of space, that in looking for a particular building, the eye was attracted by a portrait above; and what appeared to have been the capital of a column was found on closer inspection to be the head of a lady. The Architectural Exhibition had been established to remedy this want, and the works exhibited upon its walls afforded the best evidence of its success. He did not scruple to assert that every one of those works possessed some kind of merit, whether originality, or ingenuity, or taste; and whatever their merits now, there could be no doubt that if the public showed proper appreciation of the author's endeavours, in another year they would be very much increased. He was himself independent of architects. There was a well-known proverb which told them that the man who was his own lawyer had a fool for his client; and it might be also said, that the man who builds his own house will have a bad customer. He had proved the truth of this to his cost. He had the greatest admiration and respect for architecture and its professors, and rejoiced that it was in his power to render any service, however trifling, to the objects they all had in view. He would now call upon Professor Donaldson, who had undertaken to read a report drawn up by the committee.

Professor Donaldson then read a brief account of the progress of the endeavour, from which we take the following:—

"The first effort ever made to establish an exclusively architectural exhibition in London was in 1845, at the rooms then occupied by the Society of Architectural Draughtsmen, in Southampton-street, Strand. The exhibitors were all members of that society, and the exhibition was free. Early in 1847, this society received a large accession of members, and its objects and ideas were greatly enlarged. It was, in fact, entirely re-formed, and merged into the present architectural association, established at Lyon's-inn-hall. In the new prospectus, 'the establishment of an annual exhibition of architectural art' was prominently set forward. In the course of session 1847-48, two or three *conversazioni* were held, at which the walls and tables of the hall were covered with drawings; and in the report read at the opening meeting of the session 1848-49, they were alluded to as follows:—

'From the great success which attended these *conversazioni*, your committee do not despair of obtaining what becomes year by year a greater desideratum in this metropolis, an annual exhibition exclusively architectural. When we reflect upon the number of drawings (necessarily from want of sufficient space) refused annually at the Royal Academy, upon the scores of competition drawings of real merit almost daily returned to their designers, and upon the many valuable studies from existing buildings shut up in private portfolios, it surely cannot be construed into any spirit of mock rivalry with any existing institution, if we endeavour to frame some scheme by which the art-loving public may become better acquainted with some of these.'

Shortly after this a sub-committee was appointed, and the first Exhibition was opened on the 7th of March, at the gallery of the New Society of Painters in Water Colours. Among the earliest visitors it may be mentioned, was the late Sir Robert Peel, who spoke very encouragingly of its prospects. The total number of visitors was about 8,000, including H. R. H. Prince Albert, the Duke of Wellington, the late Marquis of Northampton, the Earl de Grey, and many others, whose names are well known and respected in the literary and scientific world.

The next exhibition was opened at the same gallery in 1850, from August 10th to October 3rd. After the close of this exhibition, it was determined to ask an equal number of gentlemen, not members of the association, to join in forming an entire committee of management. This was done, and the first meeting of the entire committee was held February 17th, 1851.

In 1851, obstacles prevented the opening of an exhibition, and it was resolved that the donors be requested to allow their donations to become annual subscriptions,—a proposition since assented to almost universally; while the proposition to add a collection of materials, &c. bearing upon architecture was favourably received, and promises to be eventually a most important part of all future exhibitions.

The committee availed themselves of the first opportunity that offered in taking the present galleries for their exhibition of 1852. It was determined to charge an admission fee, which, as it included a catalogue, would be very small, and it is believed cannot prevent any who feel real interest from attending; nevertheless, it is still a question whether the original plan of making this a free exhibition ought not to be adhered to."

The report showed reasons why there would probably be a balance against the committee in the end; "the committee have, however, the fullest confidence in the ultimate entire success of the undertaking, and look forward to a time when the exhibition, by an increased interest on the part of the public, will become self-supporting, as it ought to be."

Mr. Godwin said the privilege had been deputed to him of proposing a vote of thanks to the Right Hon. Earl de Grey, for his ready assent to the request of the committee, that he would preside. It was not unusual for distinguished individuals to refuse their countenance to new Institutions; nor could they be blamed for doing so. They had not time to inquire into the real merits of all the schemes that were proposed to them, and they feared to risk their position by joining what, if not hurtful, might at best be evanescent. But if we could not blame these, we might praise those who, obeying a friendly impulse, or more far-seeing into the merits of a proposition, gave at once their aid to advance it. It had happened to him, the speaker said, if they would pardon an egotistical observation, to receive from Earl de Grey's hands the first public testimonial of approbation in the shape of the medal of the Institute of Architects. It was several years ago, he was sorry to say, but it would be many more before he forgot the kind words of encouragement which accompanied the presentation, and he was, therefore, particularly glad of an opportunity to testify his respect. Since that time much had been done for architectural study. Architecture had been for many years in a declining state, and men were contented to copy instead of think. He ventured to believe, however, that we were now preparing to take a better road. There were numerous agencies at work; there was greater freedom of thought, more earnest endeavours to obtain principles, and he looked hopefully to the future. This *conversazione*, and the enlistment of the ladies, he thought a happy idea. Men of education even now felt no shame in admitting that they knew nothing of architecture; but if we could once thoroughly interest the ladies in our art,—that art whose mission it is to eternalize fine ideas,—that art which had covered the world with thought-giving monuments, the admiration of succeeding generations, and the ruins of which led one to say earnestly—

> "Out upon time! who for ever will leave
> But enough of the past for the future to grieve
> O'er that which hath been and that which
> must be"—

this reproach would disappear. He feared, however, to detain them, and would redeem his own tediousness by proposing a vote of warm thanks to Earl de Grey for his aid and presence.

We need not say that the vote was carried by acclamation. In reply,

The Chairman said he was exceedingly obliged by the very kind manner in which he had been received. Having already expressed his sympathy with their objects and his wishes for their success, he could only repeat expressions of the real, honest, hearty pleasure which he felt in being of the slightest use to the association.

With this the actual *business* of the evening closed; but in another of the rooms Mr. Charles Pearson gave a clear and interesting exposition of his scheme for the junction of railways in the line of the Fleet Valley, which was listened to by a large audience. The meeting was eminently successful, and we mark the importance we attach to it, as an epoch, by giving this prominent position to a notice of it.

Great praise is due to Mr. Fergusson and

Mr. J. Edmeston for their exertions as honorary secretaries.

DISCUSSION ON POLYCHROMATIC EMBELLISHMENTS IN GREEK ARCHITECTURE.

A CONTINUATION of the discussion already partly reported took place at the meeting of the Institute of British Architects on the 9th instant.

Mr. Cockerell, V.P. who presided, said he had been requested to state the results of his investigations at Egina in the year 1811, which he had intended long ago to make public, and with that view had caused engravings to be made, two of which he exhibited to the meeting. It would be remembered that the temple of Egina was a work of the sixth century before Christ. It was of very small dimensions, and constructed of free-stone; being a specimen of that ancient Doric which was seen in the earliest examples. The columns and entablature were covered with a very fine coating of marble dust and pounded stalactite, as it seemed, having an effect of great brilliancy and lustre. There were no traces of colour on the columns or steps beneath them, and no part of the architrave was coloured except the tænia under the triglyphs, which was red. The triglyphs, and the background of the tympanum, were blue; the beak moulding, as it was called, had the well-known leaf ornament, and within the portico a facia band of great lustre, having an enrichment highly archaic in character, coloured blue on a strong red ground, and in several parts exceedingly well preserved, was discovered over the frieze. This, which no doubt had an excellent effect in its position, on account of the great strength of the colour, was not at all correctly represented by M. Blouet's drawing, either as to the form or the colour of the ornament. The ancient temple of Corinth was also covered with a very fine stucco, one-eighth of an inch thick, which gave to the parts the appearance of the finest marble. The same fine varnish, as he might call it, was to be found in the temple of the Giants, and other buildings at Agrigentum in Sicily. The temple of the Giants was an ashlared temple; the columns were built round a core, and the joints concealed by the stucco, the stone itself being a tufo; even the colossal sculpture of that temple was also covered with stucco. He had found many fragments in other parts of Sicily, proving the same practice of covering the temples with stucco; and the Museum of Catania contained numerous evidences of the use of polychromy. Colour was also to be traced on many remains at Syracuse: all of these were early specimens, and furnished evidences of that archaic taste which always prevailed in countries remarkable for a high patriotic feeling. He thought the attachment to what he might call excessive colouring was only to be traced in works of that early and archaic taste; and he humbly conceived, that in the marble temples of Greece, such as the Parthenon and the Theseum, which were of a more recent date, painting was employed with very great reserve. There was, however, distinct evidence that the architects of the age of Pericles employed colour—particularly crimson—and gold; and the use of crimson paintings on ceilings was constantly mentioned in Scripture. The employment of colour in Greek architecture was no doubt a fashion which prevailed more at some periods than others. There was an antique and barbarous fashion of painting statues. Pausanias referred to certain terminal figures, statues of Bacchus and others, which were painted crimson. Probably, in more refined times, as under Pericles, these fashions were modified by a higher reasoning, and overruled by a consideration of principles which ought to be carefully regarded. The subject was important in a practical point of view, and a question arose in reference to the material itself. To attempt the application of polychromy to the exquisite marble of Pentelicus appeared, indeed, to paint the lily and to gild the rose. The excessive and painful whiteness of the new marble had been justly adverted to, but it should be remembered, that what had been well described as "Nature's Polychromy" was sure to arrive in course of time. The chalky effect of new buildings was familiar to all architects; but he thought the Greeks, in such noble buildings as the Parthenon, relied upon the natural complexion given by time, and did not attempt to paint its beautiful surface. In considering the principles which governed the Greeks in the use of polychromy, he might observe that their temples were a kind of cabinet work. The temple of Egina was not more than 35 feet high, and the Parthenon only 60 feet: the Temple of the Giants, at Agrigentum,—an unprecedented instance of magnitude—was 120 feet high. In the beautiful climate of Greece, he thought a natural love for these small but exquisite temples, and the ease and pleasure with which they could be minutely examined, would induce the Greeks to paint and otherwise embellish them; just as, in England, the fittings in our apartments, as bookcases, and cabinet furniture, were richly decorated. Size was, therefore, an important consideration. He believed that the extensive introduction of painting in English churches and cathedrals arose from pedantry, and not from the natural feeling of this country and climate. He would suggest, in reference to the practical application of Polychromy, that it should be introduced with very great reserve in this grey climate, although it may have been happily and properly applied under a more brilliant sky.

Mr. Nelson (hon. sec.) said that in a recent restoration of the Parthenon, exhibited at Paris by M. Paccard, the walls of the cella had been coloured red, and the same was stated to have been the case at Egina.

The Chairman stated that he had found no traces of such colouring at Egina.

M. Servaas de Jong, architect, of Amsterdam, visitor, said he thought that the subject under consideration was a very dangerous caprice; and particularly so because it was brought forward and defended by a very skilful advocate. He did not believe that the colouring of buildings, termed polychromy, deserved so much consideration, especially in England. He thought that if colouring ever was in use among the Greeks for the external decoration of their pagan temples, it could only be considered as the expression of a frivolous and worldly, not to say physical, religion. Similar usage of colour had occurred in the interior of Roman Catholic cathedrals in the fifteenth century. But in the present day to cover the interior of an architectural work, civil or religious, with colours like the interior of a theatre, would be an imposition on the simple and modest character of the faith of the English, and an attack upon the fundamental law of architecture, that the eye rests with delight, without being dazzled, upon sublime and harmonious effects, which spring from the chiar'oscuro of the profiles, and not from contrasted colouring. Polychromy in moderation was acceptable for the interior of buildings dedicated to pleasure and relaxation, as well as in private houses, being carried out on information existing long before the publication of this book; but it was not adapted to the interior of public edifices devoted to study and serious business.

Herr Licht, architect, of Berlin, visitor, explained his views as to the intention of the ancient Greeks in adopting polychromy, and the reasons for decorating with colours in modern architecture. He considered that the colours were intended for ornament; that they were indispensable by reason of the taste for colour existing among southern nations; and that they were designed for protecting the material. Colour, he said, was an effective, and therefore requisite instrument in the hand of the architect; but its intended effect could only be produced when the idea which the architect wished to express, was harmoniously and perspicuously carried out, when the colour completed the development of the idea itself. That the Greeks, whose architecture we admired as the perfection of art, even before we knew its connection with polychromy, employed the latter, was no subject for reproach, either to the artistic cultivation of the Greeks, or to our own admiration of the beauty of their structures. It must be remembered, that our impressions of Grecian edifices were either the offspring of the imagination alone, which pictured them as existing under our gloomy northern sky in all the dazzling whiteness of their magnificent material, or they had been acquired from actual examination of the mouldering ruins, yellow with the lapse of ages, under the clear and glorious sky of Greece; in either case, no inharmonious picture met the eye of cultivated taste. If we imagined, however, the temples displayed in the glittering and almost transparent purity of their white material, under the lustre of a southern sun—the piercing glare of such an object would be not merely injurious, but destructive to the sight. A building of well-burnt bricks, of hewn stone, or covered with a weather-proof cement, did not need the further protection of colour; but the structure, which had lately developed itself in England, and announced a new era in architecture, the structure in iron, required such aid from the very nature of the material. A significant, eventful form of building, in which the spirit of our age was reflected in all its greatness.

Mr. Harding, visitor, thought that the employment of colour by ancient architects on their buildings, had been placed beyond dispute by the observations which had been made at the last meeting, and that the point which remained to be decided was, whether the architects of the present day should follow this example, entirely or partially, or reject it altogether. Professor Donaldson had said, that we should defer to the authority of the exalted genius, which had produced monuments that had been objects of admiration and text-books of study for ages; but Mr. Harding could not easily agree in this opinion, unless he could previously persuade himself, that because the Greeks were great as architects they were also great as colourists. With the architect as with the sculptor, form was the great field for the display of his powers, in which he was the acknowledged teacher, and the public were his pupils; but if he touched colour, he converted his pupils into disputants, and made those who would admire his forms entirely lose sight of them in the provoked discussion on his application of colour. He hoped he might be excused for this expression of his opinion, and for saying that he preferred to be guided to conclusions in theory, and results in practice, on this subject, by an older, more able, and unerring teacher—Nature. Stone of any kind might be employed for the purposes of building, and, putting aside the cost of obtaining the different marbles, these presented tints of every variety, sufficient to satisfy abundantly the most craving appetite or the most fastidious taste for colour. Here we stood in no need of evanescent pigments to decorate and deaden, and leave futurity to discover, by toil and travail, whether the architects of to-day, who would be ancient masters to posterity, were polychromists as well as architects.

Mr. Owen Jones expressed his fear that anything he could say on this interesting subject would be very unsatisfactory. The question was not altogether one of taste, or whether the Polychromy of the Greeks was such as we should approve of; because we did not at present know enough about it to form an opinion on that point. Now, however, that the public attention was directed to the subject, it might be hoped that the same careful investigation would be bestowed upon the colouring of the Parthenon as Mr. Penrose had devoted to its form; and it would then be known whether the Greeks were as imperfect in their application of colour as Mr. Harding supposed. For himself he did not believe that would prove to be the case, or that a people so refined as they were could be so defective in their knowledge of a sister art. He could not, indeed, conceive it for an instant. There was already evidence which could not possibly be controverted that the Parthenon was partially coloured, and he considered that it might be assumed, in fact, that it was entirely coloured. He agreed with Mr. Donaldson in the opinion that the Parthenon was first covered with a thin coating of stucco. Of course this would appear very frightful to those who were accustomed to look upon the white marble of the Parthenon as such a wonderfully beautiful material. He denied that the Greeks so regarded it. The Parthenon was not complete in any way without its colour; nor were any of its mouldings perfect without their coloured ornaments. The question of introducing colour in this country was altogether a distinct one. He did not think the time had arrived for us to do so; indeed, we were not able yet to devise an architecture of our own. When we had made our own buildings, we might colour them according to our own modes of thought; but at present we transplanted a Greek temple into England; and, in his opinion, the colouring on it would be no more out of place than the building itself.

Mr. I'Anson, Fellow, stated that in the year 1836 he was at Athens, when the remains of the Temple of Victory without wings had just been discovered, and upon the fragments of it he observed distinct traces of painting, especially in the coffers under the pediment. As to the modern application of colour to external architecture, it was evident that the prevailing feeling had been against it. The effect of colour in the restoration of the Cathedral of Spires, now in progress, was highly imposing. In the cathedrals of Coblentz and Cologne, colour was also employed, but less successfully; and even the most ardent admirers of polychromy in Germany

only partially applied it to external decoration. Mr. Donaldson wound up the discussion, and observed that the question under discussion was simply question of research, the object being to establish t; and justice should be rendered to M. Hittorff his labours, with that end in view. No person, believed, would attempt to deny the fact that the eks used colour. Although the climate of ece suggested the use of colour, this was not n a question of climate; because in the frozen nate of Russia the churches were covered with celain, and their roofs gilded and painted. Size also nothing to do with the question. There not in London a portico of the size of the Parnon. As to material, the Athenians employed ble because it was ch aper than stone; and it well adapted to show those beauties of form, ch was a primary object with them. Mr. Hardpreferred the Apollo Belvedere as a living object, not as a dead corpse, but surely the application olour would produce the effect of life. He had doubt the ancient Greeks did paint their statues; even certain modern sculptors were endeavourby delicate tints upon the hair and garments, roduce the same effect. Accustomed as we were onsider a marble statue the perfection of art, it difficult to overcome the prejudice against ur; but the more the question was studied, the e should we do justice to Greek art, and advance rt ourselves. He certainly believed that the llo was painted originally, or, at all events, ed in a delicate, sensitive manner, to neutralize effect of the cold marble. In his recommendaof coloured stones Mr. Harding adopted polymy, which was not a question of material. marble arch in Oxford-street was a cold, dead, eless monument; but if marble of different urs had been employed for the columns, the e, and the panels, it would be more expressive more beautiful.

E ART: ITS NATURE, RELATIONS, AND TENDENCIES.

f life be, as in its best and most compresive signification it undoubtedly is, the *mum bonum* of man, the perfecting of which t once his greatest present advantage and hest future hope, it follows, as a necessary conuence with regard to the component parts of that they are to be estimated in proporto the directness and extent of their conion with its highest and most perfect elopment. It is only by a continuous rence to the perfected idea of life that we establish a correct estimate of any one of component parts, or rightfully discern the tions and tendencies of it. I wish after method to examine that part of life which call Art: I propose to inquire—1stly. Its ure,—what art is; 2ndly. Its position with ard to the more exact and practical developnts of the human intellect,—or its relations science; 3rdly. Its tendencies,—what in its sent state it does.

st. What is Art? The dictionaries offer three equivalents in exchange for the word rt," viz. "science—skill—cunning;" as if plying in the professor of art, knowledge of principles, experience of their powers, and terity in their application; and, in ordinary gment, any work in which these three quaes are so far displayed as adroitly to meet a conceived standard of taste, is estimated as work of art. But a small amount of critical perience, if only it be united to truthking principle, will soon discover to us t the essential being or vitality of art is not tained in the dry skeleton of rule and ory; and that it is possible for a man to ve at his finger-ends, as it were, the Acamy Lectures of Reynolds and others, or the rks of Bach and Albretsberger, or the preots of Vitruvius, or the *Ars Poetica* of race, and yet be an ineffective painter, a dantic musician, an imitative architect, a rd-jingling poet; for it is not the rule that kes the artist, but the artist that reveals d practically expounds the rule, which itself a detached portion of the great ole of art; and an attentive examination the great works of the great masters of art ll show us that they were wrought, not as m below to the letter of an arbitrary and lexible law, but as from above, in the spirit a pervading and expansive principle; and e *Apollo Belvidere*, the *Last Judgment* of the stine Chapel, the *Sinfonia Eroica*, or the *radise Lost*, are, in this view of the subject, not wonderful and all-excelling achievements of technical dexterity, but the natural and exalting results of the unimpeded progress of the soul of art, which is not a theory, nor a formula, nor a doctrine, but a life. Considered then in reference to the entirety of life before spoken of, I would offer as a definition of the thing art, *a spiritual apprehension of nature*; or that power by which the artist using his intellectual faculties in obedience to the dictates of the spirit, discerns in, and evolves from, the subject of his action, a range of ideal power and result, which, in its ordinary acceptance, it gave no evidence of possessing: the broad sea-port river, with its mast-crowded docks, its white-sailed ships and rapid steamers, its long-stretching quays, its floodgates, and shifting busy crowds of men, which to the common eye is suggestive but of the speculations of commerce, or the demands of toil, is to the painter an inexhaustible panorama of picturesque combinations of form, of exquisite and changing harmonies of colour, of powerful contrasts of effect, and ever-varied phases of feeling and expression, from the clear fresh sparkle of the early morning, to the soft still shadow of the warm dusky evening: he looks with a spiritually discerning eye on the face of nature, and to the flash of her beauty gives back an answering beauty on his canvas bright with the lustre of the life of art. And the poet from the same materials can build the lofty rhyme, and open to our view unthought-of depths—

"Of man, of nature, and of human life."

In like manner the architect, from necessities of construction, and the musician from impulsive issues of sound, work in obedience to the same principle; and throughout the whole range of art, we ever find in its productions an attempted material expression of the feeling of a spiritual life. For as in the moral or religious life goodness is the prime wisdom, and in the intellectual life wisdom is the chief good, so the issue of the art-life, which in its perfect form is the result of the union of the former two, is the feeling and expression of the beautiful; and art is beauty in its holiest and wisest form,—beauty perfect in the purity of goodness,—pure in the perfection of intellect.

Again, as art is a life, its works live also; for as art-law is but the sample or exponent of the entirety of art, so art itself is but the exponent of the æsthetical infinity beyond it; and its works partake of the nature of their agent. True, they are subject to the accidents of times and fashions; they may be decried, slandered, or, worst of all, despised; but in the end art, like wisdom, is justified of her children; and its work, emerging from unmerited obscurity, assumes its legitimate position; or, if it fade into oblivion, does not do so until either, by direct or indirect influence, it has given birth to an equally excellent and more fortunate successor.

True art (in its full acceptation) is an expression of our whole life, *i. e.*, of all nature and human history and experience; and when we gaze upon any real work, whether it be architecture, sculpture, or painting, or whether Egyptian or Indian, Roman or Gothic, we behold a reflection of nature,—its effect upon the human mind under the varied circumstances of life. Art is nature, not with corrections and revisions, but with notes and annotations; and as it is nature stamped with the signet of mind, it is itself, in the highest sense, nature,—an union of the physical and the spiritual. It is "the man-child that is born to the soul," whose "life still circulates in the babe."

Moreover, the arts are one; they are alike discreoments of the spirit or higher intellect; and their works are alike the result of that spiritual discernment. Poetry is art, as all the arts are poetry. Poetry may be looked upon as the art-spirit that reveals itself in a literary pictorial, sculptural, or architectural form; and it is the living presence of the art-soul in the expressed work or performance that stamps it a work of art. It is not columns and entablatures, nor huttresses and arches, that constitute a building or architecture; nor is it an acquaintance with the recognised canons of art that make the architect, but the power to *project* himself, as it were, into these media of his calling, and thus expound, in characters of wrought and carved stone, the dictates of the oracle within. It is the same in poetry, which is not rythmic or cadenced words, but a voice of the heart, "a thought so passionate and alive, that like the spirit of a plant or an animal, it has an architecture of its own." The true artist works from within outwards, and the man that cannot do this is not an artist in the full sense of the word,—if he be only master of the technicalities or language of his art. Not but that much difference exists between these art-languages, not only as respects the mode of their reception by the mind, but with regard to their relative importance in their respective branches: sculpture, painting, architecture, and music cannot be attained without long practice, while poetry requires little or no application or study of rules, scarcely anything beyond common knowledge of language and grammar: the architect and artist must go through long elementary training in the studio, while the genius of the poet may blaze out in a day, and illumine the office or the workshop: the architect and painter must be devoted exclusively to their profession: the bard may walk

"In glory, and in joy,
Behind his plough upon the mountain side."

He, therefore, who has learnt to represent any natural object faithfully, though he has only acquired the language of his art, has done, I conceive, a great deal more towards being a real painter, than the man who has learned to express himself grammatically and melodiously has towards being a great poet. I deny that language is of the same relative importance in all the arts,—that the value or importance of a picture, for instance, depends as much upon the mere telling of a story, as the poem upon its fable or subject. I consider that the painting is infinitely more of the picture than the grammatical and cadenced words are of the poem, because the painter's art is almost entirely imitative. In painting, language pervades the whole art and all its operations: the painter never ceases learning this language: increased knowledge of it is part of his advancement. Some of his works are almost, if not entirely, composed of language. To paint a picture chiefly to tell a tale is to degrade painting as an art of the beautiful;—to take it out of its province, which is to convey those truths that could not be taught by other means than those that appeal to the eye; not to convey that which could be better told by other arts. To show how small a part of a great picture the telling of the story is, and how much it is dependant for its effect upon the charms of colour and form, let the same story be told in plain words, or made the subject of a newspaper paragraph. Persons who deny this consider the resemblances between the arts, but forget their differences: as the poet has to assert those truths in words that could not be expressed on canvass or in marble, so the painter and sculptor are to raise those ideas and excite those emotions that can only, or at least best, be raised and excited through the medium of the eye; and the musician those that the ear only can receive, or best receive. There are truths of nature to be impressed upon the heart that could not be put into words, and can only be conveyed through the medium of the sight; and such are among the embodiments of the painter, sculptor, and architect. What is here said in reference to the eye may be affirmed with respect to the ear, which has also its especial and exclusive province in art. Who, I would ask with Carlyle, could describe in logical words the effect that music has on us?

But to return to our comparison of the arts themselves. In every one of the fine arts, as I endeavoured to show on a former occasion, the same law holds sway: the elements used for any one art, as essential to a given expression, are those which are also employed in the others. The architect, for instance, takes the elements of sublimity, and the broad and harmonious walls rise up, and we stand under the dome of St. Paul's, or gaze on the chaste fane of Minerva. Next comes the musician, and

the orchestra is thronged with its thousand voices; in broad streams of sound pour out each well-defined phrase, with a full and telling energy, as with a voice of deep calling unto deep; the answering parts fugue in, whilst harmonic purity adds its soul of strength to all, and we listen entranced whilst Handel rolls out the sphered thunders of his hallelujah. The sculptor next essays, and the colossal statue towers up: in broad folds falls the drapery: lofty decision of expression marks the attitude, energetic fulness the contour, a dignified purity the whole treatment; and we gaze with wonder on the Moses of Michelangelo. The poet next succeeds, and then (in the highest degree) the elementary terms are no longer words, but living realities: the magnitude is magnitude of soul; the breadth, a world-encircling comprehensiveness of the intellect; the decision, a subtle and unerring exactitude of definition; the fulness, an inexhaustible depth and pregnancy of meaning; the purity, a celestial exaltation of language; and we drink in the inspiration of that most ancient poem spoken unto Job "out of the whirlwind."

It would be easy to pursue this mode of exposition further, and to show that in every variety of expression the same principle of inflection holds good in every branch of art; and it is easy, too, to object to this, that it is an argument more of fanciful analogy than of primary identity; but those who would advance this objection seem to forget that art being in its expression the offspring of idealism, the analogies of the separate branches are ideal likewise, and as such cannot be propounded with the precision of a mathematical problem. We cannot in every case convert the practical rules of any one branch of art into those of any other, as we would convert fractions into decimals; but the identity of principle may be seen, and by the mode of illustration I have adopted is, I think, shown as clearly as we can discern the integral-part identity of the decimal with the fraction; and the practical analogies that we can point out, though few in number, offer very presumptive evidence in favour of the ideal ones: the musical law, for instance, of harmonic progression which prohibits the monotony of similar motion, and the consecution of fifths and octaves, needs little more than the substitution of pictorial for musical terms to render it into the rule of painting, which forbids the repetition of similar lines and forms, and the monotony of equivalent tones of colour. The rule, too, by which the discord is used in music in opposing juxtaposition to the concord, yet connected with it by preparation, and led off to it again by resolution, is strikingly similar to the pictorial rule, by which the highest light and deepest shadow are brought into immediate opposition, yet harmonized by a just connection with their respective masses. The central identity of the Proteus, art, is further evidenced by the reciprocal influence of its respective branches: the architect supplies the painter with a subject, and the painter, in return, furnishes the architect with valuable hints of picturesque combination: the painter and musician inspire the poet, who in return inspires them: the margin of Michaelangelo's copy of the *Divina Comedia* is crowded with graphic illustrations of the text; and traces of a feeling are often perceived in painters and sculptors caught from some great preceding poet, whose spirit is long recognised in their productions.* S. H.

Architectural Institute of Scotland.—The Institute met on Thursday, the 5th instant. Mr. Rhind in the chair. A paper was read on "The National Monument of Scotland," by Mr. George Cleghorn, of Weems. The paper concluded by strongly urging the people of Scotland to carry the magnificent work to a conclusion. It was stated that Mr. Linning Woodman had received a letter from a Scotchman in London, offering to give no less a sum than 10,000*l.* if the people of Scotland would bestir themselves in earnest for the completion of the monument.

* To be continued.

THE EXHIBITION BUILDING.

The evidence taken by the recent commission has been printed, and will very soon be placed before Parliament. We are able to lay before our readers some of the leading points elicited in the course of the inquiry. First, as to the cost to the Government of purchasing the building precisely as it now stands. Sir Charles Fox stated that the contractors had received from the Royal Commissioners about 140,000*l.* for the use of the building, and that the latter declined to entertain the question of its purchase, though they still had the power of buying it for a total of 205,000*l.* The value of the materials, to pull down and sell, had been estimated at 33,250*l.* and the labour and materials had actually cost the contractors 160,000*l.* Some private *bonâ fide* offers had been made for the purchase of the building, but they would not entertain them till the Government decided; and, under all the circumstances, the price to the Government (in addition to the 140,000*l.* paid by the Royal Commissioners) would be 65,834*l.* besides the cost of maintaining the structure from the 1st of December last, and interest on the difference between the amount already received and the total price to the date of the purchase.

The next item was the cost of the extensive alterations necessary to render the building of a permanent character, so as to require only ordinary repairs for fifty years to come. The estimate for these was 26,000*l.* Another important part of the inquiry related to the cost of taking down the building and restoring the site, and re-erecting it in some other situation. In this operation, the above alterations for making it permanent would be included. This cost would be 61,500*l.* assuming that the building was only removed within a carting distance, such as Battersea or Kew, and that the site should be as favourable for the foundations as in Hyde-park. A permanent structure, therefore, in another place, exactly resembling the present, might be obtained for 127,334*l.*—always in addition to the amount already paid. If made permanent, the annual cost of maintaining the building in good condition, including painting, without reference to its application to any special purpose, would be 5,000*l.*

Mr. Dilke's evidence was limited to the details of a suggestion made by him for removing to the present building some portions of the contents of the British Museum. He dwelt upon the overcrowded state of that collection, and the intended outlay of 200,000*l.* for an addition to it of the side towards Montague-place; which might be saved by taking advantage of the great capabilities of the Exhibition Building.

Mr. Fleming, the head gardener to the Duke of Sutherland, at Trentham, gave some evidence on the proposed conversion of the building to the purpose of a winter garden. Separate portions might be heated to any temperature; but, generally, a sufficient degree of warmth to exclude frost was all that would be required. He suggested acacias, oranges, citrons, camellias, rhododendrons, fuschias, balsams, &c. as the kind of plants to be introduced, and estimated the necessary labour at 500*l.* a year (exclusive of staff); but in reference to other points that were suggested, admitted that it would be insufficient.

Sir Joseph Paxton urged the same appropriation of the building, and entered fully into its details. The only departure he would suggest from a moderate temperature, would be in one small portion of the building, which he would appropriate to the Victoria Regia. He objected to any reduction in the size of the building, and thought no site could be better for it than Hyde-park. He submitted a view, plans, and estimates, for its conversion to the purpose in question, including four brick towers (coated with ground glass) at the angles, for the ventilating shafts. This project included semicircular additions at the east and west ends, with buildings for gardening purposes; and an entrance and exit in the Kensington-road, for the passage of visitors, by staircases, across the Drive into the gallery-floor of the building. His estimate was, for ground-work in the interior, 5,000*l.*; heating by warm water, 7,000*l.*; walks, &c. 5,000*l.*; the proposed additions, towers, entrances, and improved ventilation, 32,000*l.*; contingencies, 3,000*l.*; making a total of 52,000*l.* The cost of maintenance would be 5,000*l.* a year for the building, and 7,000*l.* a year for the garden. He should have wished the building to be opened gratuitously, but as it must be self-sustaining, a small admission-fee must be charged,—one penny on certain days, and more on others—with yearly tickets. A much better building for the purpose, by beginning *de novo*, and introducing various improvements in design and construction, would probably not much exceed, in cost, the alteration of the present.

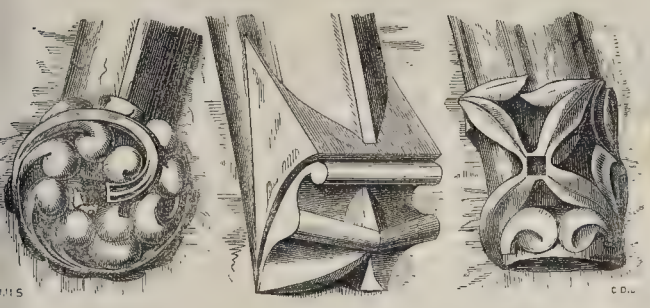
Mr. Kelk represented the injury he had sustained by being unable to sell his houses since the Exhibition Building had been placed in front of them. No other cause had prevented their going off, and applicants were now only waiting to know the fate of the building. He had contributed 1,500*l.* towards obtaining an opening to the Park at Princes-gate, and would give 3,000*l.* more rather than have the building made permanent. No building there, however handsome, could be otherwise than injurious to his property. He had already lost 5,000*l.* in interest, ground-rent, &c.

Mr. E. Hawkins, of the British Museum, stated that that building was much too small, and its Grecian architecture the worst possible for the purposes of a museum. The Exhibition Building was, however, a mere case, and the expense of constructing a museum within it would be quite as great as that of erecting a new building in the best possible way for the purpose. If the sculptures were removed from the British Museum, they ought to be accompanied by the coins, medals, bronzes, vases, and even the library. A building of iron and glass attached to the present Museum might possibly be very beneficial: and the building in Hyde-park would be well suited for the reception of casts from the marbles in the Museum, and of all the best statues in Europe.

Mr. H. Cole, on the assumption that the National Gallery is to be removed to Hyde-park, proposed the immediate appropriation of the Crystal Palace to a great educational institute, combining many important objects. Among these were a trade collection (already in progress of formation in the building), and collections in aid of the objects of the museum at Kew, the Museum of Practical Geology, the School of Design, the British Museum—especially an archæological collection, &c. &c. All these establishments were suffering from want of room, and it was most important to use the existing building. The School of Design should be at once removed there. As the building was not the best that could be devised for these purposes, he proposed to lease it only (at an estimated cost of 14,000*l.* a year); and believed that the advantages to be derived would lead the public in a very few years to demand and pay for a better building. It was important, however, to begin at once, and make the best possible use of the covered space, so much wanted for many useful purposes.

Schools for Yarmouth.—The want of school accommodation at the north end of Yarmouth being much felt, it is proposed to convert to the purpose the old Benedictine Priory, adjoining the churchyard and parsonage. This belongs to the Dean and Chapter of Norwich, who have agreed to convey it to trustees for the school, free of expense; but as the buildings are now under lease for a term of years, it is necessary to purchase the tenant-right, for which 600*l.* are required. It is proposed, by the conversion of old buildings and the erection of others, to provide accommodation for 750 children in three school-rooms, with class-rooms to each, and two residences,—the whole to cost, with the site, 2,300*l.* The old hall of the Priory, now used as stables and hay-lofts, 52 feet long, by 30½ feet wide, will be the boys' school—a noble room, and well worthy of restoration for so good a purpose. We wish the committee success in their endeavours, and shall be glad if this notice procure them any assistance.

HOOD-MOULD TERMINATIONS.



HOOD-MOULD TERMINATIONS.

The annexed sketches represent hood-ould terminations from Little Wenham riory, Suffolk, one-fourth the real size.

R. H. S.

THE VENTILATION OF THE HOUSE OF COMMONS.

Although the newspapers have teemed ith the discussions upon the failure of Dr. eid's attempt to ventilate the House of ommons, and although Dr. Reid has been lowed to make an *ex parte* statement, throw-g the whole of the blame on Sir Charles arry, without giving him the opportunity of ply, I have not yet seen in any publication a atement of the facts sufficiently lucid to nable the public to judge of the case upon its al merits. Having had constant opportu-ties during the last three years of watching l the arrangements connected with this ques-on, I beg to lay before you in as concise a anner as possible a statement of facts, upon ie principal points to which Dr. Reid, in his ridence before the House of Commons, on ebruary 6th, 1852, attributes his failure.

Since the year 1846, when the House of ords "subverted" Dr. Reid's plans, and con-ued the exercise of his talents exclusively to ie House of Commons, Sir Charles Barry onsidered it necessary to have the whole of)r. Reid's requisitions conveyed to him in riting; and the extent to which they have een carried out may be judged of by the fact iat upwards of 57,000*l.* have been expended n his plans alone, and further, from the state-ient of Lord Seymour in the House of ommons last Wednesday week (who, as ie official superior both of architect and venti-itor, may be supposed to possess an accurate nowledge of the subject), "that in no case had ny written requisition of Dr. Reid's been dis-egarded," we may, I think, fairly assume iat every facility to carry out his plans has een afforded him, and that the whole of his emands have been complied with, with the ingle exception of the removal of the paint *ot* offensive oil, as he stated) from the perfo-ated iron floor of the House.

This paint, of which the Doctor makes one f the great points contributing to his failure, as been laid on *more than eighteen months*; nd I will ask any practical man, what quantity f "offensive oil" can remain to contaminate ir passing in contact with it after that time; nd, as a further proof of the small value of iis objection, I may mention that the floor of ie House of Lords, upon the ventilation of hich not a dissentient voice has been heard ince its completion, was coated in a similar anner.

Another matter to which Dr. Reid attributes is failure, is the imperfect ventilation of the as-lamps. These, which are constructed on araday's patent, I have myself tested, by artly removing the talc cover over the top of ie glass, and I have in every case found a rong current inwards, incontrovertibly prov-ng that the products of combustion are entirely arried off, without contaminating the atmo-phere of the House.

If Dr. Reid imagines he can quietly draw down his air, without its being reversed by the rarified column produced over these lamps, he proves the truth of his own statement, "that he might as well be asked to control the air of the Bay of Biscay."

This is *indeed* "a practical difficulty under which he labours."

The imperfection of the drains is another matter complained of, although the Doctor must have known from the plans, the purpose, and position of each. A portion of them were even put in by workmen under his directions, and from his own drawings. It is, indeed, true that had not the greatest possible care been taken to prevent offensive matter from entering these drains, and also in trapping them effectually, the Doctor *would* have brought about the result of which he complains, by blowing his steam and hot water into them, the effect of which, in creating offensive vapours, every practical man is fully aware of.

Another "great practical difficulty" that the Doctor advances is, that although the area which was committed to his charge to ventilate was defined architecturally "by walls at one place and walls at another, it could not be defined as a pneumatic boundary, for there were no means taken to exclude the external atmosphere where the architectural boundary terminated."

I am quite sure, Sir, that your readers will consider that this, instead of being an obstacle, was one of the greatest advantages to his system; for had his "pneumatic boundary" been defined, as he wished it to be, by the external atmosphere, he would have been subject to the continual fluctuations in temperature, varying from 20 deg. to 80 deg. Fahr.; he would *then* have been "subjected to currents on every side, which blow hot and cold air;" whereas, being surrounded as he is, by a perfectly ventilated area, capable of being maintained at any required temperature, an unlimited command is given him over the temperature of the currents of which he complains.

Another practical difficulty under which the Doctor states he labours, is "from innumerable chimneys, that pour forth volumes of smoke into the surrounding lobbies. Torrents of smoke come in, so that the House sits in an atmosphere of carbonic acid."

Although a few of the chimneys surrounding the House lobby did at first smoke, immediate and effectual measures were taken to prevent a recurrence of the evil, which could and ought to have been remedied before the sitting of the House, had the Doctor's system been in full operation.

The foregoing are the principal faults that Dr. Reid in his evidence alleges have prevented the carrying out to perfection his system of ventilation, but he has *entirely omitted* a most important fact, viz. that for the purpose of propelling a sufficient current of air through the House, a steam-engine was provided, and fixed under his directions, connected with a large fan, which engine was *obliged to be removed in consequence of the great noise made in its working being heard over the House.*

Your readers will be able to judge from *which* of the causes the failure of the ventilation has arisen; whether from those to which Dr. Reid attributes it, viz. to the lamps, drains, oil, chimneys, &c. or from the failure of the steam-engine, which he had provided to propel the current of air through the House, and which, although abandoned by him, was passed unnoticed in his evidence.

Again, can it be credited, that after receiving for superintending the ventilation of this comparatively small chamber, since the year 1846, a large salary, together with a staff of 1,300*l.* per annum, to which, his original assistance being found inadequate, he demanded and obtained the addition of three engineers, he should without previous protest, although he states "he anticipated those defects," have allowed the House of Commons to meet, and after nearly stifling them with the impurity of the atmosphere, should, upon being examined, coolly tell them that for 200*l.* or 300*l.* he could "remedy the great defects in two days"!!!

Further, can it be believed, that Dr. Reid, after replying (to one question of Lord Seymour) that he was a "medical man and not an architect," and to another, that he was a "medical man and not an engineer," should ask the House of Commons to give him entire control over the architect, whose system of ventilation, carried throughout the remainder of the building, has been perfectly satisfactory and comparatively inexpensive?

In conclusion, I beg to ask whether the foregoing facts do not prove, either

That Dr. Reid's system is a failure in principle; or,

That from his want of practical knowledge he has been unable to apply it to the building; or,

That he has, from some unaccountable motive, purposely failed. Wm. Jeakes.

*** We insert Mr. Jeakes's statement, because we know he is intimately conversant with the particulars, but we must reserve any opinion as to the success, or otherwise, of Sir Charles Barry as a ventilator. It requires a large stomach to swallow a charge of 200,000*l.* for such a purpose. We propose a personal examination next week.

ON THE ARCHITECTURAL DISTINCTION BETWEEN CATHEDRAL AND PAROCHIAL CHURCHES.*

The lowest class of structures which seem to me to approximate in any degree to the character of a minster, are certain moderate-sized cross churches without aisles, but with four arms of the full height, and with the predominant central tower. Those that I am going to mention were actually conventual, and I think there is something about them which at once indicates the fact. Such is Leonard Stanley, in Gloucestershire, a perfect Norman shell, with later alterations harmonised with the original work, in a manner unusually careful and ingenious. Such is Llanbadarn-fawr, in Cardiganshire; such seem to have been several other of the smaller Welsh monastic churches, as the priories at Haverfordwest and St. Dogmael's, though these seem to have introduced a much greater degree of ornament. At St. Dogmael's, some parts were vaulted, as was also intended in the choir at Leonard Stanley. At Pill, near Milford Haven, there stands a very fine fragment, —a single arch of a central tower, which, to judge from such slight evidence, would seem to be the remains of a church quite of the same type as Stanley or Llanbadarn.

Something of the same kind may be traced in Lapley Church, Staffordshire, which was also conventual, but a rather more elaborate tower takes away somewhat from the simplicity of the type, and the present aspect of the building is certainly not improved by the demolition of its transepts. The same character possibly also existed at Stanton Harcourt and Cholsey, but later alterations have done much to destroy it. In all, or most, of these churches, we may observe the great proportionate length given to the western limb.

I am not sure that there is not a nearer approach to the conventual idea in these aisle-

* See p. 4, *ante*.

less churches than in most of those which might formally rank immediately above them, cross churches, namely, with aisles. Certainly, no form better combines simplicity, regularity, and picturesque effect than that of Stanley and Llanbadarn; and its very simplicity prevents the admission of any positively opposite element. Whereas, when there are aisles, the aisles may be treated, inside or out, in a purely parochial way, or some irregularity may be introduced which may make them depart farther from the type of the minster than the smaller buildings. Thus, at Purton and Cheltenham, as I before said, there is a picturesque grouping of gables and distinct roofs, unsuited to the cross form: at Cricklade, notwithstanding some exceedingly noble individual features, there is a general irregularity, which is highly displeasing. I certainly think that every cross church with aisles ought to have a clerestory, if only to avoid the junction of the aisle and transept roofs, which is not agreeable on so large a scale.

Now when this clerestory is combined with a high roof, we have gained, in external effect at least, another very important step towards the cathedral effect. In common parish churches we generally have to choose between a clerestory and a high roof, the height being not sufficient to allow of both. When both are united there is an appearance of general bulk, which is highly effective. This may be seen very eminently in the Priory Church at Brecon,—I suppose the grandest existing church in Wales, after St. David's and Llandaff, and which ought to be the cathedral of a new diocese. This church is a great advance upon Llandabarn; besides the nave aisles, though there are no regular aisles to the choir, there is a rather complicated arrangement of chapels, and the choir, a splendid specimen of the pure Lancet style, has been designed for vaulting. It comes very near to the character of a minster, but has not quite attained it. Even at Shiffnal, the union of the high roof and clerestory, though the latter is so small that it is not even pierced, produces a sort of solemn and quasi-monastic effect, quite beyond the common run of parochial cross churches. We see the same union in Wimborne Minster; but this church, on the one hand, has other cathedral features; on the other, the choir clerestory is insignificant;* while that of the nave, with its square-headed windows, is of an eminently parochial character, and very infer or to the beautiful one at Brecon.

Another very great point, and one even more rarely secured than the high roof and clerestory, is to have a genuine west front, forming a real architectural composition. Every one must have seen how often in churches, even of very considerable pretensions, which have a central tower, the west front seems to be in a manner left to itself, not made to form any architectural design. This is conspicuous in Shiffnal Church; in St. Giles, Northampton; and even in so large and sumptuous a church as St. Mary's, Stafford, where no care or ornament whatever is bestowed upon the west front: even one of the aisles is left without any western window. Felmersham, in Bedfordshire, figured in Mr. Petit's "Architectural Character," is a grand example to the contrary, as far as concerns the nave, whose termination is sumptuously arcaded; but even here the ends of the aisles are left quite bare. So at Berkeley, the west end of the nave is a most noble Lancet composition, but it is ruined by the beggarly terminations of the aisles of rather later date. Replace the nave gable, and build a pair of western towers, and this front would rival Llandaff; but at present it is not a satisfactory whole. At Melton Mowbray a very fair Decorated front is spoiled by the addition of a magnificent western porch.

Very different is the case with the two noble churches of Yatton and Crewkerne, in Somersetshire. I will not enter into any minute criticisms upon them, having recently done so before the Archæological Society of their own county; but I may say that here we have real architectural designs, worthy of forming part of a cathedral or abbey. Crewkerne front is very like that of Bath, but incomparably finer. That of Yatton I selected as the frontispiece to my "History of Architecture;" and I may mention that Mr. Jewitt and I, between us, though by far the greater share of blame rests with myself, have contrived to convert the hexagonal turrets into octagonal ones.

The whole nave of Yatton, externally at least, may be considered as approaching very nearly to the cathedral type: would that its tower, choir, and transepts were worthy of it.

I think, then, we may fairly set down that a cross church, with the four ends of equal height, and a predominant central tower, with a clerestory, and high roof, and a regular western font, makes considerable approach in its external effect to the type of a minster. Of course, if the style be Perpendicular, the high roof is of less consequence, but we must then have pinnacles and rich parapets in lieu. But I know of no strictly parochial church which fully combines all these requirements: Yatton, Melton, Crewkerne, Ilminster, even Stafford and Brecon—minsters in rank—are merely approximations. I am not sufficiently acquainted with Trinity Church, Hull, and St. Mary's, Beverley, to say how far they realise the idea. But of churches which I have myself seen, the first in which I can recognise its complete development, is the comparatively small, but perfect and exquisite, minster of St. Cross.

Let us now consider how the types develope themselves in the interiors of churches; and here we shall find it advisable to pay more attention than we have yet done, in the course of this inquiry, to the historical sequence of the styles. For, in considering exteriors, we have been chiefly concerned with general outlines, on which difference of style has only an indirect influence; while within, the different forms of arcades, roofs, &c. are the points in which the styles necessarily exhibit some of their most immediate developments.

It always strikes me that there is something very monastic about the Norman style in general; the Early Gothic is less so, the Continuous least of all. In the two former there can hardly be said to be any distinct type of parochial architecture; the mass of parochial buildings belong to the merely picturesque class; where they get beyond this, it is generally by introducing some feature which directly approximates them to the minster. We have seen how the Perpendicular style was the first fully to develop the higher type of parish church as a distinct architectural creation. Hence in this latter era the cathedral and parochial types converge; the architectural parish church of this age comes nearer even to the old cathedral type than the earlier picturesque parish church; while at the same time the Perpendicular cathedral type actually approximates very considerably to that of the Perpendicular parish church.

Though the Norman style is the most monastic of any, yet it has something more like an architectural parochial type than the Early Gothic. This is to be seen in the short columns so common in our Norman churches; real columns I mean, as distinguished from circular piers. They rarely carry a clerestory, but occasionally do so, even without introducing any cathedral effect, as in St. Peter's, Northampton. But when a more massive pier is employed, whether in the form of clusters, or of the vast circular masses I have just mentioned, and which may be distinguished from the real columnar pier by their round imposts,* we get some slight approximation to the minster type. The arcades alone often resemble cathedral arcades, but there is no general cathedral effect from the absence of the triforium and clerestory, or, still worse, from the addition of a later and inharmonious one. Such arcades or piers of Norman or Transitional character are found at Rothwell and Grendon, Northamptonshire, Stafford, Cricklade, and St. Nicholas, Gloucester. The clustered examples are indeed usually more slender than if they had to support a triforium and clerestory; but they approximate neare to the cathedral type than the other.

When these massive piers actually support clerestory, the general effect of a minster i very nearly attained, as at Towyn, Merioneth shire. When the triforium is introduced, eve if in so rude a form as in Chepstow Prior Church, the work is complete, as far at leas as the side elevations are concerned.

But between the genuine column and th circular mass several intermediate degrees ma be found. Thus, in the very fine nave of S Wollos, at Newport, Monmouthshire, thoug there is a clerestory, and that supported o columns considerably thicker than those a St. Peter's, Northampton, the design is hardl less strictly parochial than the latter; but i Buildwas Abbey, though there is no triforium we cannot but recognise the character of minster, though imperfectly developed. Wit this, as far as the arcades go, we may perhap rank Wimborne Minster; but the absence o an original clerestory at once puts it on a ver inferior level.*

In the Early Gothic I observed that we ha no distinct parochial type of external architec tural effect. Within there is a little neare approach to it, but it is extremely feeble; th low pier, even if it be slightly clustered, muc more if it be round or octagonal, and th broad, often sprawling, arch which it supports always seem to me about the meanest amon the productions of ecclesiastical art. They ar surely very inferior either to their Romanesqu predecessors or their Continuous successors I know of few or no Early Gothic interior parallel to St. Peter's on the one hand or t the familiar Perpendicular type on the other When they affect anything more they run o in various directions. Sometimes, as in St Mary's, Haverfordwest, where we have th most elaborate series I know in any parish church, we find, as in the Norman examples arcades which a slight addition of massiveness would render quite of a cathedral character though the absence of a triforium and clere story precludes any general cathedral effect The arches of the choir at Dorchester are, taken alone, equal to any in England, and strike me as singularly like those in Exeter Cathedral; those in the choir at Stafford are very little, i any, inferior to them. The arcades and lan tern arches of St. Mary's, Shrewsbury,—the former exhibiting a very remarkable form o round-arched Early English, like Polebrook and Barnack, in Northamptonshire, and Faringdon, Berkshire—come very near to the cathedral character, but we lack here also the triforium and clerestory.

With a clerestory, as in Norman, we have advanced a great step. Even so small a nave as that of Llanaber, in Merionethshire, where however, the columnar piers give an effect rather Norman than Early English, rises fa above the common parochial type. Bu certainly the grandest parochial nave of thi style I know is at Berkeley; the arcades are magnificent; the triforium indeed is absent, and the clerestory is of inferior character, but a vault would at once bring it under the com plete cathedral type, though not in a high state of development.

The nave and choir of Llandaff, as having neither triforium nor vault, may be so far classed with Berkeley, but the cathedral effect is much more fully developed. This is owing not only to the clerestory being in itself much better and more elaborate, but because it is better joined with the arcades in one architectural design. The string above the arcades, the shafts running up to the roof, make all the difference. These two features are the necessary marks of the vertical and horizontal divisions; and the improvement in point of finish which they effect is wonderful. Now these we hardly ever find in parochial buildings earlier than the Perpendicular period.

The choir at Southwell is something like Llandaff, with the addition of vaulting; the

* Since this was written, I find from Mr. Petit's paper in the Salisbury proceedings, that a Norman clerestory exists at Wimborne, though blocked, below the Perpendicular one.

* History of Architecture, p. 240; Archæological Journal for June, 1850, art. "Iver Church," *ad finem*.

* See preceding note.

triforium is rather more developed than in that church, but is still far from perfect. The addition of the triforium completes the Early Gothic cathedral type, which we find in all its glory in the matchless presbytery of Ely. I must again express my belief that the vast triforium of that church, as well as Romsey, is in fact the chief element of its beauty, and places them far above all churches with the comparatively insignificant passage we see at Lincoln. But I have treated at large on this point elsewhere,* and it is not immediately connected with my present subject.

One main reason why there is at this period a far greater gap between cathedral and parochial churches than either before or after is to be found in the fact that this is just the point where vaulting is most imperatively necessary. We know that in the Norman style a vault over a large space is scarcely ever found,—never, indeed, until we approach the period of transition; and it is not only scarcely ever found, but is ideally very much better away. In the Continuous Gothic again, though the vault is continually found, and is always desirable to the complete perfection of the style, yet its absence is of comparatively little consequence on account of the noble substitute provided in the elaborate timber roof of low pitch or of a cradle form. But in the intermediate stage, the Early Gothic, the vault is both more necessary than at any other time, and has no such substitute provided; the choice is between vaulting on the one hand, and, on the other, either utter bareness and meagreness, or else, as at Llandaff and Romsey, some form which is better in harmony with the requirements of an earlier or a subsequent period. Now, every one knows that one of the greatest defects in our national architecture is, that the vault is so extremely rare in parochial buildings. And it is no more common at this period, when it is most wanted, than at any other; indeed, it is still rarer than before or after. Hence the ordinary presence of the vaulted roof in minsters, and its ordinary absence in smaller churches, is more acutely felt as a marked distinction at this period than at any other.

We now come to the mode in which the distinction was effected, or rather, to a great extent, ceased to be effected, in the days of the Continuous Gothic; in the days when our parochial architecture was brought to the zenith of its perfection at Wrington and Banwell and Wells and Yatton, and when the builders of our greater churches produced every conceivable development of their own idea, from the unrivalled majesty of Winchester to the fantastic poverty of Gloucester. Now, my main position is, that at this period the two types of the minster and the parish church began, to a great extent, to converge. But I may be excused from enlarging on this point so much as I otherwise might, because I have, on the one hand, stated my view, succinctly, but I hope sufficiently, in my History of Architecture† ; and, on the other, I am at present engaged in working it out in detail for the Archæological Society of the county where the question must be principally studied. And if I can by this means induce any member of the society to study for himself those matchless churches of Somerset, I shall feel well pleased.

It certainly seems to me that there is now no essential difference between the two types of interiors. I suppose it will be granted me that St. Mary Redcliffe is to be considered as a minster in every respect, except the unhappy position of its steeple. But I also think that no one can fail to recognise that this magnificent building belongs essentially to the same class as the great parish churches of the county. Besides a certain increase in elaboration of work, the main difference consists in the presence of a stone roof, and the greater massiveness consequently given to the piers, These, it may be said, are considerable changes; but I do not know of any Early Gothic parish church which so simple a process could transform into the likeness of Ely or Lincoln. And every one must feel that the general notion of Redcliffe is completely identical with that of Wrington, or Yatton, or St. Stephen's in its own city. The great size of the clerestory is an individual peculiarity which it shares with Bath and a few other churches, but which is in no way essential to the notion of a Perpendicular minster, as may be seen by the notable instances of Canterbury and Winchester.

I say that the two types now *converge;* the parish church, with its fully developed clerestory and its marked horizontal and vertical divisions, approaches to the character of a minster; on the other hand, the minster, now that the triforium is banished, and the vault rendered less necessary, does not stand so much distinguished as before from the parish church. I do not put the nave of St. Mary's (Oxford) on a level with that of Winchester or Canterbury, but I think that few minsters of the second order would be entitled to despise it as one of their component parts. And this, although, like Taunton, it has not the same strong vertical lines as Yatton and Redcliffe. I think one cannot help feeling that St. Mary's, as a whole, is too large for its type, that it ought to have been a cross church, with a central tower and the other cathedral accompaniments; but were such the case, though objections might possibly be taken to the simple aisleless choir, I do not think any one could reasonably deny the nave to be fully worthy of its destination.

I hold, then, that, while in the Early Gothic, the distinction is by far the most marked in the interior elevation of churches, in the Continuous it is almost entirely confined to outline and ground-plan, that is, to the full development of the cross form. Internally there is only one specific type; with this qualification, that vaulting is almost an improvement, and that, where it is used, a less slender form of pier is necessary than that which is commonly found in the best Perpendicular parish churches.

I have thus endeavoured to point out some of the external points in which the difference between the two types of church exhibits itself. But I cannot help thinking that there is, beyond all this, something deeper, which, as I before said, I can recognize, but cannot define; something like what we use to call an ἦθος, the exact nature of which I should be well pleased if some more metaphysical inquirer than myself should succeed in clearly explaining.

We have seen throughout that the approaches to a cathedral character in our parish churches are but few and feeble. Individual features we have seen not unfrequently occur which might have found their appropriate place in a minster, but the complete general effect we have found only in the individual case of St. Mary Redcliffe. And even there the transept aisles, the lady chapel, the magnificent vista of the nave and choir, are, to a certain extent, balanced by the deplorable misplacement of the tower, at once robbing the church of central lantern and western façade. But, on the other hand, it is by no means uncommon to find the case reversed, to find the abbey or the cathedral imitating the parish church. I have already alluded to this subject in connection with the fact that the collegiate churches of Northamptonshire do not architecturally differ from merely parochial structures; and since then I have worked the question out more at length when tracing the history of the most remarkable instance of the phenomenon, the extraordinary cathedral at Llandaff.* Still I cannot refrain from calling attention to a few of the most conspicuous cases. Now nearly all our cathedrals exhibit the cross form in its most perfect state; but conventual and collegiate churches often depart from the general type. This is doubtless to be accounted for by the circumstance that many of the former, and a great majority of the latter, were also parochial: still it is a remarkable fact, as one would certainly have expected to find the inferior use yield to the more dignified. One would not, indeed, expect to find every lord of a manor who founded a college of priests for the more solemn performance of divine service in his parish church, to reconstruct the fabric on a cathedral scale; still less could we look for such a change from the not usually very wealthy chapters of such foundations. But it is surprising to find churches which have been seats of more ancient convents and colleges, and have been rebuilt on a vast scale and with no lack of ornament, retaining the inferior form. It was not want of funds which caused Dorchester to retain the meanest parochial type; its vast length is unbroken by tower or transept, and its unsurpassable arcades support neither triforium, clerestory, nor vault. Yet the size of the church, the wonderful beauty of detail, and the lavish expenditure of ornament, preclude all idea of its deficiencies or anomalies originating in inability or unwillingness in point of expense. The like may be said of Manchester Cathedral, for several centuries the seat of a wealthy chapter, and a large and noble church, yet not even cruciform. Smaller collegiate churches might be adduced to an interminable extent. * * *

Edward A. Freeman.

* History of Architecture, p. 365.
† Page 388.

* Llandaff Cathedral, pp. 5-10.

THE HOLMFIRTH AND OTHER DEFECTIVE RESERVOIRS.

The reservoir at Holmfirth, the giving way of which we noticed in our last, has been in a dangerous state for years. In many other places equal risk is being run.

We are not displeased to find that something like effectual alarm is being excited in various quarters, though, in all probability, not in those places where alarm and close investigation ought to lead to instant measures for security of life and property.

A correspondent of the *Stockport Advertiser*, while warning the inhabitants of the district from the Manchester reservoirs along the valley of the Mersey, by Stockport, of the risk, and cautioning them to look to the security of their reservoirs, says, "Are the owners of our large mills, and our corporation authorities, aware that some doubts exist in high quarters as to the safety of the Woodhead reservoir? Is it not the duty of our authorities to make instant inquiry on the spot? I am no alarmist, but, for Heaven's sake, if there be any doubt as to the safety of our lives and property, let these doubts be set at rest."

Such is the feeling and determination which ought to be excited throughout the country wherever there are reservoirs storing water for descent, whether through gorges, valleys, aqueducts,* or pipes, and it will be some consolation for the losses already sustained, if future fatalities be thereby prevented by prompt and efficient measures, however costly.

APOTHEGMS.

In your instructive periodical of the 14th, I find a good-humoured and well-versified answer to my apothegm on architecture, and submit the following to "P. De T.:"—

If "P. De T." would keep upon the earth,
And be sincere, nor write in harmless mirth,
He'd find A. P. is right about the "air"
Does he build other*where?* Echo cries *Where?*

CORRECTED APOTHEGM.

The Architect, who with artistic eye
Rears mighty structures, massive, grand, and high,
Leaves to the world the genius of his mind,
And is a benefactor of mankind!"

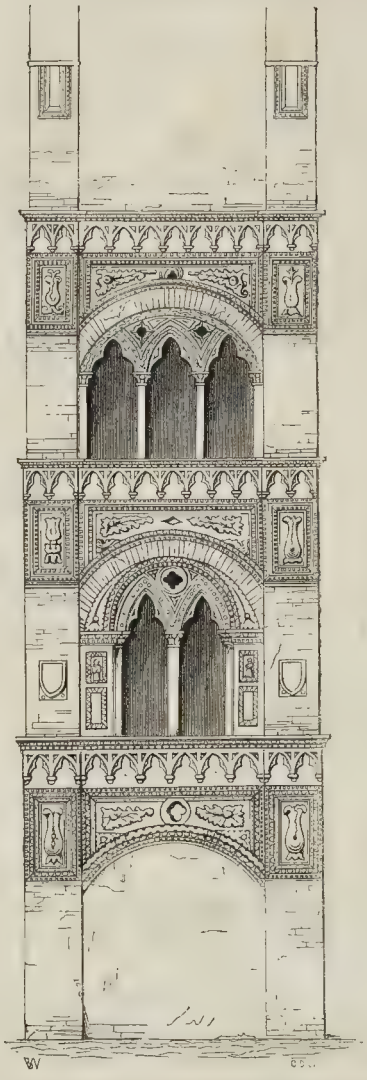
Allow me to submit one

ADDITIONAL APOTHEGM ON EPITAPHS.

If all the epitaphs of fond regard
Be true, we read in every lone churchyard,
How bad the living are; how good who die!
Alas! too many { rest / lie } beneath a lie! A. P.

* On Sunday week, an aqueduct which carries the river Roch across the front of the Littleborough tunnel of the Lancashire and Yorkshire Railway, immediately over the line, burst, owing to the great accumulation of water from rain during the night, and inundated the line, so as to prevent several of the morning trains from passing along it. A deep cutting of the line there was converted into a watercourse. Fortunately, the tunnel there having a rising gradient under the hills into Yorkshire, the water took an opposite direction, and the damage was easily repaired. A great number of excavators were set to work to cut a new channel by the side of the line for the river, and, before night, one line of rail was entirely restored to working order.

TERRA COTTA FRONT, PISA.



TERRA COTTA FRONT, PISA.

This drawing illustrates a palace on the Lung' Arno, Pisa. The front is of terra cotta, and in four compartments, the one drawn being the most perfect. It is of a Romanesque Gothic character, and is now used as an ordinary dwelling-house.

NOTES IN THE PROVINCES.

Windsor.—The painting and decorations of the Court-room of the Town-hall are now nearly completed, according to the local *Express*, and the portraits have been arranged in something like uniformity on the walls. Empty spaces by the side of the Recorder's seat will shortly be filled by full-length portraits of Queen Victoria and her royal Consort.

Brentwood.—The Grammar school foundation, after twenty-five years' litigation in the Court of Chancery, at an enormous expense, is now made available for the education of the youth of the district. The old school-house has been repaired, and will be used until the new schools, which will be on an extensive scale, are erected: these will be arranged to accommodate from five to six hundred boys.

Frocester.—The church has been rebuilt with the exception of portions of the chancel, viz. the east and north walls, which are patched up, and pointed. The church consists of a nave, with south porch, a north aisle and a chapel, a tower, with a spire, on the north side, and a chancel. The north aisle has been lengthened westwards, and this aisle is separated from the nave by circular pillars supporting two centered arches. The sittings are all open and low, having carved bench ends and moulded capping. The floor of the church, except the chancel, is laid with black and red tiles, in pattern. The roofs are covered with stone tile. The dimensions of the church are, nave, 58 feet by 15 feet; north aisle and chapel, 76 feet 6 inches by 13 feet 6 inches; chancel, 23 feet 6 inches by 15 feet; south porch, 8 feet 6 inches by 8 feet 6 inches; tower, 9 feet by 9 feet. Mr. Niblett was the architect; Messrs. Coleman, the carpenters, and Messrs. Wall and Hook, the masons.

Upton-on-Severn.—The late floods have done some good it seems by washing away Upton bridge,—a vexatious impediment to the improved navigation of the Severn.

Birmingham.—The governors of the free grammar school of King Edward the Sixth have lately erected a fourth branch school, in Bath-row. The building, which will accommodate 150 boys and an equal number of girls, was erected by Messrs. Branson and Gwyther, from the designs of Mr. J. L. Hornblower, at a cost of upwards of 2,000*l.* and will, it is expected, be opened early in March.

Shirley.—New schools have been erected in connection with the church. The building is in the Perpendicular style, from plans supplied by Mr. A. E. Perkins, architect to the Dean and Chapter of Worcester, and erected under the contract of Mr. G. Madeley, of Solihull.

Wellington.—The ceremony of turning the first sod of the Wellington Water Works took place on the 6th instant. The site of the works is at the foot of the Wrekin. The reservoir will cover a space of eight acres: it will be 150 feet above the level of the Wellington Market-place, and will hold 15,000,000 gallons of water, being more than sufficient to supply the town for six months.

Wolverhampton.—The report of Mr. Ewan Christian, architect to the Ecclesiastical Commissioners, on the Collegiate Church of St. Peter, Wolverhampton, describing its present dilapidated and wasting condition, and the measures to be taken for its restoration and substantial repair, has just been printed for circulation. It appears from this report that the total charge for repair and restoration will be—for repair of masonry and for drainage, 3,337*l.*; repair and renewal of roofs, 2,000*l.*; re-glazing, 193*l.*; contingencies, 470*l.*; total, 6,000*l.* Of this sum, the Ecclesiastical Commissioners have promised to contribute 3,000*l.* provided the remaining funds needed are raised by private subscription, and without delay.

Newark.—It is proposed to repew the church of St. Mary, at a cost of 4,000*l.* to 5,000*l.* upwards of 1,200*l.* of which have been subscribed, and 1,000*l.* more are in the hands of the vicar. A premium, it is said, will be offered for the best plan, to be decided on by a committee to be appointed for that purpose.

Laceby.—The Wesleyans of Laceby, near Grimsby, are about to erect a large chapel, in the Gothic style of architecture, in that village. The tenders of the Messrs. Johnson, of Laceby, and of Mr. William Shepherd and Mr. William Pybus, of Caistor, for the execution of the work, have been accepted.

Sunderland.—A new building has been commenced in Lambton-street, Sunderland, to be called the Lyceum Hall. It is to comprise seventeen rooms, adapted as offices, committee-rooms, &c. and a hall 90 feet by 48 feet, capable of holding 1,800 persons, being the largest in Sunderland. Besides this, there will be two others on the ground floor, capable of holding 500 or 600 persons. The whole is to be ventilated and heated by a hot-water apparatus. The building is expected to be completed in July next.

Edinburgh.—The laying of water pipes leading into and out from the reservoir just erected on the Castle-hill has been completed and the water admitted. The reservoir is calculated to hold about 1,700,000 gallons of water, and it is fitted up with numerous pipes leading directly from the sources, and others distributing it arterially throughout the town, while an overflow pipe will render any excess of water useful in flushing the sewers. A large water tank of iron is now also almost completed within the Castle, near the Mons Meg Battery. The exterior of the tank somewhat appropriately resembles a castellated tower.

Glasgow.—The Commissioners of Woods and Forests have ordered the removal of the galleries in the Cathedral. The floor of the choir is used as the place of worship, and is capable of being reseated in the Presbyterian manner: by the removal of the gallery stairs and other fixtures, an unbroken view will be

obtained from west to east of the aisles and colonnade.

Elgin.—The episcopal chapel here, according to the *Elgin Courant*, is to be rebuilt on the site of the present chapel in North-street. The design of the new edifice has been furnished by Messrs. Mackenzie and Matthews, of Elgin, architects.——The same paper announces the discovery of rich lead ore in large quantity at a village called Stotfield, the property of Colonel Brander, of Pitgaveny, near Lossiemouth. The mines are already let to residents in London connected with similar speculations in the Isle of Man. Lead appears in various quarters throughout Scotland. We happen personally to recollect that many years since—probably nearly forty—rich lead ore was discovered in a field near "The Hills," at Inverkeithing, in Fifeshire.

IRON GATES IN THE MUSEUM AT ROUEN.

THESE curious gates, which are ascribed to the twelfth century, were formerly in the cathedral of Rouen, whence they have been removed to the museum.

A and B are sections half size of the plinth and moulding above it.

Rouen, like most of the French cities, possesses a museum containing an interesting collection of local and national antiquities. Alas! that the British Museum should still continue deficient in this most important branch: how much longer shall we tacitly acknowledge that, of the works of all ages and nations, those of our own forefathers are alone unworthy of a resting-place in our national museum? J. G. H.

MARGATE LANDING PIER COMPETITION.

THERE were several sets of plans forwarded to the directors of the Harbour and Pier Company for this work, furnished by Messrs. Mitchell and Saunders, Mr. J. B. Crampton, and Messrs. Fox and Henderson, Capt. Moorsom, Mr. J. B. Redman, Mr. A. Giles, Mr. Tress, Messrs. Birch, Mr. Law, Mr. Scott, and others. The directors, assisted by their surveyor, met to consider these plans for three successive days, and ultimately decided upon adopting the design of Messrs. Birch.

The proposed structure is to be a high-water pier, 25 feet in width, and constructed entirely of iron, except the roadway planking. The directors have it in contemplation to extend the pier further seaward than the present low-water jetty, which is nearly 1,200 feet in length. The pier will be approached from either side of the Droit House. There will be a spacious head for vessels to come alongside, with a lighthouse, and the requisite landing places, inclined plane, cranes, &c. for the landing of passengers, goods, cattle, &c.

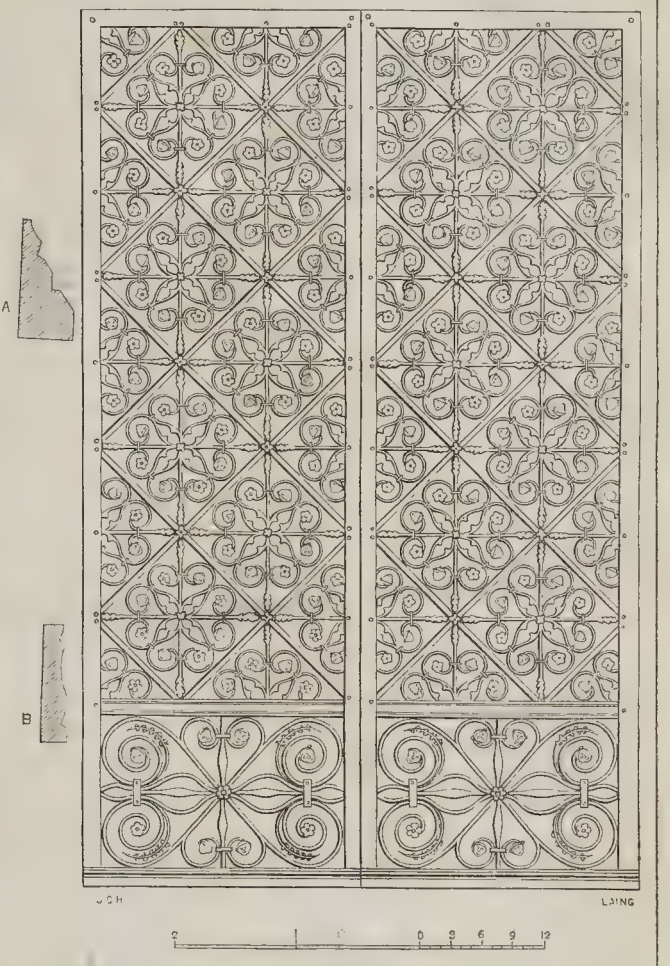
STAINED GLASS WINDOW, SAINT STEPHEN'S, WALBROOK.

THROUGH the liberality of the Grocers' Company, patrons of the living, the large east window of St. Stephen's, Walbrook, has been filled with stained glass by Mr. Willement, under the direction of the Company's architect, Mr. Gwilt. It is a "Venetian Window," of three lights. The centre opening contains two subjects in frames from the life of St. Stephen (the "Stoning," of course); and in the side-lights are medallions of the Evangelists with others containing their emblems. At the summit is the head of the Saviour with an angel on either side, less successfully executed than the other figures. The ornaments in the enclosing frames have been vulgarised by sash doors and fanlights. The cost, it is said, will be little short of 500*l*.

Great praise is due to the Grocers' Company for setting so good an example. It is to be hoped it will be followed by the other great city companies who have it in their power to do so much for art and artists, and for the most part do so little. As the writer has said elsewhere,—"The surplus revenues of a club or city company could not be better expended than in portraying for imitation a noble action or elevated feeling in the language of all lands,—the language of the painter;—teaching the beholder to regard his fellows with love, by that exposition of the human heart which a great painter equally with a great poet, can make;—or setting up in marble, memorials of their good and great men, and so shaming vice by doing honour to virtue." Our artists need such opportunities and such incitements. The cost of one civic banquet (we have no objection to a banquet either), might be made to produce a work which would advance the best interests of society, and long remain a monument to those who thus applied it.

The church, restored some time since, it will be remembered, under the direction of Mr. Turner, has also been lighted with gas, and the old chandeliers, suspended at the four angles of the dome, have been made available for this purpose. It is to be regretted that the burners are made into *sham* wax candles.*

IRON GATES IN THE MUSEUM AT ROUEN.



DUBLIN SCHOOL OF DESIGN.—The Lord Lieutenant distributed the prizes to the pupils of this School at a soirée, which took place on Saturday in week before last. His Excellency described the result of the experiment of opening such a school twelve months since as already very encouraging.

* A plan and view of the church, with some curious particulars, will be found in our Vol. IX. p. 9.

THE CURVED LINES OF GREEK ARCHITECTURE.

IN reading over the leading article in THE BUILDER of the 7th inst. some thoughts occurred to me, which, as they bear upon an interesting subject, may themselves be interesting.

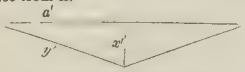
Dr. Emil Braun's suggestion, that the horizontal lines in the Grecian buildings were made to correspond with the sea horizon, seems to me a very natural mode of accounting for the curvature; and would produce the hyperbola which Mr. Penrose has determined to be the curve actually employed. Of course this will not account for curvature in buildings from which the sea is invisible. If these are curved, which they may be for anything I know to the contrary, there is no difficulty in supposing that the Grecian architects, having found that the curve produced a pleasing effect, may have employed it in buildings where the original cause of curvature did not exist.

It must be an interesting problem to architects to determine whether the suggestion of Dr. Braun be correct or not; and I hope to be able to show that it is one that many of them must have the necessary data for solving, and therefore it is probably not too much to expect that this question will be set at rest at once and for ever.

Let us assume the curvature to be been produced by making the building correspond at every point in its length with the sea horizon, when viewed from some certain fixed point opposite its centre. Call this the point of sight. Then the curvature will become greater as the height of the building above the sea-level increases, or as the distance of the point of sight from the building diminishes. It is evident that when the point of sight is brought close up to the face line of the building, the curve will become two straight lines meeting at an obtuse angle; and the elevation of this point above the straight line joining the extremities of the building is the limit of greatest curvature.

This limit can always be ascertained when the height of the building above the sea-level and its length are known, for it depends upon the dip of the horizon. From this limit, and from the actual curvature, the distance of the point of sight is obtained; that is to say, the distance of a point from which the building would appear exactly to correspond with the sea horizon at its centre and its two ends. If the levels of the building were actually taken from the sea horizon, the two will coincide throughout, if they were not, the chance of their doing so is very slight indeed.

It is unnecessary here to enter on the method of obtaining the dip of the horizon for any height. All nautical works give tables of the dip for different heights, corrected for refraction and ready for use; nor will it be disputed that the depression of any point below the level of the point of sight is exactly in proportion to its distance from it.



Let a' = half the length of building; x' = distance of point of sight from building (and suppose it opposite the centre); y' = distance from point of sight to ends of building. Let a, x, and y = the depressions corresponding to these lengths respectively; then $a:x::y:a':x':y'$. Now, since the triangles are right angled,

$y'^2 - x'^2 = a'^2$ substituting the other proportionals

$y^2 - x^2 = a^2$, let b = actual curvature, equal difference of y and x.

$y - x = b$ divide the preceding by this.

$y + x = \frac{a^2}{b}$ subtract the former

$$2x = \frac{a^2}{b} - b \therefore x = \frac{a^2 - b^2}{2b}$$

This is the depression of the building at its centre, and this subtracted from the greater depressions of every other point will give the curvature at these parts.

x' is now easily obtained from the equation $x' = \frac{a'x}{a}$. Having now obtained the distance of the point of sight, we can easily find the length of the line from it to any given point, m, in the building. Let p' = length, then p = depression, and $x - p$ = curvature at m, which being compared with the actual curvature, will show whether the real and the supposed curvature be identical.

Let us take an example. A building, 100 feet long, is placed at an elevation of 140 feet above the sea; actual curvature, at 15 feet from centre = ·0064; at 25 feet, ·0154; at the ends, ·0433 = b.

In this case the dip of the horizon is 11′ 39″, which gives in 50 feet length ·1696 depression = a. Then,—

$$x = \frac{·1696^2 - ·0433^2}{2 \times ·0433} = ·3105 = \text{depression}$$

on length x'.

$$x' = \frac{50 \times ·3105}{·1696} = 91·6 = \text{length of point}$$

of sight from building.

Now, let m and n = 15 and 25, the distances of the two intermediate points from the centre, and p' and q' their distances from the point of sight, and p and q the depressions proportional to these lengths:—

$$p' = \sqrt{x'^2 + m^2} = \sqrt{91·6^2 + 15^2} = 92·82.$$

$$p = \frac{x\,p'}{x'} = \frac{·3105 \times 92·82}{91·6} = ·3146.$$

$p - x$ = curvature = ·3146 − ·3104 = ·0041.

In this same way we find that q = ·3218, and, consequently, $q - x$ = ·0113; and comparing these with the actual measurements, we find that the one is about one-third less, and the other one-fourth less; showing clearly enough that the curve could not have been formed from the sea horizon. In fact, the curve given would correspond with it if the height be supposed 20 instead of 140 feet.

R. R.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

Paris. — Monumentation of France. — It is stated that an extensive commission, composed of painters and sculptors, will be nominated. Its especial object will be to select and project for each of the principal towns of the republic, the subject for a statue, bust, picture, or portrait relative to the locality where it is to be exhibited, either in the Mairie or other place open to the people. The public exchequer would have to bear the half of the costs of these monuments, the other half to be paid by the department or the commune.

The new Salle of the French Legislative Chambers.—The former tribune of the speakers has disappeared, on which place the benches for the Government Commissioners will be erected. These benches, which will be placed before those of the president and the secretaries, will be opposite to the semicircular seats destined for the members of the Assembly. The former Chamber of Deputies could contain about 500 members. Its size has been reduced by the suppression of the last row of benches, and by enlarging the seats in the ratio of 3 to 2. The second row of the *public* tribunes, which is at a level with the circular colonnade at the rear part of the Salle, will be suppressed.

France. — Arts Department of the Public Service.—Besides the museums of Paris, France possesses such in most of its provincial capitals,—Lyons, Marseilles, Avignon, &c.—some of them rich in art-works of the first order. According to a decree of the Minister of the Interior, dated the 22nd January last, the "general direction of the national museums" forms henceforth a distinct department in that ministry of state. It comprises, besides the public collection of the Louvre, Versailles, Trianon, and the Luxembourg, the superior direction of the provincial museums, with a view to "the ameliorations they may be susceptible of, and the encouragements which may be afforded them." The Director-General of the National Museums is entrusted with the *service* of the annual exhibition of painting, sculpture, and architecture, and the reports to the secretary for home affairs on the distribution of medals and other national rewards to be bestowed on eminent artists. According to the announcement of the Director-General of the National Museums, the next exhibition of art-works at Paris, will take place on the 1st of April, and they are to be sent to the Palais Royal until the 1st of March, at 6 p.m.

THE INCORPORATION OF ARCHITECTS.

EFFECT OF BUILDING ACTS.

It would probably be found that, by imposing upon the architect of any building a definite responsibility for its stability and sound construction, the various building Acts throughout the country might be entirely repealed; the proprietor being required to deposit in some given public office a certificate from a fellow, or even licentiate, of the College of Architects. In case of any question arising relative to the stability of the work, this certificate would be evidence to fix the responsibility upon the grantor. In the present day, it must be confessed that a great deal of professional ingenuity is exercised for the purpose of evading the restrictions of the Building Acts: to so great an extent is this prevalent, that I have heard one of the heads of the profession assert that there is more bad building in the towns possessing Building Acts, and full staffs of surveyors, than in those where the architect and builder are left to their own discretion.

Building Acts necessarily assume a certain mode of construction as a standard in specifying thicknesses of walls and scantlings of timber: vary the mode of construction either in the nature or the arrangement of the material, and the provisions that were reasonable become oppressive.

To relieve the profession from the anomalous fetters at present imposed upon it, would be very gainful both to the public and to architects. It may safely be affirmed that had there been any Building Act for the Menai Straits, no tubular bridge would have been constructed; and it is difficult to assign the limits to the hindrance occasioned to the progress of good architecture by those now in existence. It is desirable that the public should have security for the stability of the different erections which are springing up in all directions. The occasional accidents which happen declare loudly that the existing legal restrictions *do not yield that security*, though they greatly fetter the architect; but give the architect a legal position, recognise the profession in law, and make its members responsible, and the public have the security required.

That the position accorded to architects in the opinion of the general public would be improved by incorporation, I think the following incident will attest:—

I had been treated by a committee in a manner which did not at all accord with my ideas of due courtesy; and in a remonstrance to the chairman, observed, "That the course pursued towards me is such as would not be thought of were an attorney or a physician in the case; and I do not see why an architect is not to be treated with just as much courtesy as is shown to the members of any other profession." The chairman rejoined, "I quite agree with you that architects should be placed on the same footing as attorneys and physicians, but not until they go through the same course of education and pass an examination. * * * I might start as an architect to-morrow morning, but I certainly could not start as an attorney or physician."

This will indicate the influence that a legal status to the profession would exercise over the minds of course and vulgar-minded men.

J. B.

THE want of union among the professors of our art, and the consequent evils, have long been felt.

At the meeting convened last autumn by the Architectural Association, on the subject of competitions, I proposed (by letter), the formation of branch associations in every town, which should be in communication with the central one in London, by sending delegates to its important meetings, and by communication through the secretaries on any important matter. This would in some measure supply the place of the corporate body, which distinguishes the legal and medical professions from the architectural and engineering.

I have been waiting for the intelligence of some practical result from the meeting on the competition question above referred to, but though regretting the absence of such result, am not surprised; for, in order to settle this or any other matter of professional rule or practice, you must get the whole body of practitioners interested in the matter; and in order to feel adequate interest in it, all must have some part in the discussion of arrangement. As you cannot expect all, even supposing them to have heard of the meeting, to be present or even to communicate their opinions in writing, the best way of effecting this would be to form branch associations, in whose meetings every one would be able to state his views, and the opinion of the majority could be communicated to the central meeting.

J. P. P.

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—The annual meeting of this society was held on Thursday in last week, Sir J. Boileau, the president, in the chair, when the report was read and other business transacted. A collection of antiquities was exhibited.

THE "LAR"—HOUSEHOLD GODS.

PERHAPS some of your numerous readers may be able to explain the origin of the word "LAR." I have never found it in any dictionary. My parents used the word in reference to the lar of the chimney, though I have never known it understood by others. The other day a friend with whom I was conversing used the same word for the chimney *shelf*. Now, I have thought it may have reference to the *Lares* or household gods of the ancients, a similar spot having been employed for their reception (or exhibition rather). Certainly it is till the present day the one generally preferred for the placing of little figures, or objects of curiosity and ornament.

THOS. S. BOYS.

*** The connection is undeniable: *Lar* (pl. *Lares*), is Latin for the "fireside," as well as for a household god. It is even translated "one's home." *Ab ipso lare*, to begin at home, was a common proverb. Our "household gods" and the social fire-side are happily still connected.—ED.

NOTES OF IRISH WORKS.

A NEW church has been erected at Doe, county Donegal, according to the designs of the architect to the Ecclesiastical Commissioners. The interior woodwork, sittings, &c. are not yet finished.

A new terminus is being erected at Albert's Quay, Cork, by the Cork and Bandon Railway Company: the foundation-stone has been laid.

Active arrangements are being made for the erection of a suitable building for the conventual purposes of the Sisters of Mercy, Belfast. A portion of the grounds attached to the Catholic seminary on the Antrim road has been purchased for the purpose.

A model farm is proposed to be established at Belfast, according to the designs of the architect to the Commissioners of National Education.

The Building Committee of Freemasons' Female Orphan School are about building a school-house at the Grand Canal Dublin, according to the designs of Mr. George Papworth, architect. Tenders are being received.

The works on the Londonderry and Enniskillen railway are nearly completed as far as Newtownstewart, and the line will shortly be opened for traffic. A deep cutting, about two miles beyond Strabane, occasioned much delay. Negotiations for land between Omagh and Londonderry are being made, and tenders from several contractors have been received.

A new hall, for the purposes of a mechanics' institute, is projected at Newan.

The Town Hall Committee of Cork have not yet finally decided on the selection of a plan for their new building. We hope since such a number of designs (forty-two) have been furnished from several parts of the United Kingdom, that local interest will not supersede superior merit.

Two parochial churches are in progress of erection at Wexford.

The contract for the line of railway from Bray to Wicklow has been taken by Mr. Dargan.

Alterations and additions are about being made to the lunatic asylum at Belfast, by the Commissioners of Public Works, according to the drawings furnished by Mr. Charles Lanyon, the county surveyor.

The "Conciliation Hall," at Dublin, is being converted into an extensive corn store, under the direction of Messrs. Louch and Sons, architects.

The Munster Exhibition of Arts and Manufactures is to open at Cork on the 17th of June: Sir Robert Kane, president of the Queen's College, and Sir Thomas Deane, architect, high sheriff of Cork, have had an interview with the Lord Lieutenant on the subject, and received his full sanction.

The committee for the erection of a new Presbyterian college at Belfast, advertised some time since for plans of the proposed building. Twenty designs were furnished, although no premium was offered. At a meeting lately held, those by Mr. Charles Lanyon, county surveyor, were accepted. The design is in the style which prevailed in the time of Inigo Jones. The entire frontage is 135 feet, and the centre building, in which is a tetrastyle Doric portico, with columns 30 feet high, has an altitude 55 feet; that of the wings at the extremities is 45 feet. It will be executed in cut stone. Arrangements for the immediate reception of tenders are being made. The probable cost will be 2,500*l*.

THE SOCIETY OF COLLEGE YOUTHS.

PERCEIVING in THE BUILDER of the 31st ult. some remarks on the "College Youths," I am induced to send you a few particulars of that body.

The Society of College Youths was established in 1637 by Lord Brereton, Sir Cliff Clifton, &c. and derives its name from the College of St. Spirit and Mary, founded by Sir Richard Whittington, on College-hill, Upper Thames-street, which was burnt down in the Fire of London: its church had six bells, and from ringing these the name of "College Youths" was assumed. Among the notables who have been elected members are the Hon. Robert Cecil (Marquis of Salisbury), Sirs John Bolles and Watkin W. Wynne, baronets; Sirs Francis Withins, Martin Lomly, Richard Everard, Henry Tulse, aldermen, Richard Atkins, Henry Chauncey, Thomas Samnell, Gilbert Dolbin, William Culpeper, John Tash, alderman, Henry Hicks, and Watkin Lewis, knights. At the present time there are 193 members living; the admission fee is 3*s*.; a register is kept of every member's name, and all peals of 5,000 changes and upwards. The members ring at St. Mary-le-Bow; St. Saviour's, Southwark; St. Magnus, London-bridge; and St. James's, Bermondsey. They have branches at Woolwich, Dorking, and Barnsley, Yorkshire, which regularly correspond with the parent society. Meetings for practice are held every Tuesday at one of the above churches, also for hand-bell practice. Persons desirous of becoming members must be nominated a fortnight previously, to afford time for inquiries to be made respecting character, &c. Trusting the time is not far distant when all parish authorities will take more interest in belfries and ringers,—I am, &c. W. COOTER, Hon. Sec. to the Society.

RAILING IN BELGIUM.

YOUR correspondent of last week ("Charles Hill"), on "railing at home and abroad," has not stated the advantages which may be put against the discomfort of foreign railways; and I wish to add a few remarks on those of Belgium from my own experience. The weighing and paying for luggage affords the greatest possible security, for no one can take it away without producing the duplicate of the ticket posted on each package to the officer in charge of it. The payment exacted is so trifling, that an ordinary traveller's portmanteau does not cost more than a shilling for a hundred miles, and as for the delay occasioned by weighing it in time, I have sometimes sent mine a day before, and always found it safe at the station, where I addressed it. This is a great convenience to artists and architects who like to ramble about. But if you lose a few minutes by having your luggage weighed, it is fully compensated by the mode of gathering the tickets previous to arrival, which is performed while the carriages are running, the guard passing from one vehicle to another by a hand-rail placed outside every carriage. Most persons become a little impatient in England by the detention to gather the tickets. At the Malines station, the times of departure of the trains and the fares for every class are legibly painted. On the platform a man is stationed near an inscription, as follows:—"Station de l'Employé pour donner Information des Convois;" and this man is always at his post, and fulfils his duty with great civility. At Brussels there is a female especially appointed to attend to ladies in the waiting-room, which is an apartment of elegant construction, fitted with luxurious sofas throughout. On the platform of this station, in the large panellings of the walls, the maps of the railroads of England, Belgium, France, and Germany are separately painted, besides information of the costs and duration of the journeys, from Brussels to London, Paris, Marseilles, Bourdeaux, Berlin, Vienna, Trieste, &c. The above may even afford useful hints for English railways.—H. M.

CHARCOAL FOR DRAINING, FERTILISING, &c.

OF the very many purposes to which charcoal is now applied, the drainage of land forms one worthy of notice, in being a cheap and effectual operation: it will in all probability ultimately come into more general use. Upon farms where brushwood, gorse, and thinnings of young plantations are easily obtained, this forms an excellent material to be so employed, and when charred, is porous, light, and hardly susceptible of decay. The brushwood, &c., being made up into faggots of a suitable size, previous to charring, may be secured with a band of wire at either end, and then laid into the drain, which so constructed is not easily choked, for as the material maintains the position in which it is placed, the superincumbent earth cannot fall in by the decay of any support: it is also a preventive to moles, which is a very important object gained.

In the operation there is no absolute necessity to preserve the faggots entire; for it is evident that a heap of sprays of charcoal, broken in pieces from 2 to 3 inches long, would form a more porous material than any equal bulk of stones.

Peat charcoal is likewise found to be a valuable material for filling in drains, and for constructing hollow ones, as it constitutes a light substance when charred in a close oven, also for the purposes of manure or disinfecting agent, its absorbing and retaining powers being great. This charcoal is forwarded in great quantities to London from Ireland; and from the abundance and consequent cheapness of the raw material, from the facility and inexpensive process of its manufacture, from the lightness which renders it easily portable, and from the small quantity necessary to produce a great amount of benefit, peat charcoal is calculated to become a great boon, both as to comfort and health; nor does the fact of its not being recently prepared militate against its usefulness, as however long it may be exposed to the air, and thereby rendered in some degree inert, all its valuable properties are at once restored merely by heating it in a retort, such as is used in the distillation of coal gas. The valuable properties of charred peat as an agent for destroying offensive odours arising from sewers and cesspools you have already alluded to.

G. J. R.

A DIP INTO OUR COMMON-PLACE BOOK.

Ready Method for approximately ascertaining relative Areas.—Mr. Jardine and Sir Geo. Stewart Sinclair ascertained the approximate relative superficies of Scotland, its counties, and the land and water in each, by weighing the parts as cut out with a sharp-pointed knife, from a copy of Arrowsmith's maps, carefully selected of paper of nearly uniform thickness. A portion of each sheet, equal to 5,000 English square miles, measured from the scale of the maps, was carefully weighed: the balance used was sensible to $\frac{1}{10}$ of a grain, when loaded with 2 lb. in each scale. The method employed seems to have been first made use of by Dr. Long, of Cambridge, in 1742, to ascertain the proportion of the land to the water on the surface of the earth.

Gilding.—It has been observed in gilt signs, while the letters generally were so much tarnished by the weather and other causes, as to render it difficult to tell whether they were ever gilded, that where a nail had been driven in, rain—having first corroded it—had then run down, impregnated with the ore, upon the gilt letters, which remained so brilliant that the gold appeared to be newly laid on. From this circumstance, the question suggests itself,—might not corroded iron, or rust of iron, be employed in some way or other in gilding on wood, so as to preserve the brilliancy of the gold for ages?

A Workman's Recipe for Mastic Cement.—112 lb. fine-sifted freestone, dried in a frying-pan or oven; 6 lb. whitening; 8 lb. litharge: to be well mixed together, and kept dry. The walls to be perfectly free of dust or damp; then brushed over with boiled linseed oil; and the cement mixed with same when applied. Is excellent for pointing round window or door frames, as it unites wood and stone together.

"An Experimental School of Mechanical Science remains to be formed."—*Tredgold.*

In using a screw-driver, power will be gained by applying it at an angle with the nail; an angle of 15 degrees giving a leverage of about 1½ inch for every 6 inches in the length of the screw-driver.

Pipes of iron will bend "very kindly," and without collapsing, if they be filled, at the part to be bent, with melted lead, and bent immediately the lead has ceased to be fluid: when the wished-for curvature is obtained, the lead is easily melted out of the pipe.

Blasting Rocks.—The following method of blasting rocks with gunpowder has for a century been practised in the extensive iron-mines in Sweden. Suppose the bore to be 9 inches deep, the lower 4 inches are preserved empty by inserting a piece of pasteboard cut to the size of the hole, and with a stick underneath attached to it in the middle: to prevent the pasteboard being air-tight, four notches may be made, so as to allow the air, but not the powder, to pass through: the orifice is then loaded, stemmed, and fired in the usual way. The principle of action is the rarefaction of the 4 inches of air in the bottom of the hole, when heated by the explosion of the gunpowder, and its *consequent expansive power, or force;* being identical with the bursting of a gun-barrel when improperly loaded in the same way.

Stained Marble.—In the Bodleian Library are shown some specimens of marble representing landscapes and various figures. They are by many considered as freaks of nature; but, in fact, they are nothing more than pieces of stained marble. This art was exercised in the seventeenth century by a Mr. Bird, a stone-cutter in Oxford. Several were shown to Charles II. soon after the Restoration. They were broken in his presence, and found to correspond through the whole substance. Mr. Wood's words are, "William Bird, of Hallywell, in the suburbs of Oxford, did, in the latter end of this year (1657), find out the painting or staining of marble, a specimen of which he presented to the king after his restoration; as also to the queen; and, in 1669, to Cosmo, Prince of Tuscany, when in Oxford.

Water Gleanings.—Hard water, if habitually drunk, is apt to injure the digestive organs, and the glandular and absorbent system. To this are attributed the goîtres to which the inhabitants of mountainous districts, who drink such water, are liable; and which consist in the preternatural enlarging of a gland in the neck. "That which runs over gravel, is always hard."—*Nimrod. To determine whether water be hard or soft;* that is, fit or not fit for domestic purposes:—to a glassful of the water, add a few drops of solution of soap in alcohol: if the water be pure, it will continue limpid; if it be impure, white flakes will be formed. *To make salt-water fresh:*—The distillation of palatable and fresh water at sea was effected by P. Nicole, of Dieppe, by simply causing the steam arising from boiling sea-water, in a still, to pass through a stratum of coarsely-powdered charcoal, in its way to the condenser, or worm-tube. *To make sea-water fit for washing linens, at sea:*—Soda put into sea-water renders it turbid: the lime and magnesia fall to the bottom. As much soda must be put in as not only to effect a complete precipitation of these earths, but to render the sea-water sufficiently lixivial or alkaline. Soda should always be taken to sea for this purpose. *To make artificial sea-water:*—Take common sea-salt, 2 lbs.; bitter purging-salt, 2 oz.; magnesia earth, ½ oz.; dissolve all in river-water, 6 gallons. These, it is said, are the exact proportions and contents of sea-water, from an accurate analyzation. *To make an artificial chalybeate spring:*—Dr. Hare says, if we place a few pieces of silver coin, alternating with pieces of sheet-iron, in water, it will soon acquire a chalybeate taste, and a yellowish hue; and in twenty-four hours flakes of oxide of iron will appear. Hence, if we replenish with water, after each draught, a vessel in which such a pile is placed, we may have a competent substitute for a chalybeate spring.

SIGHTS AND SCENERY.

The Haymarket Theatre. — The audience here were startled into great enthusiasm on the 15th inst. when they found that the graceful actress of the heroine in *Woman's Heart* (Miss Vandenhoff) was the author of the play. It contains much nice writing and good feeling, and only wanted "wedging up," so to speak, and knocking about a bit by a more practised hand, to have obtained high praise. The dignity of the "artist" is asserted throughout, but in asserting it, the artist loses his amiability. The scenery, Renaissance interiors and exteriors, is very good. The second scene, "Angiola's" studio, and "Isolina" sitting as a model, is exceedingly effective. Mr. Barry Sullivan plays "Angiolo" with much ability, but might usefully infuse more vigour in parts.

RAILWAY JOTTINGS.

Mr. Gooch, the superintendent of the locomotive department of the Eastern Counties works, having intimated to the engineering workmen on the line that any of them who should contribute towards the support of the men thrown out of employment by the master engineers throughout the country, would be discharged, the Eastern Counties' workmen met and resolved unanimously that "This meeting, being of opinion that they have a right to expend their wages in such manner as they think proper, do hereby pledge themselves to support the Amalgamated Society of Engineers, &c. to the fullest extent in their power, and will in the meantime cheerfully subscribe one day's wages per week." A member of the executive council of the operative engineers was present, and stated that the Crewe railway men had forwarded 50*l.* on the previous week towards the support of the movement, and he declaimed on the injustice of the masters "condemning and seeking to put down all associations upon the part of the men, whilst they were in the very act of forming an association amongst themselves on the most obnoxious principle."——The London and North-Western directors, it is understood, will now recommend a dividend at the rate of 6 per cent. per annum, leaving about 50,000*l.* to be added to the "rest."——In the Great Western the balance of receipts over expenditure for the past half-year is said to be 313,000*l.* and a dividend of 2½ per cent. for that period will be declared—leaving to next account about 108,000*l.*——In the London and South-Western the net revenue for the half-year amounts to 181,976*l.* out of which a dividend of 5½ per cent. per annum will be paid, leaving balance to next account, 8,548*l.* The increase of receipts over the corresponding period of 1850 was 69,113*l.* while the increase of expenses was only 10,802*l.*——The contracts for the completion of the railway from Weymouth to Castle Cary have been signed, and the only remaining contract (that for the piece of line between Castle Cary and Frome) was ready. The line, like that portion of it complete between Frome and Chippenham, will have only a single rail.——A railway from Edinburgh to Peebles is in contemplation. It will join the North British line at Eskbank station, and be 17½ miles in length. It is estimated not to cost more than 4,000*l.* a mile. Mr. Wm. Chambers, of Glenormiston, the publisher, is among its chief promoters.——An old invention has been experimented with, successfully it is said, at Worcester, namely, an apparatus for taking from, and delivering parcels to, a train at full speed, without manual assistance. The plan consists of projecting parallel bars, horizontally placed, with springs, &c. which communicate with the passing train, take from it the parcel attached to the upper part of the van, and also affix to it whatever may be required to be despatched onward.

CHURCH BELL-HANGING AND RINGING.

In connection with your "chapter on bell-founding," &c. I would say the hanging and ringing of church bells, on our system, belongs almost exclusively to England. The principle of it is as follows:—An ordinary peal of church bells are hung on a frame, composed of strong beams of hard wood, about sixteen or twenty inches thick perpendicularly, and about half that substance horizontally. The spaces for the bells to swing are so shaped that two bells move in one of the four directions, which equalises the swinging force of the peal on all sides of the tower.

The parts of the hanging of the bell consist of the stock or block of wood, the wheel, stay and slide, and the gudgeon or pinion (fastened one at each end of the stock), which, when the bell is mounted and hung in its place, sinks into a square, cut out of the frame, into which is fixed a brass cap, in which the gudgeons turn round, bearing the weight of the bell, wheel, stock, and stay. When the bell is with its cone downwards, it is in a swinging condition, and may be sounded by pulling the rope a foot or more, according to its size, and suddenly holding the rope fast, which, by checking the bell's swinging motion, causes the clapper to strike the side, and, on allowing the rope to slip out of the hand, the bell swings to its opposite side of the space in which it hangs, and by jerking or checking the rope downwards, it strikes again, and thus a continual sounding of the bell follows at regular intervals, which is termed *chiming*. But, in order to bring out the full tone of the bell, another plan of ringing is adopted, by which *art* is made to supply what animal strength could never accomplish, within the reach of one man, and that is, raising and afterwards ringing a peal of changes on church bells, balanced after the following plan: when a bell is raised, the ringer, prior to commencing, folds the end of the bell-rope, as many times round his right hand, in rings, as will raise his hand near to the smooth part on the rope, called the Sally, and taking the end of the rope in his left hand, he clinches the folded rope with his right hand, inside the wrapping, and then commences pulling, which puts the bell in swinging motion, and, by pulling harder each swing, and letting out two or three inches of the rope at each pull, the bell gradually rises, until the end of the rope is a little above his head, the bell raised with its opening facing the top of the belfry, and the rope quite round the wheel, through which one end of the stock passes. To avoid sending the bell over the circle it has made (that would twist the rope a second time round the groove of the wheel, and draw it through the hole in the ceiling of the ringing chamber, and lift the ringer up to it, if he held tight, providing it was a heavy bell), a piece of wood, called the stay, is fastened to the stock, rising two or three feet above it, and made to push another piece backwards and forwards, called the slide, which is placed under the bell, and fastened or supported at one end to the frame, and working backwards and forwards on the opposite end, the distance of which is regulated so as to allow the bell, when set, to lean over sufficiently to ensure a regular balance: thus, each time a bell sounds it makes a circle, prior to the clapper striking its cone inwardly, near the edge, and the sound from the blow of the clapper being carried round with the circle made by the bell, produces the fine swelling tone which a church bell (especially if a large one) sends forth, when rising and swinging, each time it strikes when up. There is something peculiarly interesting in the sight of a peal of large church bells, hung on a frame; and to persons who have no notion of the principle on which they are hung, it must appear wonderful, that a bell, weighing a ton, or thirty hundred weight, can be raised by one man, and be kept swinging round in a peal of changes sometimes lasting four hours; but this

seeming wonder is easily explained. The action of a church bell when raised is the same in the principle that increases its motion as the turning of a wheel, the former acquiring force from its own weight: a little additional strength used by the ringer multiplies on the already acquired force with which the bell swings, until it gradually gets up to a perpendicular position, and when pulled off its weight,—aided by the force of the pull of the ringer,—sends it round, while another pull of the rope brings it round again, *setting* each time the slide, pushed by the stay, allows it to set sufficiently over the perpendicular to cause it to remain firm in its station.

To render bell-ringing more amusing to the ringer, and more pleasant to the listener, *the art of ringing changes* was invented, and improved by some of the best practitioners, by which the changes on a peal of eight bells can be rung correctly, without ringing one change twice over; but as the number on eight or ten bells is too great to be rung at one time, they are divided into peals of two, three, four, or five thousand changes, which, on church bells, can be rung in the time a ringer's strength can empower him to keep a bell in swinging motion.

It is to be regretted that a prejudice against the art has too long existed in persons moving in superior spheres, through its having been chiefly cultivated by persons moving in the humbler positions of life. The upright attitude required to be maintained by the ringer, together with the action it gives to the arms, render it admirably adapted to the exercise of the whole body, and would be highly beneficial to stout persons having no athletic exercise by which to prevent too much corpulency, which in some brings on apoplexy; while three hours' ringing a week would not only prevent the evil by promoting circulation, but would also improve and confirm health.

Some few gentlemen of means and education, whose names I could mention, possessed of stronger minds than those enervated by prejudice, practised the art of change-ringing, and derived advantage as well as amusement from it. CAMPANALOGIA.

Notices of Books.

Lives of the Friends and Contemporaries of Lord Chancellor Clarendon; illustrative of Portraits in his Gallery. By Lady THERESA LEWIS. In three volumes, with Portraits. Murray, Albemarle-street, 1852.

WERE it not that we of the nineteenth century so lately stood *face* to *face* with a noted abbot of the fifteenth, in St. Stephen's Chapel, we would have said that, next to the living presence, or the works and the biography of those who have played their parts on the stage of life in olden times, our only other mode of arriving at some notion of them, such as might bring them before our mind's eye much as they must have appeared to the living eyes of their contemporaries, is by truthful portraiture. We are of opinion that the man who industriously collected a series of the portraits of the most remarkable men of his time, and handed them down to posterity, is worthy of renown in future ages for that good deed done to posterity, even alone, much more so when we consider that, in spite of inimical charges or insinuations, ever readiest to be believed by some, he was regarded, in his own time, by the majority at least of his contemporaries, as a great man and a good one. Into the merits of the great Lord Chancellor Clarendon as a man, or as a judge, however, we shall not here enter. We prefer limiting our remarks to the portraits and the painters forming the groundwork of these very interesting volumes, and although the great bulk of the matter consists of memoirs of the lives of only two of those whose portraits were preserved by Lord Clarendon, the notices of all the rest of those still remaining in the two divisions of the gallery being limited to little more than a list, we shall not even allude to the two principal subjects, except simply to name them as Lucius Viscount Falkland, and William Marquis of Hertford.

The gallery of Lord Clarendon, after various vicissitudes, was split into two parts, one of which alone, now and for a long series of years at the Grove-park, Herts, belongs to the descendants of the original proprietor, while the other is at Bothwell Castle in Scotland.

Most of the portraits of this celebrated gallery have been attributed to Vandyck, Sir Peter Lely, Wissing, and Sir Godfrey Kneller. As remarked by a historian—

"In this collection an extraordinary assemblage of portraits is to be found of different races, especially the portraits of the different members of almost all the conspicuous families on the King's side in the civil wars; among them the Stanleys, Cavendishes, Villierses, Hamiltons, &c. &c."

Lord Dartmouth, a contemporary of Lord Clarendon's, having in a MS. note to a book declared his belief that Lord Clarendon was open to bribery and corruption of the meanest kind, and subsequent writers having even argued that each portrait might be regarded, of course with exceptions, as a separate *bribe*, her ladyship, the author of the present volumes, after sufficiently discussing an insinuation in itself so mean and so unworthy of a charitable mind, goes on feelingly and justly to remark that—

"The love of art has in all times been honoured as the taste of a refined and cultivated mind. To that taste Lord Clarendon joined in a remarkable degree admiration and respect for distinguished men, and a peculiar tenderness for those to whom he gave his friendship. To the cultivation and enjoyment of those feelings he consecrated his gallery of portraits; and whatever judgment even-handed justice or party bias may pass on Lord Clarendon's policy and character, a single note, written in a style at once vague and hostile, cannot be allowed to cast the stain of corruption on the exercise of these feelings. It is but from time to time that tastes so worthy of imitation are combined with wealth and opportunity for their indulgence. Portraits of companions and friends gathered round the walls of those rooms where perhaps, when living, they have sat in friendly intercourse and serious debate, fill the mind with associations that read a lesson to the heart. A gallery thus formed, that includes many of the most distinguished men of the period, acquires in time a value in the country independent of the pleasure it may have afforded the individual who collected it; and it is to be hoped that in after ages the collection of a late distinguished minister, who is said to have delighted not only in collecting pictures as works of art, but also in surrounding himself with the portraits of the friends and colleagues with whom he had associated and laboured, may meet with the respect due to his taste, without incurring the reproach, two hundred years hence, of their being the price of advancement in his sovereign's favour."

For the sake of posterity itself, this is indeed to be earnestly hoped! Could we by some clairvoyant prevision look into the depths of the twenty-first century and see the sneer of contempt upon the lip of the critic, or the frown of hatred on the brow of the judge, while insinuating charges of bribery and corruption against a statesman of the nineteenth century on so paltry and so mean a ground, what would we think of the morality, not to say the charity, of such a generation itself, that could think so badly of human nature in general, and of their own ancestors in particular?

Lady Theresa, in the third volume of her very interesting, and, in fact, historical work, under head of "Descriptive Catalogue," speaks of the artists to whose labours most of the portraits in the Clarendon Gallery have been attributed. We need not say anything as to the well-known history of Vandyck himself, or even of the equally well-known difficulties in the way of a satisfactory identification of the actual handiwork of a man so imitated, but we may quote the following as a condensation of the chief peculiarities of his style:—

"There are many peculiarities in the composition of Vandyck's pictures which characterise his pencil, and which mark what in art may be termed his 'feeling' in composition, his arrangement of light and shadow, and the form of his designs. The frequent introduction of a small portion of landscape in the background—the mass of shadow produced by some object introduced on one side of the picture—the extraordinary delicacy of his half-tints, and even the peculiar blue hue which his pictures assume when faded—the pointed hand, the arm resting on the hip or on a ledge, so as to relieve the straight line of the standing figure by the introduction of a triangular form on the side, or the foot raised on a step to produce the same effect by the bended knee—the rich satin in his costumes—the precision of touch, without hardness, of elaborately worked lace—the often repeated roses, in the hand or on the table, with his female portraits—the favourite attitude of the hand clutching the skirt of the gown—the simplicity with which he imparted force and dignity to his portraits of men, of cold serenity to those of women, and of well-bred demureness to his children, are so many types by which the hand of Vandyck may be traced."

Lely, as the author truly remarks, has been even more successfully assailed and injured than Vandyck:—

"Any broadly painted daub, with large eyes, long curls, and loose insufficient drapery, is unhesitatingly offered for sale as a genuine 'Lely;' and between indifferent copies and downright forgeries, such a host of so-called beauties have been accepted as Sir Peter Lely's productions, as would have reflected little credit on the taste of the Court at which they could have been so considered, and have tended much to lower the estimation in which Sir P. Lely well deserves to be held by the merit of his genuine works. It would be well for his lasting reputation could he be more known by some of the portraits that remain from the Chancellor Clarendon's collection."

Of the paintings of Wissing and Kneller, there are many in the collection still remaining of the Clarendon Gallery:—

"There was enough remaining in their pictures of the style of Lely to show that they came after him: there was imitation but deterioration. The constrained posture of the figure—the somewhat affected position of the hands—the fluttering draperies, and too incongruous mixture of rocks, fountains, and full dress to be found in some of Lely's portraits, are, by Wissing especially, repeated and exaggerated, and without the merits that could throw such defects into the shade. There is always a difficulty in so painting the costume actually worn at any given period as to avoid what may seem the tailor's or mantua-maker's precision in fixing a fashion, and yet to preserve that identity of dress which shall mark with historic truth the manner in which the subject of the portrait really appeared to his contemporaries. But that difficulty is not overcome, but simply avoided, when, in lieu of any costume that could be worn, appears a sort of accidental folding together of various pieces of coloured curtains without form, and often in Wissing's pictures, in order to screen figures without substance. Still, though the works of Wissing, Dahl, and Kneller mark the decay of art from the days of Van Somer, Cornelius Jansen, Vandyck, and Lely, they may be said to hold a midway place in the fall: the art of portrait-painting had to sink much lower ere it rose again. Time also has probably used its mellowing influence on their works; and we must thankfully acknowledge that their pencils have preserved to us the likenesses of some to whom history has assigned a dignified place, and preserved to many a family the resemblance of those whose beauty and worth have not so long passed away as for their memory to have ceased to be regarded with interest or with pride by their descendants."

Besides Vandyck, Lely, Kneller, Wissing, and Dahl, there are portraits still remaining amongst those at the Grove and at Bothwell Castle, known to be by Jansen, Stoup, Key, and Vanloo. The remains of the great gallery themselves by no means constitute a small collection. Amongst a multitude of other portraits, they contain more or less authentic likenesses of Buckingham, Raleigh, Leicester, Burleigh, Cecil, Bacon, Charles II. and family, Monk, Montrose, Selden, Camden, Laud, More, Chaucer, Thomas Lord Cromwell, Beaumont and Fletcher (Shakspeare is unfortunately missing, although searched for through all the attics and cellars at the Grove), Cowley, Queen Mary, Queen Anne, Clarendon himself, Rochester, King Charles I. Charles XI. of Sweden, Coventry (Lord Keeper) Hyde, Waller, King James II. &c. &c. There are various other pictures besides portraits, and also some prints, in the remaining collection.

It is to be hoped that Lady Theresa Lewis means to proceed with the series of memoirs of the principal characters in her great ancestor's gallery, which she has so ably begun, and which she has drawn partly from original notes and manuscripts heretofore unpublished.

On the Importance of special Scientific Knowledge to the Practical Metallurgist. By John Percy, M.D. F.R.S. Her Majesty's Stationery Office. 1852.

On the Science of Geology and its Applications. By Andrew C. Ramsay, F.R.S. Her Majesty's Stationery Office. 1852.

On the Value of an extended Knowledge of Mineralogy and the Process of Mining. By Warington W. Smith, M.A. Cam. F.R.S. &c. Inspector of Mines to the Duchy of Cornwall. Her Majesty's Stationery Office. 1852.

The lectures in the Government School of Mines and of Science applied to the arts at the Museum of Practical Geology in Piccadilly are making progress. The three more lectures now issued are in themselves sterling and instructive ones to practical men even though merely introductory.

"It is not pretended," says Mr. Smith, "that by any plan of education in an Institution of this kind, it is possible to make a miner, or in other words, to prepare a man for taking charge of a mine as soon as he has left our walls: not more reasonably should we expect that a lad drilled in the classes of a naval college were at once metamorphosed into a sailor, fitted at once to take command of a ship. Yet surely no one will deny, that if in that school he has learnt to box the compass, to knot and splice, if he has worked out problems in navigation on sound mathematical principles, if he has been taught by descriptions how to handle a vessel at anchor in a tideway, or on a lee-shore, he will be infinitely more ready to take advantage of circumstances, and to make rapid progress, than if he had been sent on board unknowing of these things and their principles. No 'royal road' to learning, no legerdemain of 'cramming,' can make amends for the want of time and pains bestowed on the acquisition of practice; and as with the seaman so should it be with the miner."

Miscellanea.

The Engineering Trade Differences.—The masters' Combination, on previous notice, have opened their workshops to all willing to sign a declaration issued renouncing all operative combination, and otherwise binding themselves to the masters' terms; but it seems that adherents of the skilled class come rather slowly in, while, on the other hand, the French and Belgian masters are hard at work engaging them at high wages, and shipping them off by hundreds to their foreign workshops, where it is said that orders intended for British masters already await their arrival. It is much to be feared that there is now a risk of some such result as that whereby the silk trade of Nantes was transferred to this country, where the descendants of foreign workmen still ply the shuttle as their forefathers did at home. We are likely, therefore, to be "payed off" by the French and Belgians for our advantages on that old score, unless some good understanding be very quickly come to between the masters and their men. The masters were too hasty, we feared, and their subsequent tactics have been rather more energetic than equitable. Their determination to "do what they liked with their own" has, indeed, been made a handle of, as we anticipated, and has done no little good to the workmen's cause. The building trades, compositors, and others of the higher class of associations, have taken an interest in the struggle, of course supporting the operatives against the masters, and that not with mere moral countenance, but with hard cash.

Steam Sawing Match.—On 29th ult. a match came off at the Cornbrook Saw-mills and at a mill newly-erected by Mr. Charles Hunt, at the Victoria Quay, Water-street, Manchester, the stakes being for 50*l.* and "a spread." The conditions were that each frame was to carry thirty-five saws, to saw a pine log 20 feet long and 24 inches deep. The points of excellence contended for were to be speed, quality of work, and the least loss of wood. By Mr. Hunt's machine ten feet of timber were cut in nine minutes, and after all the work had been done on both sides the umpire declared Mr. Hunt's machine had won all the points.

Gas.—Our contemporary the *Journal of Gas-lighting*, which, though decidedly in the *supposed* interest of the old companies to uphold high prices, appears to be entitled to consideration as a temperately conducted publication, calls our special attention to the complaint of Messrs. Tallis, as a proof that cheap gas must necessarily be bad, and dear gas good. We happen, however, by anticipation, to have already (See last number) sufficiently exposed the fallacy of such a conclusion, even before our attention was drawn to the *Journal of Gas-lighting*; and really that journal knows quite as well as we do that it is far too late, now that so many proofs of what gas *can* be made and sold for here and elsewhere have been adduced, even to characterise gas sold in the metropolis at 4*s.* a thousand cubic feet as "cheap" gas in the sense implied, even sold as it is of admittedly good quality at that price by the Chartered Company, who, according to the *Gas Journal* itself, are likely to *profit* by their determination to give a good article at the price. So far from supporting the so-called Central Gas Consumers' Company, however, we wish it to be distinctly understood that we regard that company as having sold itself out and out to the upholders of high prices; and what could be anticipated from such a fact but that some immense and glaring system of jugglery would be practised in order to damage the movement in favour of cheap and good gas? If such a conclusion should appear to reflect unjust suspicion on individuals still connected with such a company, whom have they to blame but themselves in continuing to have anything to do with it after it had displayed even its first symptoms of an inclination to amalgamate and *identify* itself with the very cause of dear gas and bad, for which it was to have substituted cheap gas and good?

Improvement of Workmen.—Much having been said of late upon the subject and necessity of instructing the workman, it may be hoped that some steps are being taken to forward that most desirable object, which none know and feel the want of so much as those engaged in the execution and production of works of art and decoration, and who should be the persons to do all in their power to forward and promote this important work, and lay down a system by which to prepare the minds of the artisans for the reception of the kind of instruction they require, without which no good result can be obtained; and there are many evils of this kind to contend with. I have endeavoured to establish for my workmen an evening class for the practice and study of drawing, modelling, reading, &c. and have laid before them 500 casts and models from ancient works in England and Germany, with many hundreds of sketches and drawings, and a few books, in order to create and establish an interest in the works we produce, which should, as in the beautiful works of old (the last fragments of which we admire and prize), form of itself an object of delight, as we watch its progress through the different stages of formation, with an anxious desire for its perfect completion.—J. R.

Brighton Pavilion.—One of the gates fell on Tuesday week during a storm and killed a lady besides injuring other persons. The jury on the inquest returned a verdict of accidental death, and expressed an opinion that the hinges of the other gate being of cast-iron should be replaced by wrought-iron ones. The hinges of the gate which fell are said to have given way previous to the accident.

Masters and Men.—On Friday, 13th inst. Mr. Ludlow gave the first lecture of a course at the Marylebone Literary Institution,—as suggested by the Society for Promoting Working Men's Associations, of which he is a member,—on "Capital and Labour—the Master-Engineers and their Men." He spoke of having endeavoured in vain to obtain a hearing through the press by writing in his own name, and now entered fully into the evils that are not very unlikely to arise through the present lamentable contest between masters and men—urging self-employment by the men. He alluded to the large sums that the society had paid in relieving the sick and infirm members, and funeral fees allowed to the widows.

The Timber Trade.—According to the annual circular of Messrs. Chaloner and Fleming, of Liverpool, the imports are considerably on the increase—268,960 tons in 1851, against 221,499 in 1850. This is deemed a fitting time to agitate for the abolition of the existing duties. Recent quotations are—American pine, 12d. to 19d. per foot. Red pine, 16d. per foot. Quebec deals, second quality yellow pine, 9*l.* to 9*l.* 9*s.* per standard; third, 8*l.* to 8*l.* 7*s.* 6*d.*; third spruce, 8*l.* 2*s.* 6*d.* per standard. Fir planks—New Brunswick and Nova Scotia, &c. St. John, 7*l.* 15*s.* and 8*l.* 10*s.* per standard; Wallace, 8*l.* for deals, and 8*l.* 5*s.* for battens; St. Stephen's, 8*l.* 8*s.*; Sackville and Richbucto, 8*l.*; Redeque, 7*l.* 15*s.*; Prince Edward's Island, 7*l.* 12*s.* 6*d.* to 7*l.* 15*s.* per standard. Birch, 14d. per foot to 16½d., 17½d. and 21d. per foot; Nova Scotia, 12d. and P. E. Island, 13½d. per foot. Quebec oak, 18d. per foot, and 20d. to 21d. Lathwood, 5*l.* to 6*l.* per fathom.

Look to your Ceilings.—A few days ago, in a sitting-room in Lambeth, the greater portion of a plaster ceiling, within the cornice, fell down without affording any warning beyond an unsightly crack which had existed for some time previously: two ladies had a very narrow escape of being, at least, seriously injured: as it was, one of them, a visitor, before she could escape, had her comb shivered to atoms, and received a severe contusion in the body, and sundry other bruizes, by which she is laid up, and placed under medical treatment. The fragments of the ceiling showed an expenditure of substance, not only wastefully lavish, but much too trying for the laths to sustain; and, indeed, in the aggregate, no trifling burthen for any frail tenement of (burnt) clay to bear: in thickness, it varied from 1½ to at least 2 inches! a minimum specimen weighing 10¾ lbs. to the square foot, or, the average, 1½ ton to a room say 20×15 feet. Only a few laths were broken; those to which the ceiling had adhered: the back of the plaster showed that generally it had parted from the laths for some considerable time, the key having been broken. A short time ago a similar occurrence took place in a village a few miles from town, when an aged and bedridden gentleman was found nearly smothered in the rubbish, saved, probably, by the bed-hangings.

Directing Reins for Close Carriages.—We wonder that the idea has not long since occurred, that the check-string which is used in close cabriolets for stopping the driver, that you may give him directions, might be converted into a pair of *reins*, so as to communicate to him all the windings of his devious way, and its eventual termination (supposing you to know it yourself), and by that means haply to obviate the necessity for protruding your head into other driving *rains* or buffeting winds, and straining both neck and voice in telling him in many words, and with some accompanying delay, what a pull at his right or left elbow could not fail to express much better, and without any loss of time. We have heard that ladies' bonnets have more of the gossamer than felt about them; and also that to them the wielding of power of any kind is attended with rather an agreeable sensation than otherwise: if such things be, then the laying-on the directing-reins would be, to at least the tender portion of animated nature, a decided boon, while their adroit use would be invaluable practice to those in whose visions of earthly felicity pony phaetons flitted *in prospectu*. We recommend the notion to the consideration of cab proprietors, and hope they will immediately order it to be laid on the table, and (as our friend *Punch* saith) not on the shelf.

Worcester Cathedral.—The elegant little spires at Worcester Cathedral, which gave such character to this beautiful building, were, according to the plates in "Green's Worcester," *fourteen* in number—that was in 1764. And now, alas, in 1852, only *two* remain. A third was up a short time ago, but has just been taken down. If the Deanery or the Prebend's houses were in a bad state of repair, we wonder if they would allow them to be removed and not built up again.

ILLUSTRATIONS OF LINCOLN MINSTER.—Mr. Willson is about to publish a complete description of a Cathedral Choir, as it existed in the middle ages, and has selected the choir of Lincoln Cathedral as exhibiting the finest set of stalls in England, since those of York Minster perished in the unfortunate fire of 1829. They were erected soon after the middle of the fourteenth century, when our ecclesiastical architecture was in its zenith. Their present state is remarkably perfect, notwithstanding the natural effects of time in the course of nearly five centuries,—the barbarous violence of the civil war of 1644, when the cathedral was sacked and defaced by the Parliamentary troops,—and the intrusion of some ranges of modern pews, of a mean and unsuitable style.

ARCHÆOLOGICAL INSTITUTE.—On the 5th, Mr. Greville Chester gave an account of the discovery of curious relics of ancient warfare, in Blenheim-park. Mr. Scharf related the details observed by him during the recent examination of the mummy found in St. Stephen's, Westminster, and he laid before the Society the series of drawings which he had made. It appears satisfactorily ascertained that the remains were those of William Linwood, bishop of St. David's, Keeper of the Privy Seal, who died in 1446. The Rev. J. L. Petit sent drawings and an account of a very picturesque structure near Rouen,—a medieval dovecot, decorated with moulded and coloured ornaments of terra-cotta. Mr. Freeman read a "Memoir on the Church at Whitchurch, near Bristol." Mr. Nesbitt described some striking works of monumental art, which had lately come under his observation at Bamberg and Cracow, especially the tomb of Otho, bishop of Bamberg, who died in 1192. Mr. Franks gave detailed notice of the progress made in the arrangement of the various antiquities in the British Museum, found in England.

THE ART-UNION OF LONDON.—We would direct our readers' attention to the advertisement by this admirable institution in our present number, from which they will learn, if unknown to them before, that the engraving of Frith's "Merrymaking" is being delivered to subscribers on payment of the subscription. Those who are wise will send at once, and so secure good impressions. The Right Hon. Lord Monteagle (a long tried friend of the Association) has been elected president. The Council have determined on issuing a medal, as part of their series, commemorative of the late Mr. Wyon, R.A. and have commissioned his son, Mr. L. Wyon, to execute it. It has also been determined to issue a series of illustrations of Byron's "Childe Harold" for a future year. A better subject could not have been selected.

THE HOMES OF THE WORKING CLASSES.—Mr. W. B. Denison, on Tuesday in last week, read a paper on this interesting subject to a numerous audience in the Chamber of Commerce, Leeds. The object of Mr. Denison was to rouse the community at large to the general advantage of improving the dwellings and promoting the health and cleanliness of the lower classes, and to point out the fact that this might be done to the pecuniary profit of capitalists. At the close of the paper the meeting was addressed by various gentlemen.

GRUNDY'S WINTER EXHIBITION.—Several interesting works have been added to the collection in Regent-street since we first visited it, including a fine drawing by Turner, the finished sketch for Frith's picture of an old woman being tried for witchcraft, and an eastern drawing by Perlotto. The specimens by Prout here have acquired additional value by his lamented death.

BOOTH'S SMOKE-CONSUMING FURNACE.—A patent has been taken out by Mr. Booth for a smoke-consuming furnace, in which the fuel is supplied from above, and the smoke driven out falls forward into a chamber, called the "receiver," where the admixture of air takes place. Combustion thus promoted, it is said, enables Mr. Booth to use fuel which otherwise would be rejected, such as "culm" or "slack." A close chamber can be heated up to some thousands of degrees of temperature, and thus this furnace is said to be well adapted for the drying of bricks, and the evaporation of brine in the preparation of salt. In the manufacture of bricks, 20,000 bricks, it is stated, can be dried in twenty-four hours, and the brick-making can go on uninterruptedly all the year round.

TO CORRESPONDENTS.

REGGIO's Second Letter to SORILLA, on the History of Architecture, next week.

Concluding letter, "Architecturus to his Son," speedily.

"Pitch Pine."—"J. M. M." asks,—"1st, was pitch pine timber used in the construction of the *Amazon*? 2nd, does the inflammable nature of pitch pine disqualify it for building steam vessels?"

"Inquisitor" (there is certainly such a "business as architectural draughtsman separately from the business of an architect," but we do not advise our correspondent to set himself down to it), "Campana" (the church named was not pulled down, but much of the old work was made to give place to new), "R. S." (must tell us something about the system before we announce it), "J. P." "M. G." (we decline recommending. Messrs. Randall and Saunders's machine, advertised in our pages, is worth his attention), "H. G.", "Patience" (apply to the advertiser), "An Old Westminster" (several articles on the subject of roads will be found in previous volumes of our journal), "W. G. C." (pray send no other blocks in the same way), "J. A. B.", "M. and Co." (shall hear from us), "T. H. H." (thanks), "K.", "D. W.", "Mr. L." "J. B." Liverpool (thanks), "J. F. jun." (the Carpenters Company, the Bricklayers Company, &c. have each separate arms. We cannot give the sketch he requires), "G. J. R.," "J. B.," London (thanks), "Builder" (the exhibition *alone* would scarcely justify the expense), "J. W.," "C. J. P.," "□" (we cannot advocate the removal of bridge), "C. S.," "F. H. P.," "J. J.," "J. R.," "Campanalogia" (shall appear), "J. C.," "J. S."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

THE ARCHITECTURAL EXHIBITION with the collection of Materials, Patents, Processes, &c., connected with Architecture, IS NOW OPEN from Ten till dusk, at the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission One Shilling, including Catalogue. Season Tickets, including a Catalogue, admitting the holder from the 10th of January to the 18th of March. Two Shillings. Free Tickets may be had for Workmen, on application at the Galleries.
JAS. EDMESTON, Jun.
JAS. FERGUSSON, F.R.A.S. } Hon. Secs.

NATIONAL DEFENCES.—ROYAL POLYTECHNIC INSTITUTION. An Explanatory Description of the Prussian Musket, the Lancaster and Minie Rifles, Jones's American Rifle, the various Revolvers, and other Fire-arms, with the improved Conical Bullet, will be given by Mr. Crispe, daily at a Quarter to Three o'clock, and at Half past Eight in the Evening.—A Lecture on the Music of Many Nations, by T. Thorpe Peed, esq. Professor of Singing at the Royal Academy of Music, on Monday, Tuesday, and Thursday Evenings, at a Quarter to Eight o'clock.—Lecture on Astronomy, by Dr. Bachhoffner, on Wednesday and Friday Evenings, at a Quarter to Eight o'clock.—Le tures on Chemistry. Dissolving Views, &c.—Admission, 1s.; Schools and Children under ten years of age, half price.—Open daily from Eleven to Five, and every Evening, except Saturday, from Seven till Half-past Ten.

ARCHITECTURE, CIVIL ENGINEERING, SURVEYING, &c.—Offices, No. 39, Southampton-buildings, Staple Inn, Holborn. Established above forty years. Mr. GRAYSON begs to inform those gentlemen who are interested in the above sciences, that he continues to GIVE INSTRUCTION to morning and evening classes, where, besides architecture, &c., ornamental, perspective, and landscape drawing, with access to an extensive and valuable collection of models and works on the fine arts.—Mr. GRAYSON in attendance from 9 a.m. to 3 p.m., and from 6 to 9 p.m.

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THE FIFTH ANNIVERSARY DINNER will take place at the London Tavern, on Wednesday, March 24, 1852.
T. PIPER, Esq. in the Chair.

HONORARY STEWARDS.

H. N. Armanis, esq.
J. M. Blashfield, esq.
R. P. Brown, esq.
G. Briand, esq.
J. J. ..., esq.
R. W. Kennard, esq.
(J. Lock, esq.
S. Lee, esq.
V. Bellman, esq.
R. L. Curtis, esq.
E. Carter esq.
H. Chrisp, esq.
H. M. Cooper, esq.
J. Dale, esq.
W. W. Dennis, esq.
G. H. Ellis, esq.
E. B. Gammon, esq.
J. Glenn, esq.
J. C. Hardwick, esq
H. C. Holland, esq.
Husler, esq.
T. Jackson, esq.
C. Lucas, esq.
J. Little, esq.
G. Mellerman, esq.
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A. Mason, esq.
T. Magnus, esq.
G. Myers, esq.
T. Nesham, esq.
W. Norris, esq.
T. Nye, esq.
T. Peake, esq.
M. Pass, esq.
H. Richardson, esq.
T. Starling, esq
J. Taylor, esq.
S. Trickett, esq.
J. Tillett, esq.
H. Tregeon, esq.
W. Tuckwell, esq.
S. Watkins, esq.
W. Webb, esq.
E. Wallis, esq.
T. Wallis, esq.

Tickets to be had at the Bar of the London Tavern; also at the Bar of the Bay Tree Tavern.
W. ALLARD, Secretary.
Bay Tree Tavern, St. Swithin's-lane, Feb. 19, 1852.

CARPENTERS' COMPANY.—TWICKENHAM ALMSHOUSES.—A VACANCY has occurred in the above Almshouses. Applicants must be Liverymen or Freemen of the Company, of the age of 55 years or upwards, or Widows of Liverymen or Freemen of the Company, of the age of 50 years or upwards.—Applications are to be left at Carpenters' Hall on or before 26th February, 1852. Forms of application may be obtained at the Beadle's Office at the Hall.

TO PARENTS AND GUARDIANS.
AN ARCHITECT, who has erected many public and private buildings, and is engaged in the various branches of surveying and valuing property, has a VACANCY for a PUPIL, who would have every facility of acquiring a practical knowledge of the profession.—Address, P. Q. at Swale and Wilson's Library, 21, Great Russell-street, Bloomsbury, London.

TO MASTER BRICKLAYERS AND BUILDERS.
THE Widow of a Master Bricklayer is desirous of APPRENTICING her son to the BRICKLAYING. He is 15 years of age, a strong active youth, and has had some experience in the business.—Apply by letter (postpaid) to A. B. Post-office, Mill-hill, near Hendon, Middlesex.

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WANTED, a CLERK, in a large Retail Timber, Deal and Mahogany Yard, in London. He must have been accustomed to the trade, write a good hand, and quick at figures. Security will be required.—Address, giving real name, to E. W. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, immediately, a good and expeditious DRAUGHTSMAN in an office in the country; one perfectly capable of managing both working and finished drawings, and who also understands the general routine of a surveyor's office.—Address, pre-paid, stating salary, &c. to Y. Z. care of Mr. Kennedy, News-Agent, 31, Royal Exchange.

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WANTED, by a steady young Man, a plumber, painter, and glazier, a permanent SITUATION in the above branches, in town or country.—Address W. D. Mr. Clark's, 16, Shoe-lane, City.

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WANTED, by the Advertiser, a Situation as CLERK of WORKS, BUILDER'S CLERK, or SUPERINTENDENT. He is a practical man, thoroughly conversant with the duties of a builder's office, and can produce testimonials from former employers. No objection to the country. Apply, prepaid, to Y. Z., Jobson's, Stationer, Regent-street, Westminster

A DRAUGHTSMAN, having been three years in the office of a civil engineer, and who can produce the highest certificates for conduct and abilities, is desirous of EMPLOYMENT in the office of a gentleman requiring general assistance. No objection to the country.—Address to Y. Z. post-paid, care of "The Builder," 1, York-street, Covent-garden.

A CLERK of WORKS, well experienced in all the branches of building, is now open to an ENGAGEMENT. Can make out Working Drawings. Unexceptionable reference from his late engagement.—Address, A. B. care of Mr. DEACON, 6, Little James street, Pall Mall.

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444, WEST STRAND.

INSTITUTED 1837.

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PLAN FOR THE CURRENT YEAR.

Every Subscriber of One Guina for 1852 will be entitled to :—

I. AN IMPRESSION OF A LARGE AND COSTLY PLATE, thoroughly national in its character, engraved in line by W. Holl, from the Picture by W. P. Frith, A.R.A. "An English Merry-making in the Olden Time;" and

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2. BRONZE STATUETTES, "Satan Dismayed," from the 100*l.* premium model, by H. H. Armstead.
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5. PROOF IMPRESSIONS OF A LARGE PLATE, engraved in line, by W. Finden, from Hilton's celebrated picture, "*The Crucifixion;*" and
6. PROOF IMPRESSIONS OF A PLATE of "*Queen Philippa interceding for the Burgesses of Calais,*" now being engraved by H. Robinson, from the Original Prize Picture by H. C. Selous.

THE PRINT OF

"An English Merry-making in the Olden Time,"

is ready for delivery at the Office, on payment of the Subscription.

444, West Strand, *Feb.* 14, 1852.

GEORGE GODWIN, } *Honorary*
LEWIS POCOCK, } *Secretaries.*

The Builder.

No. CCCCLXXIII.

SATURDAY, FEBRUARY 28, 1852.

SIR CHARLES BARRY thinks we did him injustice by the note appended to Mr. Jeakes's letter last week, though it simply repeated what Lord Seymour had stated was the cost of ventilating and warming the New Houses of Parliament. We have since then looked into the matter for ourselves, according to promise, and on the information we have obtained are able to say that the statement in question gives an erroneous view of the expenditure, and is calculated greatly to mislead. The estimates for warming and ventilating and smoke arrangements, as supplied to Parliament so long ago as August 1850, amount, it is true, to 208,000*l.*; but these include 85,000*l.* for extra works in fire-proofing. Of this about 161,000*l.* have been already spent, and, as we are told, should be divided thus:—Spent by Dr. Reid, according to Lord Seymour, on the House of Commons and apartments connected with it, 57,800*l.*; fire-proofing enforced by Dr. Reid's arrangements in the first instance, say 75,000*l.*; and the sum spent by the architect on the House of Peers, and all the other parts already warmed and ventilated with the exception of the House of Commons, 28,000*l.* The architect's estimates for the latter amount to about 38,000*l.* so that we must conclude that other works remain to be executed.

Putting things at the best, still there has been a vast expenditure of money unnecessarily. A grievous error was committed in the first instance by giving Dr. Reid control over the architect. To say that the architect is not to be the "chief workman" is a positive contradiction in terms: and we do most strenuously protest, as we have ever done, against the setting up of such an *imperium in imperio* as was attempted here, and which has produced such unsatisfactory and costly results.

Several correspondents have addressed us lamenting that injury will be done to the sanitary cause by the statements, if not the facts, connected with the ventilation here, but as they mostly advocate other systems of ventilation in which they are interested, we do not print their letters. One says that—

"In a large collegiate establishment accommodating 1,000 pupils besides professors, porters, &c.; and containing ten large lecture-rooms and a library as large as a church, where but moderate structural preparation had been made; 10,000 cubic feet of fresh air per minute are supplied at a temperature of 80 deg. by a steam engine, provided with means of regulation as to quantity and temperature, at an initial cost below 750*l.* including builders' work, and at a permanent expense for attendance and fuel, of about 100*l.* per annum: and that in a much larger college containing fifty-two large school-rooms, and an immense theatre for lectures, the structure offering facilities by which steam power is not required, the initial cost was below 1,400*l.* and the annual cost of fuel and management about 200*l.*"

Nor do we see any reason why the statement should not be perfectly true.

The means provided for the ventilation of the House of Commons, are most elaborate, and in some parts, we say advisedly, perfectly useless. We were in the House on the occasion of the declaration of the change of ministers (a change by the way which has put Lord Seymour out of the Office of Works, and Lord John Manners in), and it seemed to us that there was no control exercised over the atmosphere of the House. The supply of air was inadequate, and the results, as a matter of course, are innumerable draughts. It seemed to be *vacuum* ventilation, rather than *plenum*. This may be accounted for by the fact that the engine intended to drive the fan by which the air is to be supplied, is not at work, being found too noisy for the purpose. We must wait, therefore, before we come to a conclusive opinion as to the efficiency or otherwise of the present arrangements. The position in which air is brought in, at the feet of all the members, does not seem to us the best: indeed, our present impressions are against it. If warm, the air will be found disagreeable; when cold, and even tempered air in rapid motion produces the effect of cold, it will be dangerous.

It will startle some, by the way, to find that the cubical contents of the air-chambers, shafts, and flues used by Dr. Reid to ventilate, are actually larger than the contents of the House of Commons, lobbies, and corridors ventilated,—the first being 366,000 cubic feet, the second 386,000 feet. A section of the House and surrounding chambers above and below would show a very small kernel in a very thick rind. The "ventilated gas-lights" give an immense amount of heat, and, in hot weather, we are disposed to think, will be found unbearable. The mass of metal composing the chandeliers becomes a permanently heating surface, which radiates on all sides.

Returning to those parts of the building which have been warmed and ventilated under the architect's direction (by Mr. Jeakes), some of our readers will perhaps like to know the mode which has been adopted. In the first place, then, we find a set of steam-boilers, erected in a central position, which keep up the temperature of a series of heating surfaces placed at intervals beneath the entire area to be warmed. A supply of fresh air is taken from the Victoria Tower, and a current through the various channels is produced by an enormous fan, worked by steam power, and capable of propelling, they say, 300,000 cubic feet of air *per* minute through the building. The air thus brought in, is tempered in a large central air-chamber, filled with upright heated pipes, from which it passes to all parts through channels, receiving in its progress such additional temperature, from other heating surfaces, as may be required for that particular apartment, or portion of the building to which it is being conveyed. Each supply is under separate control, both in volume and temperature: arrangements are also made for cleansing the air of any impurities in its progress through the channels, and a cooling apparatus is to be introduced for reducing the temperature of the admitted air in summer.

In the House of Lords specially, in order to render the ventilation as perfect as possible, under all the changes to which it is subject, means are provided for admitting the pure air, and extracting the vitiated, both at the *upper* and *lower* part of the apartment, and a sufficient power is said to exist to change the entire atmosphere of the House in a few minutes, either by admitting and extracting the air at the upper or lower part, or at both. The object sought is to maintain a *plenum*, in order to prevent currents into the House from without, by making all openings outlets for air instead of inlets. Two 10-horse engines are employed. The answers to our inquiries in the libraries and other parts as to the results were satisfactory. The fan, of which we have spoken, is made of thin sheet-iron, and is 22 feet in diameter. Its effect is such when at work, making nearly 100 revolutions in a minute, that we expected when exposed to it to find our own disjointed members whisked against their will to join the members of the Upper House. The amount of heating surface provided by the boilers may be judged of when we say there are six miles of pipes proceeding from them. The smoking-room (whereof the walls are covered with coloured tiles to a certain height), is cleared by an exhausting shaft with a separate small furnace. A bell went while we were here, and we learnt that throughout the building there are bells to announce the approach of a "division," rung simultaneously by electricity:—a "junction" is effected just previous to a division.

Of matters æsthetic we will say but little just now. The stained-glass windows, in the House of Commons, by Messrs. Hardman, are not good; they are very far inferior to other works by the same firm. They are badly painted, the supporters especially (Mr. Hume's "Red Lions," and sea-horses), and contrast unfavourably even with windows of the same design in the central hall. A heraldic lion, or sea-horse is conventional, but need not be a caricature. Some of our readers will remember the story of the herald-painter, who was taken to the Zoological Gardens, previously to emblazoning some arms, to see the lion there. "Do you call that thing a lion," said he, contemptuously, when the king of beasts stood before him;—"*that* a lion? If I could'nt paint a better, I'd eat him."

Mr. Bell's statue of Lord Falkland, in St. Stephen's Hall, is an admirable work, full of noble feeling. It has worthy companions, in Clarendon, by Mr. Calder Marshall, now R.A.; and Hampden, by Mr. Foley.

In the Queen's Robing-room Mr. Dyce has completed one of the series of frescoes, which he is commissioned to execute there. According to an assistant in the room, the subject is "The Spirit of Chivalry," but this, we think, must be an error. It represents a male figure being taken up into the sky in his chair; other figures in the heavens are awaiting him. The clouds supporting the figure in the chair are more like a series of Brobdignagian potatoes or Jerusalem artichokes. An armed man on the left side of the picture would evidently fall, but for the point of his shield, which touches the ground, and the draped female figure in the man's arms on the right side is but a bundle of clothes without a body in it, or a *Marionette*. It pains us to be forced to speak thus of the work of so accomplished an artist as Mr. Dyce, but the matter is too important to be blinked: he has several others to execute, and it is necessary that he should hear the truth. The *motive* of the picture is as unsatisfactory as the execution: it would seem to have been cut out of a book of Romish miracles, and is wholly unsuited to the time and the place.

NEW WORKHOUSE AT ORMSKIRK.—At a special meeting of the board of guardians, the report for the building of a new workhouse, &c. has been unanimously adopted.

ON THE PRESENT CONDITION OF THE ROYAL TOMBS IN WESTMINSTER ABBEY, AROUND THE SHRINE OF EDWARD THE CONFESSOR.*

It is now about thirty-five years ago that I first went to Paris. Among the public buildings which I then visited, none interested me more than the Abbey Church of S. Denis, the crypts of which contain the ashes of most of the kings of France from Clovis downwards. Nothing could be more touching than the contemplation of the rifled tombs of such a line of powerful monarchs, arranged in decent order, but without any affected attempt at restoration, or incongruous endeavour to form an arbitrary system of perfect and uninterrupted classification.

In August last I again went to S. Denis with some friends, and there I saw that, without reference to periods, chronological arrangement, styles, or any of the proprieties of art, a vain and pedantic effort had been at work to complete the series of the dynasties of the Valois and Bourbons, by the introduction of modern recumbent figures, stone coffins, and other sepulchral receptacles, devoid of taste and feeling. I felt how ill the "religio loci" had been attended to, and I left with the melancholy conviction that all the charm of truthfulness which had once given veneration to these vaults, had irrevocably passed away. It was under impressions such as these that I shortly after accompanied a foreign friend to Westminster Abbey, anxious to show him the memorials of our olden times and of our greatness in past periods, and that we possessed treasures, which would form a favourable contrast to those of S. Denis.

Westminster Abbey is emphatically the public building in England which most attracts the regard of the foreigner, filling him with respect, and producing the most lasting impression upon his imagination. I must own that I felt ashamed, as I drew the attention of my friend to monument after monument of our sovereigns, princes, and nobles, and particularly to the shrine of the Confessor. I endeavoured to palliate the state of ruin in which these precious memorials of the history of our country, its arts, and its greatness, were allowed to remain. From want of timely care they are gradually falling into decay, and threatening, in some cases, absolute destruction. "What!" said my companion, "can it be true that your Government so disregards these speaking monuments of past achievements, that it will not rescue them from utter ruin? What! is the father, is the son of the Black Prince so disregarded by you, that you will not preserve, even as works of art, and ere it be too late, the marble that encases their remains, and the bronzes which hand down their lineaments? Have your Edwards and your Henrys bled for this? Have they for this perpetuated England's glory in the 13th, 14th, and 15th centuries, and you allow them to be forgotten? Have these queens been in vain distinguished for their public and domestic virtues; in vain renowned for their piety, and you permit their sacred deposits to be despoiled, degraded, trampled upon?"

I could not disregard these too just reproaches. The full consciousness at once came home to me, that this interesting series of monuments had been shamefully neglected; that we were too ignorant of their value. Impressed by a sentiment which I feel assured that all partake, I mean by an earnest attachment for the monarchical, yet free institutions of our country, and an attachment to the throne, rendered still more ardent by the political convulsions which we have witnessed, I determined to bring the subject under the notice of this Institute, trusting, that however feeble would be the voice which should be heard pleading the cause of England's past worth, and of the dust of her honoured line of kings, a response would be found in the sympathy of those who would hear me. This spreading far and wide might eventually, perhaps, reach those who have the power, if they only have the will, to rescue from entire annihilation these speaking mementoes of monarchs, who once ruled the destinies of this mighty people.

I venture, then, to claim attention as I take a rapid survey of the Sanctuary or Chapel of Edward the Confessor, and briefly notice the noble tombs by which the Shrine is surrounded. I must own that I can never enter without emotion and reverence this hallowed spot—this circlet of royalty, which introduces one, as it were, into the awe-inspiring presence of a "royal fellowship of death;" of

> "Monarchs the powerful and the strong,
> Famous in history and in song
> Of olden time,"
> (Longfellow, *Coplas de Manrique.*)

whose valour, whose virtues, whose sufferings, and whose piety afford so many touching lessons of the greatness, and at the same time of the weakness, of human nature.

In pursuing the description of the Chapel of Edward the Confessor, it will be well to follow the chronological order of the dates of the tombs. I must, therefore, remind you that Edward the Confessor, the last but one of the Saxon kings, after an eventful life, and a reign of twenty-four years, died in 1065-6. He had previously rebuilt the dilapidated old church of St. Peter, but being seized with sickness, he was prevented attending the consecration, and deceased a few days after it. Various miracles had been attributed to him during his lifetime, so that he was worshipped as a saint long before he was canonized. A first application to the Pope had been unsuccessful to get him placed on the Roman Calendar, but a second appeal to the papal throne was more propitious, and Alexander III. enjoined "that the body of the glorious king should be honoured here on earth as he himself was glorified in heaven." On the return of the messengers the remains of the sainted monarch were, in 1163, solemnly translated by Archbishop Becket into a new and precious Feretry, which had been prepared by Henry II. about ninety-nine years after the death of the sainted Edward.

When the choir and eastern division of the Abbey Church, which was then rebuilding, had been completed by Henry III. so as to admit of the celebration of divine service, "that sovereign resolved," says Wykes, "that so great a luminary should not lie buried, but be placed on high, as on a candlestick, to enlighten the church." In 1269 the body of the Confessor was removed, above 200 years after his decease, into the new shrine, the form and decorations of which we shall consider after we have described the other royal tombs.

The communication with Rome by our ecclesiastics was then extremely frequent; the more so, as every new abbot had upon his election to go to the papal seat for the confirmation of his appointment. At that period the system of mosaics, illustrated by Mr. Digby Wyatt in his exquisite work on Geometric Mosaic of the Middle Ages, was much in vogue. These styles are evidently of Byzantine origin; and specimens are to be found in the Capella Palatina at Palermo, in the Cathedral at Monreale, in the churches of St. Maria Maggiore, San Lorenzo, and Santi Giovanni e Paolo in Rome, of St. Mark at Venice, and in other parts of Italy; as also at Canterbury Cathedral, in the Sanctuary of A'Beckett.

The king and monks of Westminster were anxious to give peculiar and elaborate magnificence to this shrine, and consequently it was executed with glass mosaic decorations, the floor also with a geometric marble-mosaic pattern, and the tomb of the Royal Restorer, Henry III. shines with the like brilliant work. Another fine specimen of a different style, the marble tesselated work, is the magnificent pavement in front of the abbey altar, to which I shall hereafter revert.

Here, then, we have illustrations of a style of art of rare occurrence out of Italy; three out of the four are unnoticed even by the intelligent author of the work just alluded to. In Paris none such exist!

The cenotaph of Henry III. if met with in Italy, or the Holy Land, or Constantinople, would be quoted for its design and enrichments. From the pavement of the north aisle of the choir rises an elevated basement, on which rests the lower division of the royal tomb. Its face has three square compartments: the centre one was once filled in with a circular porphyry panel, circumscribed with interlacing bands of glass mosaic, and the spandrils occupied with smaller circles of the like work. The outer panels are square, placed lozenge-wise, or serpentine, also enclosed in mosaic bands and with circular smaller panels in the spandrils. At the ends are pilasters with a twisted column at each angle. The upper compartment of the tomb, on which lies the bronze effigy of the king, has two spiral columns at the angles, the flutings filled up with glass mosaics. The centre forms one large panel with a noble slab of porphyry, surrounded by a border of glass mosaics, and held in its place by four bronze pins, the ornamental heads of which project beyond the face of the porphyry. The elevation towards the shrine is different in design, but presents, with some variation of details, the like general divisions. Most of the slabs of precious marble are abstracted or split, the mosaics picked out, the columns deficient. The recumbent statue of the king, now covered with dirt and rust, is of brass—the first, according to Walpole, that was cast in this kingdom: it was once gilt, and probably parts of it enamelled; and the very plate on which he lies is covered (sémé) with the English device of the lion. But the canopy above the royal head is *gone*—the couchant animals *gone*—the side pillars or buttresses *gone*—the kingly staff and sceptre *gone*—and the wooden canopy above to keep off the dust is a bare fragment.

It appears that, after a troubled reign of fifty-two years, Henry III. died, at the age of sixty-six years, and was buried by the Knights Templars, of whose order his father was the founder, and with such splendour, that Wykes the monk says, he made a more magnificent figure when dead than he had ever done while living. Tranquil and pensive is the expression of the royal features, betokening other cares and other thoughts; and his spirit is now where wars and tumults exist not. But our shame, as Englishmen, is not the less, that we leave in such neglect so sacred a deposit of a venerable sovereign—so rare a monument of ancient taste.

In the intercolumnar space to the west of Henry III. lies his son Edward I. the English Justinian, who was, to use the words of the accurate Brayley, at the same time a gallant warrior, an able statesman, a wise legislator, in domestic life a faithful and affectionate husband to his excellent Queen Eleanor of Castile, and a good father to his children. His tomb is a large plain one, composed of five slabs of grey marble, without any pretensions to decoration, and as unostentatious as the beautiful memorials which he erected to his excellent queen are rich in all the embellishments of Gothic art. The tomb of his beloved Eleanor lies in the intercolumnar space, east of her father-in-law, Henry III. She it was who accompanied her warrior husband, Edward I. in all his journeys and expeditions, having in Palestine, as it is recorded, sucked the poison from the wound inflicted in his arm by the dagger of an assassin. She was his partner for six and thirty years, and died in 1290, seventeen years before her husband. He was then fifty-one, and so tenderly attached to the memory of her conjugal virtues and affection for him, that he ordered the erection of the celebrated crosses between Lincoln and London, some of which still remain at Edmonton, Waltham, Northampton, and Geddington, and the refinement and variety of whose design and execution are admirable. The last resting-place of this best of England's queens is no way inferior to the other memorials of her virtues; but the same melancholy story must be told of the tomb of the lovely Eleanor of Castile as of that of Henry III. The exquisite beauty of her features realise the Greek type of loveliness, and in fact, so sweet is the expression, so harmonious are the features, so perfect the profile, that it is said later sculptors adopted her likeness for their figures of the Virgin. And it is curious to remark, that although she must have died at an advanced age, above fifty, for she had been married six and thirty years, and had been the mother of

* Read at the Ordinary General Meeting of the Royal Institute of British Architects, on the 23rd instant.

en children, yet she is represented young beautiful, as when Edward first wedded But all her beauty and grace and virtues e not secured the marble of her tomb from ay, nor the bronzes from abstraction; the y wand or sceptre has been stolen from ween her graceful fingers, and the jewels m the crown which encircles her head. The tue and its accompaniments are of brass, e partially enamelled and profusely covered h devices of Castile and England, but scured by the crust of dirt which now con- ls them. May the present century, thou uteous noble-hearted daughter of Castile, der thee the justice and respect which were wn thee by thy well-beloved husband!

It appears from the contract, which still sts, that Richard de Coverdale undertook marble-work of this tomb, and W. Torrell, goldsmith, the statue, which was completed 1292. It would be important for the history English art to ascertain, if possible, whether rrell, if not himself an Italian, as is sup- sed by some with an easy modification of e name, making it Torelli not merely Torrell, y have employed, as is done now-a-days, me distinguished English or foreign artist, ost probably an Italian, to model and execute e bronze-work; for we need not necessarily nclude, because the contract was taken by a ldsmith, he was himself competent to design e figure, although he may have had all the nveniences for the mere mechanical operation casting it. Edward I. endowed the Abbey th lands, then valued at 200*l.* per annum, r maintaining the worship and religious rites nnected with the tomb, but these possessions ere confiscated at the time of the Reformation, 0 years after.

It is unnecessary for me to make more than passing allusion to the alabaster* tomb of ueen Philippa. The appeals that have been ade to the public to raise funds for its re- oration, and the exquisite specimen of the ork, which was one of the attractions of the reat Exhibition, will have made you familiar ith the value of this monument as a work of t.

We next come to the cenotaph of the heroic dward III. which is on the south side, imme- iately opposite to that of Henry III. This is magnificent memorial, consisting of a lower edestal, 4 ft. high, next the aisle, divided into our quatre-foiled panels with highly elaborated racery, having central metal shields exquisitely namelled and emblazoned with the arms of England and France. This pedestal is sur- nounted by the altar or pedestal tomb, which as on each side six canopied niches; to these re still attached the bronze figures, 18 inches igh, richly enamelled on the surface. The omb is of Petworth marble, the architectural nrichments being generally decayed, yet nough remains to supply authorities for every portion. The venerable figure is of brass, of oble features, and flowing beard; the ensigns f royalty, which he once held, are destroyed. He is surrounded by a recumbent bronze abernacle of elaborate tracery with numerous figures beautifully cast and wrought; and although many portions are deficient, yet they exist in other parts, and with little expense might be replaced. There is above the tomb a richly worked oak canopy, almost entire, and wanting little to restore it to its original splen- dour. Yet scanty as the sum would be to render this tomb as perfect as when it was first put up, the spirit is wanting to render this tri- bute to the Conqueror of Cressy, the father of the Black Prince, to him who won the field of Poictiers, the founder of the Order of the Garter, and who erected Windsor Castle. On the margin of the table the aged monarch is described as "the glory of England, the flower of past kings, the type for future ones— a clement king, the peace-giver to his people."

The interspace between the next pillars is occupied by the tomb of the unfortunate Richard II. and of his Queen Ann of Bohemia. It is of like design with that of Edward III. of the same materials, and possibly executed by the same artist. The surface of the marble is frightfully perished, and all the elaborate tracery, tabernacle work, buttresses, and finials present a time-worn surface, in many parts wholly defaced, and all the sixteen metal statuettes are gone! The recumbent brass statues of himself and queen lie side by side, once gilt and covered with worked devices. The arms and hands of himself and queen, and the sceptres and ball and cross, which they held, are wanting, as also the lions, leopard, and eagle, which once lay couchant at their feet. The masses of the recumbent tabernacles alone exist, despoiled of their enrichments and side pillars, or buttresses and angels. The bare arch of the oak canopy remains without the carved work, which embellished the summit, and the cornice and upper range of battlements. The colours with which they once glowed and which gave expression and relief are now tarnished or defaced, but still the soffit of the canopy displays unmistakeable evidences or traces of pictures with religious or historical subjects of considerable size.

Is it not mean-spirited and ignoble in a nation such as ours, to suffer so fine a work of art to decay, and such dishonour to be done to the unfortunate son of the Black Prince, the glory of England's chivalry?

The tomb of the gallant Henry V. the hero of Agincourt, occupies the east end of the sanctuary, under a stone canopy, which forms the chantry. As we know that oak chantries were not unusual (witness that at St. Albans), and as it was customary to have one in sanctuaries, which contained the tombs or shrines of saints, I am led to think that possibly in this part might have been an old oak chantry, and that Henry V. finding all the spaces between the piers occupied by the tombs of royal personages, and anxious to be placed in the regal circle around the shrine, may have assumed this place to himself, and replaced the wood chantry with a stone one; yet so arranged as to form at the same time a superb canopy to his own tomb.

The architecture of this cenotaph is not so much damaged as many others. This, I think, arises from its being enclosed by the substructions of the chantry and the ceiling, which protects it from the damp. But the sculptured groups, whether of stone or metal, which once filled the deep recesses of the sides, are stolen. The wood block of the figure and frame, on which it rests, were once covered with a more precious metal, tradition says silver; the carving shews the parts and drapery very completely, but the head, which it is said was of pure silver, is gone. The open iron railing and gates, enclosing the west end of the mausoleum, are a most curious specimen of elaborately-wrought metal work. They were once removed, but have since been most judiciously replaced by the Dean and Chapter.

Two modest marble caskets, once enriched with bronzes, contained the infant remains of daughters of Edward IV. and of Henry VII.—"Quam longa una dies, ætas tam longa rosarum"—with simple moulded plinth, die, and cornice. But one is almost fallen to pieces, and the slabs, which a few shillings might secure, are dilapidated and falling to ruin.

The sword and shield, which were borne before the heroic Edward III. in France on those battle-fields, whose names are "familiar in our mouths as household words,"* are here exhibited. The helmet, shield, and saddle of Henry V. are still attached to the pillars above his tomb. Dusty, dirty, torn and distorted, these memorials of Cresy and Agincourt seem only worthy (apart from their mighty traditions) of an old metal shop.

The throne on which our present august Sovereign was crowned, as also most of her predecessors, shares the same neglect, and has alike been despoiled of its finials, its crockets and carvings. A thin coating of plaister shows where the painter's art once shone in all its glory. The other is of doubtful origin, and patched up in a bastard taste with panels of Italian design. *Proh pudor!*

Having thus briefly noticed the tombs around the shrine, we will now proceed to consider the tomb of the Confessor himself; not that I would seek to revive a worship which every Protestant must hold to be superstitious, but I know not why we should deny to the tomb of a holy and pious man that respect which has never been withheld from by-gone worth. And surely, apart from religious considerations, and on historical grounds, we may desire the restoration of so ancient a monument of art and the preservation of a memorial of a much tried and devout monarch.

THE SHRINE OF EDWARD THE CONFESSOR.

This tomb of the most eminently pious of our kings is as melancholy a fragment of royalty as can be well imagined. Placed in the centre of this sanctuary, it rises the most prominent object of the whole of the royal and sacred shrines, and is at the same time the most humbling witness to our shame. A more august yet pitiable memento of the transitory nature of all earthly greatness cannot be conceived. For a cumbrous shapeless mass, stripped of its sparkling mosaics, despoiled of its elaborately enriched columns, its summit superseded by a subsequent incongruous architectural termination, itself in ruins, now contains the relics of the holiest of our line of monarchs, round which kings and nobles, the various states of the realm and the city of London in its palmiest days, were wont to come and pray and tender their choicest offerings. It seems as if the zealous Protestant, in horror of superstitious worship, were willing to cover with dishonour even the tomb of his kings, however eminent their piety, however noble their character, however beneficial their wisdom had been to fair and bonny England in ages past.

I must quote this as a solitary instance that remains in this kingdom, and one of only a few still extant in Christian Europe, which retains somewhat of the form and substance even of a stately shrine. Where is now that glory of England, the shrine of her protomartyr St. Alban? of St. Cuthbert at Durham? of the imperious A'Beckett at Canterbury? and so many others that I might quote, once the religious pride of our country?

This tomb is oblong in plan, with a column at each angle, which were twisted and the spiral flutings filled with mosaics. The capitals were of early lancet character painted and gilt. On each side are three recessed trefoil-headed niches, and one at the east end, in which were probably exposed the other sacred relics presented to the shrine. The whole surface was covered with elaborate geometric figures, sunk in the stone, and filled in with exquisite mosaic of the Byzantine character, and glistening with gold, red, green, and blue, many sparkling fragments of which have still been spared. One capital alone remains "in situ." Fragmental portions of two large shafts still exist, and support a large slab, 5 feet 4½ inches long by 3 feet 4½ inches high, filled with mosaics, interlaced in geometric forms, and probably placed, where it now is, upon the suppression of the shrine-worship at the reformation. The panels consist of porphyry and green marble. Up to the cornice we may consider that the feretry presents the main mass of the original design of the time of Henry III. (1269.) But it appears that at the period of James II. an upper division in wainscot was added, consisting of two stories of arches, pilasters, and entablatures of Italian or Palladian architecture, parts of which were inlaid with Marqueterie-work, in imitation of the mosaics of the lower division. And at this period, probably, it was endeavoured to repair the dilapidated state of the antique work, by filling up the parts whence the mosaics had been abstracted with plaister, and painting the surface in imitation of mosaic work.

On examining the floor at the west end of the shrine, there are evidences of the space occupied by the altar, where daily masses were said. And I am led to presume, that the large tablet now upraised on the truncated columns formed the front of the altar.

In order to enable us to appreciate the original design of the shrine, I would venture to offer a suggestion as to the appearance of this

* It is curious to remark that the alabaster monuments in Westminster Abbey have better resisted the corroding effects of the damp atmosphere than the Petworth marble, and that the deterioration of those memorials arises entirely from wanton mischief.

* Henry VI. Act iv. Sc. iv.

remarkable monument in its pristine form and arrangement. I would call to your mind the numberless reliquaries of silver gilt which remain to us of the mediæval times, like that for instance of St. Albin at Cologne, or the gorgeous one at Aix la Chapelle, their sides divided into spaces by columns and arches, surmounted by gable-ended roofs, formed into panels with sculptures, and brilliant with jewels. These reliquaries are but imitations of the larger shrines of the Roman Catholic calendar. I conceive, therefore, that this of the Confessor, with its spiral columns restored at each angle, its mosaics complete, its niches filled with its precious relics, its gable-ends flanked with pinnaclee, and the sloping roof enriched with panels, its altar in front, and its mosaic floor, must have presented an imposing spectacle sufficient to awaken and exalt the fervour of the pious pilgrim.

The floor of the chapel consists of a tesselated mosaic of interlacing circles, of meagre general effect from the insignificance of the parts, which are not arranged in grand divisions; the individual patterns, however, are graceful and full of fancy: and you may form some idea of it from the half-sized illustration on the wall.

But my subject irresistibly leads me *not* to conclude these descriptions, without calling your attention to the magnificent mosaic on the west side of the altar-screen, of the class that Mr. Digby Wyatt calls opus Alexandrinum. It is as fine as any example existing in Italy. It was originally 25 feet square, but a modern arrangement of the steps in front of the communion table, has reduced the margin on the east side. It is traced, but on a very minute scale, in Neale's plan to Brayley's work. The arrangement of the tesseræ is precisely like that of the example from the choir of St. Marco at Rome, and something in the style of the mosaic in St. Lorenzo fesori le Mura. From the recorded inscription, part of which still remains in brass letters, it appears to have been laid down in 1268, at the time of Henry III. The larger tesseræ consist of porphyry, lapis lazuli, serpentine, jasper, alabaster, and white marble. The inscription, consisting of ten lines, occupied the bands round the circles and inclosing the great square. If this pavement were but slightly restored and polished, it would be one of the finest specimens of this class in Europe.

A serious question, from the consideration of which we must not shrink, next arises. Can these masterly relics of ancient art be restored without compromising their authenticity, without permitting the fancy to supersede sober judgment, and thus preserve them as unquestionable and unimpeachable memorials of our art history in England, and of the epochs they now illustrate? Let me ask what is necessary to accomplish this, beyond a doubt, beyond a surmise of corruption? A thorough knowledge of the different phases which mediæval art assumed not only in this, but in other countries during five centuries; a scrupulous and submissive respect for the taste, the skill, and genius of the men of that period, and for the art, which they enriched by their talents; an absence of self-love. If such be the qualification, I boldly declare my conviction, that in no period of this country, not even in the ages just quoted, existed there men more competent, more faithful, more zealous to accomplish this great work. In the middle ages the artists disregarded the tastes of preceding periods, and ingrafted on an incomplete work the style of their own epoch. But now the very essence of our school is synchronism, and an almost slavish adherence, as it were, to precedent—a laborious search for examples and authority;—not a monument unvisited—not a book unread—not a MS. unexamined,—that contains aught to illustrate and explain the arts of those times.

We have architects, too, whose own works may side by side contest the palm with the buildings of the olden style. And this work might be entered upon with the more confidence under the sound judgment and discretion of the actual professional adviser of the Dean and Chapter, for his taste and skill are proved in the numberless churches which he has erected; his knowledge in gothic art cannot be excelled; his feeling for it is most intense.

I seek to avert a vast, a lamentable, a dishonouring destruction, ere it be irrevocable; a calamity, the possibility of which I feel none here present can contemplate unmoved. I ask for no rash nor extravagant re-construction, but merely a replacing of what is evidently known as having once been there—a repetition of what in other parts of the same monument may already have survived the wantonness of wilful dilapidation, or the waste arising from neglect.* And never were coincidences more favourable—never was the work more called for, which it has been, perhaps, reserved for the honour of the present times to realise. What would more excite the loyal feelings of the numerous visitors to the Abbey, than to see the tombs of England's glorious monarchs treated with respect by those in power, and restored to comparative completeness. And what a moral and historical lesson to teach them, how much we owe of the reputation of the English name in mediæval times to their heroism, and much of our present liberties and greatness to their wisdom. The visitors also would see the progressive history of mediæval art during three centuries, and learn to appreciate the beauties of each successive development. Is it wise in our Government to let the people see the tombs of our most glorious kings dishonoured, and that a feeling of loyalty and affection to past dynasties is of no consequence? Is there not something august and venerable in the kingly state, and shall we allow the record of a dead monarch to be despised and neglected? Is it wise at such moments as these, when all that can possibly be done should be accomplished, to gather round the throne and its antecedents the sympathies and affections of the people, to allow the dust of the dead kings to be as of no value? Let us hope, then, that the Government will awaken to its duties. It is the common custom of the land that a family is answerable for the maintenance of the tomb of a deceased relative. Is there no tie of affection and reverence between the crown of to-day and of past times? The Abbey authorities have of late years done much; but they have not the means to effect all that is required: and there is, besides, no pretence to call upon them to restore the tombs deposited within these sacred walls. Their funds are little adequate to uphold the fabric. And the endowments, granted by royal munificence, have been since confiscated. Let us hope, then, that the high-minded advisers of the sovereign will appreciate this duty, and show their loyalty to the throne, and prestige of the Crown of England, by causing the restoration of these dilapidated memorials of ancient sovereignty. Then, to use the Prophet's words, "*these dead bones shall speak*," not of neglect, destruction, and contempt as now, but of glories achieved. They shall *speak* of virtues long since. They shall *speak* of goodness, which we may even now imitate; and by comparison they shall teach us by their mute eloquence to value the virtues, the noble mindedness, the patriotism, and wisdom of Her who now rules over a mighty and a happy people, loving the present, yet anxious also to honour the past!

T. L. Donaldson.

* A thorough investigation of these precious memorials might bring to light treasures of art, of which we may not have any conception; and of which we may form some idea from the success which attended the slightest cleansing by the intelligent Hollis on a portion only of the tomb of Richard the Second.

The Theatre Royal Drury Lane.—For the new *Ballet Fantastique*, called "The Star of the Rhine," in which Madlle. Plunkett displays some charming dancing; there is a pretty scene of country on the borders of the swift river. In some cases, Mr. Bunn has scarcely done so much for his pieces in the way of scenery as is desirable. His company is very strong, and he has trusted to that; completeness, however, is much looked for in these days, and we hope he will not lose sight of this in the forthcoming opera by Balfe, which is now announced.

THE NEW UNIVERSITY OF ATHENS.

It is so far back as the year 1837, that the Grecian government had decreed the establishment of an university in the ancient capital of learning and refinement. But there was no building extant where such an establishment, shaped after those of Germany, could have been conveniently placed. It was M. Rhally who conceived the plan of appealing to the sympathies of the whole of Europe for this great undertaking. Konduriottis and Kolokotroni were amongst the first members of the committee named for that purpose. Some of the Greeks at home and abroad subscribed each 20,000 to 25,000, nay 30,000 drachms towards the building of the new university. As soon as an adequate amount was in hand, M. Christian Hansen, a Danish architect, was applied to. He had come in 1830 to Athens to study the Parthenon; but the works of Phidias and the sky of Greece had kept him nine years in this interesting spot. It was in 1839 that M. Hansen began the building and successfully conducted it to its termination.

The situation of the Athens University is unrivalled. Even our best educational buildings in the north of Europe are, if not crammed up between, at least surrounded by, other houses, keeping out every lofty and elevating view. If, on the contrary, we ascend the marble steps of the Athens University, we perceive on all sides remains of sublime character: straight before us the Parthenon and the Acropolis; aside the Acropolis, the Areopagus and the rock of the Pnyx, where Demosthenes delivered his speeches. Towards the south-west, rises over the glittering sea the island of Ægina; in the west, Salamis. Thus, here, the present and the past will be equally instructive and elating. The style of architecture to be chosen in this locality could not be doubtful—the more so, as even the same material was to be used, which served for the erection of former buildings, more than 2,000 years ago. A large vestibule under the façade of the building seemed indispensable, for affording the students some relief under the sultry climate. But as the front is turned south, and shone upon the whole day by the sun, a wall was to be partly run up, ornamented by pillars. Another particular feature of the edifice is, that the lecture-rooms and staircases are lighted from above, and the aula is surrounded by galleries for the accommodation of visitors on festival occasions. The walls are built of marble from the Hymettos, and the arches of doors and windows of substantial brickwork, the walls covered with stucco resembling marble. The porticus, with its columns, fronton, and stairs, is of white Pentelic marble, as well as all capitals and architraves. The chief cornice consists of bluish, polished Hymettos marble, and the halls and passages are paved with white and black marble from Tinos. The columns of the staircases and the aula are monolithes of white marble of Tinos. All outer ornaments have been painted in the way of antique buildings, with exception of the Ionic capitals, which are sculptured; and the capitals of the columns of the porticus are scantily gilt. The roof, when completed, will consist of tiles of antique shape and construction.

Mediæval Museum for Study.—At a meeting, on 23rd inst. of the committee of gentlemen who have interested themselves in the promotion of art-workshops, present—Messrs. Scott, Clutton, Pearson, Hardwick, Penrose, Clarke, Gibson, &c. it was resolved that means be at once taken for the establishment of a museum of casts from architectural ornaments and other works useful to artisans employed in architecture. An extensive list of annual subscribers, and of donors, whether in money or in specimens to the museum, is desirable, and is, if possible, to be realised; and when the museum is established, Mr. C. B. Allen is to be appointed curator, with the free use of the museum for the purposes of his proposed art workshops, during the pleasure of the committee. Mr. Penrose has consented to act as hon. secretary to the museum.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

I am delighted to find that my first letter has interested you sufficiently to lead to the suggestion, that the notices of some of the monuments alluded to might have been fuller without being tedious. You will observe, however, if you look back, that I had not completed my remarks on Stonehenge, and we will now, if you please, return for a few minutes to that most extraordinary monument, which, in some respects, has no parallel.

In many parts of the world, including America, large circles of upright stones are to be found, but Stonehenge is peculiar and distinct. Most of the stones there have been worked square by hand,—and on the top of the upright stones, projections, technically called tenons, are formed to fit into indentations, or mortices, in the horizontal stones, so as to confine the whole together.

The diameter of the outer circle is 105 feet; of the second circle, 87 feet. The height of the stones composing the outer circle is nearly 16 feet, their width 7 feet, and their thickness 3 feet; those forming the trilithons are several feet higher; I calculated the weight of one of these to be 19 or 20 tons. Around the whole is a vallum or ditch, 300 feet in diameter, having an opening on one side approached by a wide avenue. Some of the American inclosures are five times as large as this.

The age and purpose of Stonehenge have given rise to a vast deal of discussion. The first published notice of it occurs in the works of Nennius, who wrote in the ninth century, and states that 460 British nobles were murdered at a conference between Vortigern and Hengist in the fifth century, and that Stonehenge was raised to perpetuate their memory. In a Saxon MS. given in Dugdale's "Monasticon," it is even called *Stanhengist*, showing its connection with the leader named. Geoffroy, of Monmouth, adopts the same origin, but brings supernatural agency in aid. Inigo Jones, in an essay on the subject, published in 1655, endeavours to prove that it was a Roman temple of the Tuscan order, dedicated to Cœlus: an opinion hardly less unsound than that of Mr. Browne, in 1823, who asserts that it is antediluvian, and rather suspects that Adam had a hand in the direction of it! One writer has asserted that the blocks are not stones, but are formed artificially in moulds! The opinion of the majority is, as you know, that the inclosure was constructed for religious purposes, under the direction of the Druids, at a very early date. Our friend Mr. Britton has a very interesting article on this monument in the *Penny Cyclopædia*.

I remember you were much interested by a paper on this subject read by the Rev. Edward Duke, at the Salisbury meeting of the Archæological Institute, in which the author repeated a belief expressed by him three years before, that Stonehenge formed part of a *planetarium*, in connection with Abury and other remains, having a meridional line of not less than thirty-two miles. He saw in the thirty stones and thirty spaces, the thirty days and thirty nights into which anciently the months were divided; and found the inclination of the ecliptic as compared with the plane of the equator, unmistakeably indicated by the angle formed by a line drawn from the top of the outer circle to the top of the trilithons. With this, however, I will not meddle. Mr. Squier, an American archæologist, who has recently visited Stonehenge, has pointed out by admeasurement that two detached fallen stones in the avenue originally stood in the centre of this, one behind the other, in a line with the main opening in the outer circle and with the centre of the altar, and maintains that they constituted the *veil* of the temple, the screen of the sacred place.

How these stones were raised and made to stand exactly their proper height is a matter for discussion, but I fear to detain you upon it. If we stay longer on Salisbury-plain, pleasant place as it is, we shall never get to the end of the long journey which is before us.

The temple at Abury, in the same county, was much more extensive than Stonehenge, but less artificial in arrangement, and probably of even earlier date. It consisted of one large circle enclosing two double circles. The area enclosed at Abury was more than twenty-eight acres. Two avenues of stones, communicating at different parts of the outer circle at Abury, produced the form of a snake, and have led to dissertations showing its connection with *ophiolatry*, or serpent worship — a very ancient superstition in Egypt and the East, and to which the primitive Druids were addicted. Although with us the symbol of the evil spirit, the serpent was recognised in India and Egypt, and also in Greece, as a friendly deity. Pliny describes the serpent's egg, which he says was worn by the Druids as their distinguishing badge. Many marvellous powers were ascribed to it. Some have conjectured that the temples of which I have been speaking, as well as Carnac, in Brittany, and others, were dedicated to the united worship of the sun and the serpent, and that their form was emblematical of the combination. An "intelligent foreigner" who, gazing back at night from Hyde Park along the serpentine line of light which the lamps up Piccadilly produce, found in that a proof that the Londoners of to-day are ophiolators, would have as good ground for his belief as some of the theorists on this point.

In a more extended disquisition than this, cairns, cromlechs, and logan stones might be noticed, although of later date than other structures of which we have to speak.

The Dolmen or Cromlech, a flat stone supported on three or four upright stones not contiguous, was at one time considered to be an altar: the fact is, however, it merely marks the burial-place of the rich, as the simple barrow does that of the more lowly. In some cases it was covered by a barrow. Kits Cotty House, near Maidstone, in Kent, is a well-known example of a cromlech. The top stone of this is 12 feet long and more than 9 feet broad. The logan stones, or *rocking* stones, found in various parts of the country, are doubtless natural productions. The softer parts of the stones have been worn away by the weather, leaving a mass poised so accurately on a point, that very little strength is sufficient to rock it, although to shift it from its position would be very difficult. It is said, with what truth I will not decide, that these stones were made a test of innocence in early times. Mason, a dramatic poet, has a passage describing the ordeal, which occurs to me. He says—

> ——"Behold yon huge
> And unhewn mass of living adamant!
> Which, pois'd by magic, rests its central weight
> On yonder pointed rock. Fixed as it seems,
> Such are its strange and virtuous properties,
> It moves obsequious to the slightest touch
> Of him whose breast is pure; but,—to the traitor!
> Although a giant's prowess nerved his arm,
> It stands as firm as Snowdon."

It is not necessary to say that the result rested with the presiding priest, and might be produced by a very small wedge. We must take care, however, not to outrun our subject. Many pleasant paths for examination open out of the high road, but if we were to pursue them all, we should soon get astray from the main line. We must return to an earlier period.

Amongst the earliest recorded facts connected with the history of architecture after the Deluge, is the foundation of the city and tower of Babel, shall we say, 2200 B.C. You will remember it is stated that, as the people journeyed from the East,—and let me remind you, in passing, that the course of improvement has been in a singularly marked manner, from the East to the West, or more strictly, the North-west, as, from Asia-Minor to Greece, to Italy, to Gaul, and to Britain; and is so indeed in many modern towns;—as they journeyed from the East they found a plain in the land of Shinar, and settled there. Here, prompted by a desire "to make a name" (the desire still haunts some of us), an ambition to be known to posterity, they burnt clay to make bricks, and with the slime or bitumen, of which there were natural fountains, they began to build a city, and a tower to reach to Heaven. Babel, you know, was in the kingdom of Nimrod, called the mighty hunter, who afterwards built Nineveh. Josephus terms him the founder of the city of *Babylon*, and Bryant says, he was sometimes called Bel or Belus, but this title was applied to many.

Now concerning the progress of this last-named city, Babylon, the chief city of Assyria, the deepest obscurity prevails, even more than might be expected, notwithstanding its remote date. Queen Semiramis is said to have surrounded it with high walls, and to have erected a lofty monument to Belus about 2,000 years before our era; but there are so many contradictory opinions as to the time at which this queen lived, even to the extent of 1,500 years, that it is difficult to arrive at a satisfactory conclusion upon it. More recently it has even been argued by Sir William Betham, that this queen never existed at all, and that her history is an allegory showing the power of maritime commerce! What are we to believe? you will say. For my own part I have strong faith in a real live Semiramis.

Herodotus, who wrote about 450 years B.C. describes Babylon at some length, but speaks with uncertainty even then of the date of its foundation. He says (Clio, clxxviii.) that it was of the greatest strength and fame in the Assyrian empire, and exceeded in internal beauty and magnificence whatever had come within his knowledge. It was a perfect square

* No. 2. See p. 100, *ante*.

of great extent, surrounded by a wide ditch (whence the earth had been taken to make bricks), and a wall 300 feet high or more. On the summit of the wall were watch-towers at short intervals, and in it were a hundred massive gates of brass, with hinges and frames of the same material. In *Isaiah* mention is made of "gates of brass." The city is described as regularly divided into parallel streets, with houses three or four stories high. Avenues leading to the river crossed these at right angles, and each was terminated by a gate in the wall.

The Temp'e of Belus is described by Herodotus as an enclosure two furlongs square, closed with huge gates. In the midst was a tower of the depth and height of a furlong, "upon which, resting as a base," were seven other turrets in regular succession. The ascent was by a winding road, carried round the outside. I annex the outline of such a

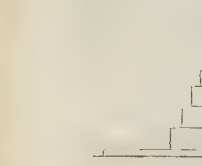


Fig. 5.

structure. It is the type of a large number of monuments. If you recall the height of St. Paul's Cathedral, which you examined so scientifically the other day with the philosophic F——, you will see that these dimensions are so enormous as to be scarcely credible. Concerning the magnificence of Babylon, "the glory of kingdoms, the beauty of the Chaldees' excellency" (as Isaiah terms it), all the ancient historians are unanimous, and would lead to an idea of grandeur of which no modern city gives an example, including palaces, mounds, canals, bridges, and lakes. According to Diodorus, the palace was surrounded by three enormous walls, which were ornamented with animals in relief, richly painted in their natural colours on the bricks, and burnt in.

Amongst the extraordinary traces of Babylon still remaining is an enormous ruin, which is supposed to be the temple of Belus. The bricks of which this is composed have inscriptions on them, and the cement by which they are connected is so excellent, that it is nearly impossible to extract one whole.

Whether or not the form of the Tower of Babel was similar to the description given of the Temple of Belus, or whether or not there was even a closer connection between them, is uncertain. A tradition still current amongst the Arabs ascribes to *Nimrod* the erection of a high tower to reach to Heaven, which was overthrown the day after it was finished. Some enormous ruins, chiefly of burnt bricks, which remain, are still called by them Nimrod's towers ("Birs Nemroud").

The pyramidal form, as we shall hereafter see, was long prevalent in India, Mexico, Egypt, Greece, and other countries, and many ancient buildings, in steps or stories, similar to the Temple of Belus, which I have described, are to be found; as, for example, the Hindu temples at Chalembarum and Tangore, the great Mexican temples, and some of the smaller Egyptian pyramids. This rough pen-scratch represents one of the latter.

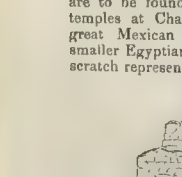


Fig. 6.

Until very recently little or nothing was known of the ruins in Assyria and Babylon. Mr. Rich, in 1820, was the first person who examined and described the remains there at any length; but until four years ago our knowledge on the subject was of the most confined nature. It was left for Dr. Layard and M. Botta to investigate these mysterious mounds, the contents of which have rendered us familiar with the people and their arts to an extent that could not have been anticipated, and have corroborated in a wonderful manner many parts of the holy writings. You, I know, have seen and studied with your usual intelligence and energy the surprising relics of a mysterious past—winged bulls and engraved slabs—which have reached us through Layard's researches, and have been deposited in some cellars at the British Museum. They have been so long buried, that it was, perhaps, thought they could not yet stand the light. It is scarcely possible to contemplate these wonderful monuments — some of them contemporary with Abraham, and dating probably more than 2,000 years before our era—without emotion. These inscribed stones were the records of that early time—and well have they fulfilled their office. The practice of thus chronicling events is often referred to in the Bible. Ezekiel, you will recollect, was told "to take a tile, and portray upon it the city of Jerusalem."

These slabs are of alabaster or gypsum, which was found in large quantities on the spot, and they were used to case the walls of sun-dried bricks which enclosed the Halls; above them coloured tiles were probably used. The walls went up only a certain height, perhaps 18 or 19 feet, and were very thick, from 16 feet to 20 feet. The winged lions formed the entrances. On the top of the walls, it is suggested, were placed two rows of short pillars (one on the inner, the other on the outer edge of the wall), which supported a flat roof of mud, and thus formed a series of upper chambers or galleries. As you are a reader of *The Builder*, you will remember a fuller account of this theory, as set forth by Mr. Fergusson (vol. ix. pp. 147 and 184); and of the remarkable progress that has been made in deciphering the cuneiform or arrow-headed characters which compose the inscriptions. The effect of the courts, with their colossal lions and bulls, their sculptured sides and painted and gilded decorations, must have been singularly imposing. We cease to wonder that Nineveh, now "a desolation and a waste," was the admiration and glory of the ancient world. From Assyria, Greece probably obtained part of her art, as we shall see by and by. If I occupy you longer, however, on this point, you will regret the expression of your opinion to which I alluded at starting, and I cannot afford to tire you yet, and so to lose your cheerful countenance. I shall be glad if you find every letter too short, and that it *suggests* to you more than it *tells*.

Believe me always yours,

Reggeo.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.

Professor Cockerell, in his fifth lecture, proceeded to consider the great exemplars of antiquity; that school of forty centuries to which the great masters of theory in art referred in all their treatises. The study of antiquity showed what had hitherto seemed good in the eyes of men, and what was likely to appear so in the future. A man ignorant of the past, and without aspirations for the future, was like the beasts that perish; but enlightened by the page of history, his brief knowledge was extended over the forty centuries to which Napoleon had appealed in the battle of the Pyramids. Vast indeed was the growth of the soul by the contemplation of history; and the architectural remains of antiquity were especially recommended by their beauty; because relics so enduring must have been founded on geometrical, mechanical, or æsthetical principles; and whatever had so come down to the present age, as the result of long practice and skilful processes, claimed the highest respect and the most careful investigation. By these we might be enabled to restore some obsolete principle of art, or redeem some forgotten merit of the past. There was scarcely a relic of well preserved antiquity from the study of which we might not become wiser and better men. That superstitious reverence for the past which led to a love of antiquity for itself alone, should, however, be most carefully avoided. It was evident that our ancestors were men like ourselves, equally liable to vanity, eccentricity, affectation, and fashion, and that genius and energy were as rare among them as in the present day. Great were the obligations of the architect to the antiquary. The province of the latter was the investigation of truth and fact, by scholarship and calculation. The aim of the architect, on the contrary, was invention: he was bound to consult that imagination which the antiquary suspected and deprecated: his mind was devoted to the delights which he might borrow and appropriate from antiquity.

All the great architects of the Revival acted on this principle with immense success, and none among them more so than Palladio and his followers, Inigo Jones in England, and Vignola in France. Not only was the study of antiquity necessary to the architect, but ennobling, profitable, and delightful: his pleasure in the study of the fragments of ancient art was as great, indeed, as that of the child in the restoration of his dissected map or picture.

In reference to the study of antiquity, Vasari, in his "Life of Brunelleschi," spoke of the astonishment and rapture of that great architect on arriving at Rome, and beholding the vastness and perfection of its ancient edifices. Vasari, however, expressly states that he gave orders for the measuring of cornices and taking plans, whilst he himself spared neither time nor expense, and cared neither for food nor sleep, whilst he devoted himself to the examination of all those remains which were really excellent. This, indeed, was true economy. The time and thought of Brunelleschi were too precious for mere mechanical operations, and therefore he did not dull the edge of his genius by elaborate measurements, which an ordinary assistant might undertake. It was a common error of the artist to engage in futile and expensive labour, with a view to economy.

The architect should also avoid sacrificing his time to the study of obsolete and impracticable styles, such as the Egyptian, Chinese, or Saracenic; which he could scarcely ever have to employ in this country. However agreeable and interesting these styles were, scarcely any practicable result could arise from them, and they were mere matters of learning and curiosity. Rude and primitive in taste, they were tinctured with a vile superstition, which determined all their forms and colours, without the slightest reference to nature. No English architect would wish to reproduce Egyptian temples in York or London, or to see a modern palace covered with painted hieroglyphics: all the mind and character of Egyptian architecture was indeed out of date, and belonged to another hemisphere, and a distinct race of men.

On the score of practical utility, he felt also bound to place the architecture of Greece only next above that of Egypt. But the pilgrimage to the Parthenon would be ever justifiable. The teaching of Socrates and Plato was associated with their classic architecture, and the devoted admiration of it which the Greeks themselves displayed was proved in many ways. The knowledge of the scope of art among the Greeks was visible in every fragment of the sculptor's and the potter's art, which they had left behind them; and these remains led to artistic reflections, which must guide the artist whenever he was tempted by the meretricious graces of inferior styles. Still there was little that could be practically useful in Greek architecture. Its application to a horizontal country like our own he had before shown to be unsuitable, and the numerous valuable publications of Stuart and Revett, the Dilettanti Society, and others in France and elsewhere, embraced ample information for the English architect.

To show, however, the extent to which the study of antiquity might be useful, the lecturer

referred to the famous Mausoleum erected by Queen Artemisia over the remains of her husband, Mausolus, in the year 353 B.C. and lately referred to in our pages.

Few and rare were the examples of Greek art which could be made available under the laws of proportion which governed the arrangement of modern halls, chambers, churches, libraries, theatres, town-halls, prisons, and mansions. European travel, from St. Petersburg to Gibraltar, furnished a far more useful and practical source of education. By visiting and conversing with European architects; by examining their executed, and perusing their literary works, a complete digest and epitome of their experience might be obtained; and this would be the best course of study for the practical and ambitious architect. England alone furnished valuable means of instruction, rich as it was in masterly genius and excellent works. He never regretted the advice he had always given to his own scholars, to study the productions of their native land; and they had themselves acknowledged the advantages they had so derived.

Many who had enjoyed the greatest advantages from foreign travel had failed to profit by them; and many had achieved the highest distinction with no other aid than they could derive from books of travels and the resources of their own minds. Sir Christopher Wren, from want of means or other causes, had never travelled beyond Paris: and Brunelleschi was compelled by his necessities, whilst at Rome, to seek employment as a goldsmith, in order to pursue his architectural studies.

These strictures, however, on foreign travel did not apply to Italy in general, and more especially not to Rome, the direct source of all modern art. The Romans, eminently practical, approached architecture in the spirit of engineers; all their professional faculties were called forth in aid of law, learning, commerce, civilisation, and war; and with their knowledge of the arch and the dome, their works supplied a never-failing source of useful study. In Rome the student might trace the application of the elements of Grecian and all other ancient styles by the people of the empire; and side by side with them the admirable works of Raffaelle, Vignola, and the other great moderns, all of which he might apply in daily use; and the persevering investigation of which would prove to be time well spent.

Conspicuous among these works were the baths of ancient Rome. Of these we were told by classic authors that there were 800 in the imperial city, all more or less public. Fifteen of the more remarkable are still to be traced in their ruins, furnishing a grand treasury and storehouse of ancient art. The largest of these were the Baths of Caracalla, in which it is said that 108,000 persons might bathe between the hours of two and five daily. In proof of their enormous magnitude, the lecturer showed by a plan that they occupied a quadrangle equal in size to that formed by the lines of Pall-mall, St. James's-street, Piccadilly, and Regent-street; having St. James's-square nearly in the centre. He pointed out the admirable proportions and noble features of this stupendous work, its spacious halls and gardens, with other interesting features.

The decline of Roman architecture was then briefly traced, and the defects of the later important works pointed out. The palace of Diocletian presented a sumptuous plan, and an arrangement suggestive of oriental magnificence (and especially a corridor, worthy of particular study); but the architecture generally was below criticism. The works of the age of Justinian were further debased, and from the sixth century, architecture, as a fine art, was completely extinguished. In the twelfth century arose that Gothic architecture which displayed the most sublime equipoise, and the grandest effects, with the smallest comparative expense; and the religious and national associations of which must sanctify it in the hearts of all. Time would not allow him to dwell upon the many glories of that beloved architecture, nor the peculiar features of its German and other branches, which might be effectively introduced in this country.

WANTED, A RAMMER.

COULD not some modification of the steam-hammer, or pile-driver, be contrived that would apply to the ramming of paving-stones, and consolidating of gravelled or macadamized roads? The condition of both streets and roads seems to suggest that with a greater amount of consolidation, less of inequality and looseness would present themselves. Let the roller used on the gravel road be ever so satisfactory in principle, still its efficacy is limited by the proportioning of its weight to the animal power which is to overcome its inertia: not so where an impulsive force is put in operation by such a power as steam: the effect then produced will bear a different proportion to the dead weight of the machine, and to the power of the animal which may be employed to move it from place to place. Let the pavior even wield his rammer with ever so good a will, and bring good thew, sinew, and muscle to bear on his work, still the effect of the momentum which he can impart is limited in like manner; and is, we may infer, inferior to the action of endless trains of wheeled vehicles. To render our streets and roads more commensurate in solidity to the duty they have to perform, some more weighty apparatus than a one-man rammer or a two-horse roller is wanted: the effect of these, by the way, may be nearer a par than they seem, seeing the difference in the manner of their application; the main difference being in the extent of the ground gone over. It seems to us that a kind of frame-work, containing a number of heavy vertical rammers, say the former a yard square, and the latter nine in number, and lifted by steam power, in some such succession as may be imagined in a horse with as many feet, would effect the result we have in view; and if it were considered liable to the objection of leaving the ground uneven on the surface, let it be combined with a roller in rear, sufficiently heavy to obliterate the inequalities.

While on the subject of streets and roads, we may point out another want, namely, a trottoir for luggage-bearers: it is quite obvious that in London's thoroughfares, with its incessant trains of equine traffic, the porters cannot be driven to the roadway; while it is equally palpable that the bearing of head-loads of furniture, with wooden legs projecting at every imaginable angle, to the imminent hazard of the eyes and limbs of thought-bound wayfarers, is a growing evil that threatens to become intolerable. Those streets that would admit of it might be divided into five parts in their width, instead of three; the centre, as now, for the horse traffic, the house-paths for pedestrians, and the intermediate ways for all persons bearing ungainly burthens,—butchers' trays, bakers' baskets, and the like: the porters' paths might be a slight step lower than the house-paths, but the kennel should run outside the former, only affording facility for carriages crossing to set down their fares at the curb of the latter. For this purpose, the house-paths could, if necessary, spare a portion of their present width, the roadway supplying the remainder. The police would see to the former being kept sacred to their special purpose: the quality of the paving in the porters'-paths might be a superior square-dressed granite, in longitudinal courses.

The extensive use, in town, of the macadamizing principle of road-making renders of interest any suggestion for ameliorating its defects: in the summer of 1824, experiments were made by Mr. Gilmore, surveyor of the turnpike-road between Durham and Tyne Bridge, which had for their object the binding of the surface and laying the dust: these results, it was stated, were successfully obtained by the application of the oil of salt, which had the effect of rendering the paving firm and smooth,—the dust being more effectually mastered than it had previously been with water. Such a process might be a little expensive in the first instance; but if it superseded in a great degree the necessity for watering, it would probably be found economical in the main. Summer is coming: down with the dust.

In the same year as the above, a patent was granted to Mr. A. H. Chambers, for the following method of constructing paved carriage-ways: a bed of well-compressed clay, with a channel on each side for carrying off water, was to be first laid down;—upon this a thin stratum of sand, and upon the latter, the ordinary granite paving-stones: the latter, however, were to be laid with their broad ends downwards, the interstices filled with hard materials, and the whole covered with some burned and vitrified substance, incapable of reduction, by moisture or friction, into a soluble matter. Now, some part of this is very sensible: the stones, instead of having their fangs planted into the pliant soil, to gnaw their way downward, and force the soft matter below to escape upward, and form mud or dust upon the surface, are laid so as to obviate that effect, and also to receive superimposed pressure within the area of their respective bases. It only wants that their apexes should be made parallel with their beds, and the interstices be filled with small macadamising, served with the oil of salt as above described, to form what would probably prove a good lasting causeway.

The last of such plans that we shall at present notice, is one proposed in the *London Journal of Arts* in 1825, by an Ayrshire farmer, Mr. John Finlayson. The method of paving which he proposed, consisted in setting blocks of wood, with the grain vertical, into sockets formed for them in iron castings; the blocks to be about 18 inches long, and 8 inches square at top and bottom ends, but increasing in size to a point a little below the middle: up to this point they were to be fitted solidly into the castings, which were to be about 4½ by 2½ feet each, solid on the underside, and containing 18 tapering sockets: a perfectly even and solid bed to be prepared for receiving the castings, and the tapering interstices between the blocks, from the edges of the sockets upwards, to be filled with gravel or broken stones, in order to wedge and firmly confine the blocks, and prevent their being shaken or displaced by the carriage-wheels rolling over them. The advantages offered by this scheme were compactness, non-liability to derangement, ease of removal for alterations in pipes or sewerage, corresponding rapidity of replacement, comparatively little wear and tear, therefore little mud in wet or dust in dry weather, deadening of the noise, &c. Mr. Finlayson recommended larch fir as the least liable to decay, and being tough and difficult to be split or torn asunder. He had tried the system in a pavement on the farm premises, in juxtaposition with granite paving, using wooden planks as a bottom, and after twenty-five years the granite had undergone more wear than the wood; while some blocks of the latter, taken up, proved to be as fresh as the day they were laid. Two great causes of failure in pavements are the defective nature of the bed, and the materials being laid with their narrow side downwards.

ST. STEPHEN'S, WALBROOK.—We are requested to mention that the actual cost of the stained glass in the east window was 350*l*. Further, that the gentleman alluded to in our last as being the architect engaged on the painted window is Mr. Joseph Gwilt, of Abingdon-street.

THE STRIKES AND DIFFERENCES IN THE IRON TRADES.—The nailors and chain-makers about Bromsgrove and Cradley, Stourbridge, Sedgley, Rowley Regis, &c. have been out on strike in consequence of recent reductions of wages to a very low standard. The strikers are said to have conducted themselves with propriety since the occurrence of the strike. The masters, it is said, have agreed to restore their wages to the standard required by the men.——The *Manchester Guardian* states that, up to Monday week, the number of men who had resumed work in the shops of the members of the Association of Employers in Lancashire, so far as concerns 24 firms who had made returns, was as follows:—

Millwrights, fitters, turners, planers, and machine-men	976
Smiths, boiler-makers, &c.	354
Moulders	297
Others, including labourers	1149
Total	2776

BELL-TURRET, CORSTON CHURCH, WILTS.



BELL TURRETS.

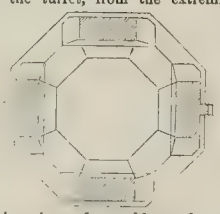
CORSTON CHURCH, NEAR MALMSBURY.

It appears to me somewhat surprising that amongst the numerous publications on "English Church Architecture," so little attention should be paid to that interesting class of churches possessing *bell turrets, which, resting "on a single wall, present the appearance, on a small scale, of steeples whose substructure affects the ground plan of the building,"** the extreme rarity and peculiarity of which, saying nothing about their beauty of outline (which is unquestionably superior to that of the bell-*gable*), ought to have been a sufficient guarantee for their study and elucidation. With a view of assisting in rendering the subject more familiar, and of promoting, through the medium of your journal, the adaptation of this class of turrets to modern buildings, I forward you the following account, accompanied by a view† of the west end of the little church of Corston, near Malmsbury, the bell-turret of which, though differing widely from the majority, has, nevertheless, the principles of construction common to all.

Corston Church is of one date and style, if we except modern innovations, and may be considered to belong to the latter part of the fifteenth century. It consists of a nave and chancel, with south porch, and is prettily situated on a rising ground embossomed in rich and umbrageous foliage. The interior—alas! for that "puritanical zeal,"

> "——— which o'erthrew
> In town and city and sequestered glen,
> Altar and cross and church of solemn roof,"

is devoid of all that "dim," religious, and devotional character so peculiar to the house of prayer. Where *once* "admonitory texts inscribed the walls," the pomps of petty temporalities are displayed in "mural tablets." "The footworn epitaphs and shining effigies of brass inlaid" are gone, and the floor that once was occupied by oaken benches ranged in seemly rows, is now covered, through the good taste and feeling of the parochial authorities, with "pews" of beautiful white deal, erected by and under the superintendence of Mr. Churchwarden Carpenter, in a plain unostentatious manner, with doors, of course. But to the church. The exterior, or rather the west end—for, like the interior, the eastern part, windows, and porch have been "done up,"—is what more immediately demands our attention. The west wall, which supports the bell turret (it may be as well to remark here that the church is entirely without buttresses) is pierced by a two-light window (the head of which is of the usual plain Perpendicular character), surmounted by a hood mold, from the apex of which springs the corbel that supports the west arm of the cross, forming the lower plan of the turret, from the extremities of



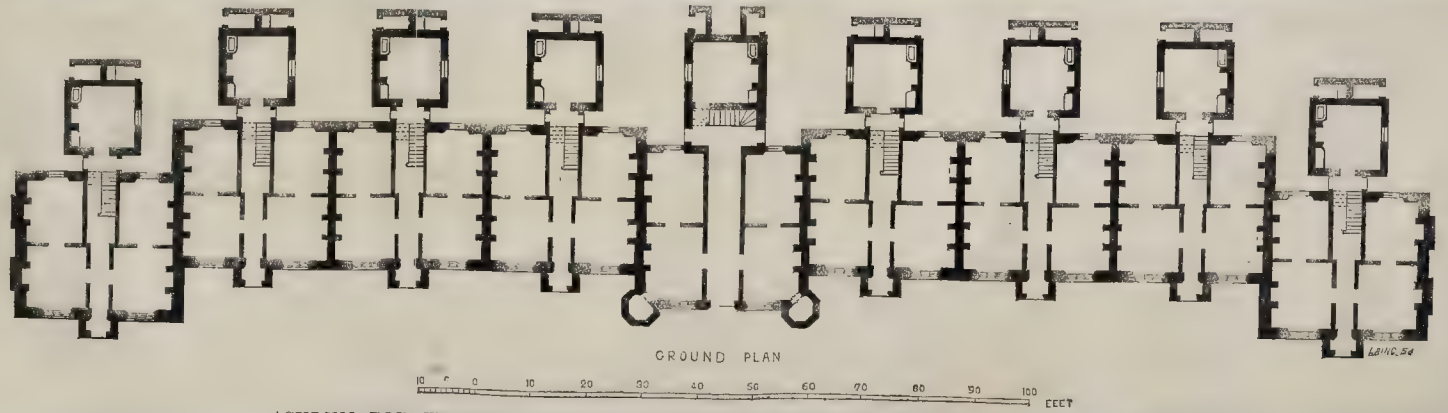
which rise piers of an oblong plan, to the height of 4 feet, and then enlarge so as to form the cardinal sides of an octagon, by means of concave brackets, which continue (*straight*) along either end of the diagonal faces. Above this the octagon appears perfect in the elegant little battlemented parapet, from the inside of which rises the spire, ribbed and surmounted by a beautifully carved finial. The north and south sides of the turret are enriched with buttresses, and the interior is divided into two compartments by a partition, running east and west, thereby giving it the appearance of strength, as well as adding to its durability.

E. W. G.

* See Rev. J. L. Petit's interesting paper in vol. i. of the *Architectural Journal*.

† "The perspective" is drawn by *rule*, the place of sight being about 66 feet from the nearest angle.





ASYLUM FOR WORTHY AGED AND DECAYED FREEMASONS.—Mr. Daukes, Architect.

ASYLUM FOR WORTHY FREEMASONS AT CROYDON.

THE new Asylum for aged and decayed Freemasons is situated in the parish of Croydon, near the South-Eastern Railway, upon a gravelly soil, well drained, and elevated 3 feet above the natural level of the ground. It has a southern aspect, and is surrounded by a terrace and extensive pleasure-grounds.

The building has been erected by subscription, from the design of Mr. S. M. Daukes, architect. It is capable of affording accommodation to thirty-six inmates, allowing two rooms to each, with other suitable domestic conveniences. The contract for the entire building was taken by Messrs. Patrick and Son, builders, Belvidere-road, Lambeth, for the sum of 4,868*l*. At present, however (for want of funds), only the north wing and centre building are completed; and these have cost, owing to considerable additions in the way of ornamental decorations, 3,731*l*. 10s. 7d.; the principal additional expense has been incurred in consequence of its having been considered desirable to add considerably to the height of the foundations, with a view to render the building perfectly free from damp. Immediately over the bay-window of the centre building is placed a bronze tablet to the memory of its founder, Dr. Crucefix, whose portrait is also suspended in the hall of the building. The bay-window above referred to is beautifully glazed with stained glass at the expense of the building committee, who deserve especial commendation for this act of liberality, and whose cyphers are emblazoned in its different compartments.

The style which has been selected is the late Tudor, and the material employed red brick with blue headers and stone dressings. The roofs are covered with tiles laid in an ornamental pattern.

The consecration of the building was celebrated with great masonic pomp and display on the 1st of August, 1850, by the right worshipful brother A. Dobie, provincial Grand Master for Surrey, assisted by nearly 700 members of the order.

The sum of 2,200*l*. is required to complete the building: of this there is invested, in the names of the building committee, 600*l*. and a legacy of 500*l*. to the same object has recently been left by the late Mr. Colville Brown, of Norfolk. A further sum of 1,100*l*. still remains to be collected, and which, amongst so numerous and wealthy a body as the Freemasons, we doubt not will soon be obtained.

A GRAVE QUESTION, IN WHICH DOCTORS DIFFER.

DOES LEAD POISON WITH HARD WATER, OR WITH SOFT, OR WITH BOTH?

HAVING now (see pp. 54, 55) presented a fair view of the evidence, which, as far as its mixed nature permitted, seems to corroborate and support, or militate more or less in favour of that of Dr. Lyon Playfair, all of whose experiments at the Museum of Practical Geology on water supply are reported to have tended to "prove that perfectly soft water has no action on lead, and that all the solid (hardening) ingredients of water tend to produce and increase the action of lead," we must now review what has been said and done towards the establishment of a conclusion practically the very reverse, or nearly so. And as we have given the place of precedence and honour to the evidence which we regarded as the most influential in favour of the perfect safety of soft water with lead pipes and cisterns, and the imminent danger of hardening ingredients or hard water in similar circumstances; so, we shall now first of all proceed to adduce the evidence which we regard as the most influential in favour of the opposite conclusion, which was *established* (as it was thought) on an extended series of experiments, also purposely gone into in order to decide this important question.

Professor Christison, indeed, appears to have given this subject a much more extended and formal consideration than any chemist or toxicologist who preceded him, if not, indeed, also, than any who has even yet treated of it. In fact, subsequent authorities appear to have chiefly fallen back upon his experiments, the results of which they have in general adopted. And, moreover, it is Christison's opinion that the subject is one which, so far from being exhausted, still demands further careful investigation, in some of its many important aspects not yet treated of.

All that we need here remark as to inquiries previous to those of Christison, is, that although the ancients were well acquainted with the dangerous properties of leaden vessels or utensils, Vitruvius having published (De Architectura, lib. viii. c. 7) a very strong remonstrance against leaden pipes when used for the conveyance of water, and Galen having cautioned his readers continually not to use water that had flowed through pipes of this metal, nevertheless we find nothing but repetitions of these cautions till the end of the last and beginning of the present century; and even in 1823, Paris, though he fully recognised the risk of using lead in water supply, said very little on the subject. Dr. Lambe, of Warwick, however, had first minutely, but not quite correctly, examined it. Guyton Morveau contradicted some of his conclusions; and a few years later (1816), Dr. Thomson, of Glasgow, also treated of it, supporting Dr. Lambe's proposition, that "most spring waters attack lead."

In 1829, Professor Christison first published an extended account of his investigations into the whole subject of the action of different waters on lead. Other authorities followed; but although Christison has since more than once recurred to the question, and drawn pointed attention to its practical importance, and its details, we find even recent writers of note still passing it over with little or no attention. Thus, in 1843, Professor Orfila treats of it in a few lines only, and even these, as Christison alleges, contain several inaccurate statements. Still more recently, we have searched in vain for even a single hint or allusion to it, either in text or note, in Turner's Chemistry, edited by Liebig. Graham appears to say nothing about it. Brande does recognise its importance, as we shall afterwards see; but he not only coincides with Christison in the main, but refers his readers to him for "a good epitome of all that relates to the action of water on lead."

It thus appears that Christison, whether he be right or wrong, is fully entitled to be regarded as the most influential antagonist to Playfair on this *vital* question, which, moreover, it also thus appears, may be said to be only now in course of consideration and discussion as a moot question by no means exhausted,—scarcely even as yet taken up,—by chemical authorities in general. As for the public at large, whom it so deeply interests, we believe that they knew nothing about it, till we called their attention to it in THE BUILDER, since which time the noxious influence of lead in certain cases which have come before them in the daily papers has been fully recognised.

The evidence of Professor Christison, on which the whole subject, as well as its public recognition, may be said to be mainly based, in every sense, therefore, merits serious consideration—in connection with Dr. Lyon Playfair's contradictory evidence, and with the corroborations of that evidence already adduced.

Of the mutual influence of soft water and lead, then, Professor Christison, in his Treatise on Poisons (ed. 1845, p. 517), says—

"Distilled water, deprived of its gases by ebullition, and excluded from contact with the air, has no action whatever on lead. If the water contains the *customary gases* in solution the surface of the metal freshly polished becomes quite dull and white. But if the surface of the water be not at the same time exposed to the air the action soon comes to a close. When the air, on the other hand, is allowed free access to the water, a white powder appears in a few minutes on and around the lead, and this goes on increasing till, in the course of a few days, there is formed a large quantity of white matter, which partly floats in the water or adheres to the lead, but is chiefly deposited on the bottom of the vessel. If this experiment be made with atmospheric air deprived of carbonic acid, the white substance puts on the form of a fine powder, which I find to be a hydrated oxide, * * * but if the surface of the water be exposed to the open air, the substance formed consists of minute brilliant pearly scales * * * a carbonate of lead. * * * The formation of carbonate takes place with considerable rapidity. In 12 ounces of distilled water, contained in a shallow glass bason, *loosely covered to exclude the dust*, 12 brightly polished lead rods, weighing 340 grains, will lose 2½ grains in 8 days, and the lead will then show evident marks of corrosion. The process of corrosion goes on so long as atmospheric air is allowed to play freely on the surface of the water. In 20 months I have obtained 120 grains from 1 ounce of lead rods kept in 24 ounces of distilled water. * * * It will be inferred from the preceding facts that distilled water for economical use should never be preserved in leaden vessels or otherwise in contact with lead."

Distilled water is, in fact, just water perfectly soft, and the evidence here, therefore, is to the effect that perfectly soft water, in ordinary circumstances, acts immediately and powerfully on lead. Rain-water, moreover, is distilled water, and wherever rain falls therefore and forms streams and springs, it necessarily remains perfectly soft water, unless or until it becomes impregnated with the salts which, as we shall shortly show, are alleged by Christison to preserve or *protect* the water from the influence of lead, instead of *exposing* it to that influence, as evidenced by Playfair. That many spring-waters *are* exceedingly soft, and that many such waters do act on lead, we have already seen asserted. One such case adduced by Christison we may here quote, from an abstract of it already given in THE BUILDER:—

"Perhaps one of the most remarkable of those conclusions to which recent chemical authorities have come is this, that the purest of all water, even were it distilled, is the most likely to act on lead, and thus become contaminated with poisonous matter. In one sense, indeed, this conclusion is not new, or rather some of the facts on which it has been based are of old enough date. At Tunbridge, for instance, in 1814, a plumber, who undertook to supply the town with water, forthwith accordingly laid a line of leaden pipes for a quarter of a mile,—redeemed his contract sure enough,—but nearly poisoned a number of the people, many of whom were seized with lead colic, while one great water-drinker in particular, a lady, lost the use of her limbs for months, until, a natural alarm arising, iron pipes were substituted, and the evil ceased. Mr. Brande, the chemist, found lead in the water which had passed through the pipes, but none at the fountain head; and Dr. Thomson examined the latter, and found it *exceedingly pure*."

Our intention at present, however, is to confine ourselves to the evidence or conclusions of chemists based partly on such cases, and not to enter into any detail of the cases themselves.

As the question is a mixed one, and generally treated as such, in its relation to hard water as well as to soft, in one and the same evidence, as already seen, we shall follow up what Dr. Christison says as to soft water, with his views on the subject of hard water, and with the general results to which he has been led in reference to both.

At page 519 he thus treats "of the action of solutions of neutral salts on lead:"—

"The property which pure aërated water possesses of corroding lead is variously affected by foreign ingredients, which it may hold in solution.

Of these modifying substances none are more remarkable in their action than *the neutral salts, which all impair the corrosive power of water*. Important practical consequences flow from that action; for *it involves no less than the possibility of employing lead for most of the economical purposes to which the ingenuity of man has applied that useful metal*. * * * The preservative power depends on the acid, not on the base of the salt. * * * The general result of these experiments (just before given) appears to be, that neutral salts in various and for the most part minute proportions, retard or prevent the corrosive action of water on lead, allowing the carbonate to deposit itself slowly, and to adhere with such firmness to the lead as not to be afterwards removable by moderate agitation, adding subsequently to this crust other insoluble salts of lead, the acids of which are derived from the neutral salts in solution, and thus at length forming a permanent impermeable screen, through which the action of the water cannot any longer be carried on."

A little farther on he says:—

"Many instances might be quoted of spring

waters, which act with inconvenient or dangerous rapidity on lead. * * * Dr. Lambe was led by his researches to imagine that no spring water whatever was destitute of this property in a dangerous degree. This wide conclusion is not supported by valid facts. Yet his work contains several accurate and instructive examples of the action in question."

He thus (p. 534) sums up the whole inquiry :—

"The general results of the preceding inquiries are, that rain or snow water for culinary use should not be collected from leaden roofs, nor preserved or conveyed in lead;—that the same rule applies to spring waters of unusual purity, where, for example, the saline impregnation does not exceed a 15,000th of the water;—that spring water which contains a 10,000th or 12,000th of salts may safely be conveyed in lead pipes, if the salts in the water be chiefly carbonates and sulphates;—that lead pipes cannot be safely used, even where the water contains a 4,000th of saline matter, if this consist chiefly of muriates;—that spring water, even though it contain a large proportion of salts, should not be kept for a long period in contact with lead;—and that cisterns should not be covered with lids of this metal."

In support of Christison's conclusion that perfectly soft water acts strongly on lead, *unless* "deprived of its gases by ebullition and excluded from contact with the air," we may first of all adduce the few remarks on this subject made by Dr. Paris in his "Treatise on Medical Jurisprudence," published in 1823. In vol. ii. page 337, of this work, it is said,—

"Pure water, provided the air be excluded, does not appear to exert any sensible action upon lead, but the combined influence of these agents converts the lead into a carbonate—a fact at once exemplified by the white line which is so constantly visible at the surface of the water preserved in leaden vessels. So well acquainted were the ancients with this fact, that we find frequent allusions in their works to the dangerous property of leaden utensils."

Professor Solly is said to have "showed," at the Royal Institution in 1847 (*vide* The Builder for that year, page 235),—

"That unless water contains from one 8,000th to one 4,000th of its weight of earthy salts—such as sulphate of lime—it ought never to be taken internally if kept in leaden cisterns, these *earthy salts protecting the lead from the action of the water.*"

Dr. Fownes, in his book on chemistry, published in 1844, states that—

"When clean metallic lead is put into pure (soft) water, *and exposed to the atmosphere*, a white, crystalline, scaly powder begins to show itself in a few hours, and very rapidly increases in quantity. This substance is due to the action of the carbonic acid dissolved in the water: it consists of carbonate in combination with hydrate. When common river or spring water is substituted for the pure liquid, its effect is scarcely observable, the little sulphate almost invariably present [query, at Tunbridge] causing the deposition of a very thin but closely adherent film of sulphate of lead upon the surface of the metal, which protects it from further action. It is on this account that leaden cisterns are used with impunity, at least in most cases, for holding water. *If the latter were pure, it would be speedily contaminated with lead, and the cistern be soon destroyed.*"

As to the "impunity" here alleged, we fear that this cannot as yet be safely taken for granted in any view of the apparently conflicting evidence on this moot question; and to show that it ought not to be so, we may here, parenthetically, refer our readers to the opinion of Dr. T. Thomson, already given in The Builder.*

As to this same "impunity," of which Dr. Fownes assures us, Mr. H. Osborn, a practical chemist, and a correspondent of our own, already quoted, judiciously remarks,—†

"It is an erroneous opinion that lead has been used for centuries without causing any deleterious impregnation of water. I would ask if necessary investigations have been made in all parts of the country? and if the origin of every disease has been discovered? How many have fallen an early sacrifice, after a long and painful illness, without the cause having been known?"

We are by no means desirous of exciting alarm for which there may be little immediate or general occasion; but when a sense of fairness impels us to give evidence which we at same time deem somewhat rash, and assurances of safety which we think there is but too much reason to fear the circumstances do not warrant, we also feel it incumbent on us to check the probable consequences of such evidence and assurance, by counterbalancing them, so far, with a glimpse of the opposite side of the question. Let us now proceed, however, with the evidence more particularly corroborative of Professor Christison's conclusions.

Dr. Brande, in his standard work on chemistry (p. 833), says, on the whole question of the action of water, soft and hard, on lead,—

"In distilled water free from air and in close vessels a clean surface of lead remains bright; but under the same circumstances *in open vessels* it soon tarnishes: small crystalline scales of oxide of lead are formed, a portion of which dissolves in the water, and is again slowly precipitated in the form of carbonate. In this case the oxygen is imparted by the air held in solution in the water. The film of oxide thus formed is soluble to a small extent in the pure water, and is thrown down in proportion as it passes into the state of carbonate. A very minute trace of sulphuric acid, or of a soluble sulphate in the water, entirely prevents this corrosive effect, and hence it is that common spring water is kept with considerable impunity in leaden cisterns, which, however, should have wooden and not leaden covers. In the latter case the vapour of the water below condenses upon the cover, and often tends to its rapid corrosion, it being, in fact, distilled water, and not therefore prevented in its action by any saline matters; so that, *when water is to be kept in this way, as it generally is, for domestic use, its qualities should be cautiously inquired and examined into, as very deleterious effects have occasionally arisen from the solution of the oxide.* Another source of contamination by lead may arise from electric action, as where iron or copper bars, screws, or pipes, are in contact with or soldered into lead; and in these cases, owing to the action of alkaline bases, as well as of acids upon the lead, danger may occur when it is thrown into an electro-negative as well as electro-positive state. The means of detecting lead are fortunately simple and delicate. . . . A good epitome of all that relates to the action of water on lead will be found in 'Christison's Treatise on Poisons.'"

The evidence given before the General Board of Health, although some of it has been shown to corroborate Dr. Playfair's conclusions, appears to have led the reporter of that evidence on the whole to coincide so far with Dr. Christison's views.

"In the evidence of witnesses connected with the present hard-water supplies, we find strong allegations of the danger of the introduction of pure water, from its powerful action on lead. There can be *no doubt of the more powerful action of soft water upon lead under given circumstances*; which circumstances, however, we find from experience on a large scale seldom or never occur under a proper system of distribution. Some fatal accidents have been occasioned by the fall of leaves in leaden gutters and cisterns, the infusion of which appears to have caused powerful decomposition.* The use of lead piping and lead cisterns has long been objected to, and the remedy would be the disuse of that metal. Iron piping is altogether better and cheaper than lead, and may now, it appears, at no great additional expense, be protected from oxidation by an earthenware glaze."

With reference to this last recommendation, it may be here remarked, that the water of Edinburgh, according to Dr. Christison, always yielded a trace of lead, until iron pipes were substituted for leaden ones.

The following remark in the Board's report implies that soft water is dangerous in lead, even with a constant supply, and hence, with less exposure of the lead to air than when the supply is intermittent :—

"Though we have been informed of no serious accidents from contamination with lead in any of the towns where new supplies of soft water have been introduced, we believe that minor injuries [slower deaths?] from such partial contaminations as Professor Clarke describes, *may occur and pass unnoticed*; and that for this reason, the use of lead pipes should be discontinued as early as practicable. As a question of danger, however, a preponderance of testimony establishes the conclusion that hard water, with an intermittent supply, is actually *more* dangerous than soft water with a constant supply."

That intermittency of supply has something notably to do with the apparent discrepancies and contradictions in the evidence on this important question, we are strongly persuaded; but at all events the sooner those to whose evidence the public chiefly look for a settlement of the question come to a mutual understanding on the subject the better, and our sole purpose in entering thus at some length into the apparently conflicting evidence, so far as it has already been gone into and recorded, is to enforce the necessity, as far as possible, of such an understanding, and to hasten its advent.

THE BUILDERS' BALL.

The ball in aid of the funds of the Builders' Benevolent Institution took place on the 19th inst. at Willis's Rooms, St. James's, and passed off most agreeably and successfully. There were more than 600 persons present, and amongst its more prominent supporters we may mention, Mr. Alderman Cubitt, M.P., Mr. Lewis Cubitt, Messrs. George Locke, Thomas Nesham, J. Jay, Henry Johnson, H. Jackson, Stephen Bird, George Bird, the treasurer; Joseph Bird, the honorary secretary; Peter Pearse, J. Guerrier, J. Lambert, and other influential members of the building trade.

One of the officers of the charity, who, in his most praiseworthy zeal in its behalf, thinks we can never say enough about the Institution he worthily represents, and that we have nothing else to do but write paragraphs in its praise, calls upon us in earnest terms to give "a glowing description of the hall and its beauties." Whom would he have us single out for "description?" that joyous little damsel there in whose hair the "sunbeams have got entangled?"—the tall damsel in pink who looks too dignified to be merry, and is standing just now by the alderman?—or that more vivacious face, still, however, showing a trace of recent illness, which is closer to him in more ways than one? We cannot do it—it is not in our way. We cannot set forth how Adams's band pleased all the daughters of Eve, that the master of ceremonies played his peculiar part well, and that the comestibles were ample for those who indulge in the very vulgar habit of eating. Suffice it for us to say that the whole affair was managed very well, and that the committee will probably realise 150*l.* in aid of the praiseworthy purposes of the institution. Terpsichore never moves more gracefully than when she takes steps to aid the Charities.

NOTES IN THE PROVINCES.

Cambridge.—A portion of Trinity Hall, comprising twenty-five rooms, was destroyed by fire on Friday last.

Norwich.—The statue of Nelson by Mr. Milnes, the sculptor of the Duke of Wellington's statue at the Tower of London, has been sent to Norwich. The figure is 9 feet in height, and clothed in uniform, with a cloak like a toga. Its *locus in quo* has yet to be decided on, and even the price has not been either fixed or subscribed beyond barely 400*l.* already collected.

Yarmouth.—The girders and other parts forming the new bridge are now completed in London. The abutments are finished on each side the river. One of the coffer-dams is in course of construction for one of the piers. The depth of the river is 24 feet at low water, and the foundations must be laid 6 or 8 feet below the present bed, which is all loose sand.—*Norfolk Chronicle.*

Leamington.—The contract for the cast-iron pipes for Leamington water-works has been

* *Vide* volume for 1846, page 23.
† The Builder, vol. v. page 438.

* Where spring waters, therefore, pass through peaty soils, and become impregnated with peat, it becomes a serious question how far lead pipes and cisterns are consistent with safety in the use of such water, even though soft water were indisputably proved to be otherwise safer than hard. As to the fact of vegetable impregnations rendering water dangerous in use after contact with lead, the case of Amsterdam may be instanced. The noted colic of Amsterdam is said by Tronchin, who wrote a history of the epidemic, to have been occasioned by leaves falling and putrifying in leaden cisterns filled with rain-water. Indeed, the water of Amsterdam had been collected from roofs during rain, and the colic appeared soon after the substitution of lead for tiles on the roofs, when it broke out with violence, and committed great ravages.

ained by Mr. J. Haywood, of Derby. Mr. ywood made the whole of the pipes for the rby water-works.

Hitchin.—A design for the projected Corn change, by Mr. William Beck, has been opted. The proposed building is an oblong iare, of very light construction: the roof l three sides are to be wood and glass. The rks will be carried out by a company re-tly formed for the improvement of Hitchin rket. The site chosen is near the centre of north-west side of the present market-ce.

Winchester.—The east window of Win-ester Cathedral is about to be restored as rly as possible to the original design by ssrs. Baillie, at the joint expense of the an, the Warden, and Fellows of the Col-e, Oxford. St. Cross Hospital is about to dergo an extensive repair.

Buckland (Dover).—The old church of St. drew's, Buckland, near Dover, has been aired and enlarged. The high pews have n replaced by open benches. A painted dow has been promised as a gift.

Dorchester.—The restoration of the Abbey urch will shortly be resumed. Plans have n obtained from Mr. Butterfield for restor-the screen, and substituting new oak seats oughout the church, in place of the present rs. They are already in hand for execution.

Worcester.—In December last the average ly attendance of pupils at the Worcester ool of Design was 102. The committee e determined, it is said, to set apart 30*l.* to distributed in prizes amongst the students he annual meeting, which will be held in tober.

Aberdare.—A new church is in course of ction here. The style of the building is the ple Decorated. The spire will rise to the ght of 170 feet from the base of the tower. ere are 500 free sittings.

Liverpool.—The free public library, at the ion News-room, in Duke-street, is now rly ready for the reception of the public. e shelves are fitted up to hold about 10,000 umes, with about which number of books library will commence. The lower room capacity for seating about fifty read.rs nfortably. Two pictures presented to the itution have been hung up. One is a large nting, said to be by Tintoretti, of the onciliation of Esau and Jacob. The other been put in a frame which cost 20*l.*: it resents the Crucifixion. The painter is un-own, but the style appears to be that of bens.

Preston.—St. James's Chapel has been so lermined, it appears, by coal workings, that . H. P. Horner, of Liverpool, architect, has ised its abandonment as an irremediable n.

Glasgow.—The recent improvements in the sgow Waterworks being now completed, present supply is said to be no less than millions of gallons daily; and in a short e can be increased to an almost unlimited ent.

Broughty Ferry (Dundee).—Since the forma-of the railway between Dundee and its endage, Broughty Ferry, a number of 's since, the latter is said to have immensely eased. From a mere fishing village, it is an extensive suburban district, containing private residences of most of the Dundee ufacturers, merchants, and others of the ner classes connected with the town. The ing railway-bridge across the Firth of Tay adds to its importance.

Glamorganshire.—A church is proposed to erected at Maesteg, in the parish of ngynwyd, where, within the last twenty s, a very large population has been drawn ther by the establishment of collieries and works, and from the flourishing state of published subscription list, there is a fair pect of its being soon carried into effect.

SALE IN THE EXHIBITION BUILDING.—sale of materials and fittings in the Exhi-n Building, Hyde Park, by Mr. Lerew, commence on the 2nd March, and be con-ed during the whole week. The catalogue ains 1,950 lots.

Miscellanea.

ARCHITECTURAL INSTITUTE OF SCOTLAND.—The second meeting for the season of the Glasgow branch of this institute was held on Thursday, the 19th. Papers were read by Mr. T. Rochead, architect, and Mr. D. Smith; the former on the keep-towers of feudal times, and the latter on opening up the more densely-built parts of Glasgow. Mr. Rochead, in his paper, which he illustrated by drawings, gave a brief narrative of his visit to a few of the more remarkable baronial strongholds still in existence, though in ruins. He visited, among others, the Castle of Borthwick, in East Lothian, and Blarney Castle, in Cork, Ireland, both of which he described.

THE IRON TRADE.—Prices have been sustained with difficulty, owing to the reduction, varying from 2*s.* 6*d.* to 10*s.* per ton, that has very generally been submitted to in common sorts, while even upon those terms the demand has been limited. In Scotch pig iron a reduction of make to a serious extent is said to have been begun. In Wales a large first-rate establishment, with machinery admirably arranged upon the newest and most approved principles, has lately been parted with, for the sole consideration of undertaking its liabilities. —*Birmingham Gazette.*

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At a meeting on the 25th inst. Mr. S. R. Solly, V.P. who was in the chair, exhibited a magnificent Roman glass urn or jar, discovered in the churchyard of St. Stephen's, near St. Alban's; also a small terra-cotta Roman lamp, and some other articles found on the same spot 70 feet deep in the ground. Mr. Davies exhibited a number of coins, struck at Oxford during the civil wars; a silver-gilt medallion portrait of Charles I.; and a small and beautifully enamelled miniature of the same monarch, having on the back C. R. surmounted by a crown, and inclosed within laurel branches. Mr. Latham exhibited a silver penny of the reign of Elizabeth. Mr. Gunston exhibited several pilgrim's signs. Mr. Syer Cuming exhibited a curious cauldron rack, or trammel of iron, elaborately ornamented, and of the date of the seventeenth century. It had been brought from a castle in the county of Kerry, formerly belonging to the Desmond family. Mr. Cuming accompanied this exhibition with a brief notice of the various inventions for facilitating their culinary operations, attributed to the South Sea Islanders, the Kamschatdales, the Celtic colonists of Ancient Britain, the Romans, Saxons, and Normans; and some singular superstitions attaching to them, illustrating his remarks by a series of drawings from original specimens and illuminated MSS. Mr. Yewd communicated to the association some observations on the site of the conduit built by Wm. Lamb, and giving its name to Lamb's Conduit-street. The treasurer announced that the annual general meeting for the election of officers and council would take place on Wednesday, March 10, at four o'clock p.m. The next public meeting will be on Wednesday, March 24.

ITALIAN MARBLES.—We observe in our advertising columns an announcement of an extensive sale of Italian marble by auction, on 3rd prox. at Thames Bank, Pimlico, by Mr. Thompson, which appears to merit the attention of the building-trades generally, and to offer inducements towards decoration that may claim attention.

THE FITZCLARENCE TESTIMONIAL.—The committee of subscribers to the proposed testimonial at Portsmouth, taking our hint to avoid the perpetration of farther offences against good taste, such as those exhibited in the statues on Southsea Common, advertised for designs, and have selected one by Mr. Truefitt, which consists of a pillar in the Gothic style, with ornamental head, and four correspondent lamps midway above a square base, with five steps rising in a pyramidal form. The height of the shaft to the gilt vane is 33 feet; the diameter 3 feet; the base 12 feet square. The shaft and cap are octagonal. A suitable railing will probably be erected round the outer step of the base, with corner posts for lamps.

THE SECURITY OF EXISTING RESERVOIRS.—A subscriber suggests that, as it is a known fact that the greatest pressure of a fluid is at one-third from the bottom in any large reservoir or cistern, &c. iron tie-rods should be inserted or crossed through the reservoir at one-third from the bottom, and carried through the walls, and bolted. It unfortunately happens, however, that no brick or stone-work, such as our correspondent seems to take for granted, exists in many reservoirs at all, large numbers of them being mainly made up of earth-work or mud and clay. —Besides the Holmfirth catastrophe, two other reservoirs burst during the late floods, both of them near Edenfield. The valley at that part has a rapid descent, and the rush of water was tremendous. The flood first swept away a flagstone rubbing mill, at New Gate, taking with it many gravestones with inscriptions engraven thereon: it then crossed the Rochdale and Edenfield road, doing some damage; and next burst over the Bury and Haslingden road, where it did considerable mischief.

CREDITON: MUSICAL HALL COMPETITION.—A design by Mr. R. D. Gould, architect, has been selected for the intended new Music Hall and Literary and Scientific Institution, at Crediton. A correspondent asks whether it can possibly be true, as stated in a local paper, that there were seventy competitors, "comprising architects of celebrity from London and elsewhere," for this 10*l.* prize.

SCHOOLS OF DESIGN.—A new department of the Board of Trade, called "The Department of Practical Art," has been created. Mr. Henry Cole is to be superintendent of the general management, and Mr. Richard Redgrave art-superintendent. Mr. Cole's duty will be to communicate with manufacturers, local committees, managers of institutes, &c. to visit and inspect the schools, &c. assisted by Government, and report as to these and the establishment of new schools, regulate the admission of students into the head school, and other duties, all to be exercised, of course, under the sanction of the Board. Mr. Deverell remains as secretary.

GOTHIC FURNITURE.—The *Art-Journal* for the current month contains a valuable assemblage of drawings of mediæval furniture by Professor Heideloff, of Nuremberg. Amongst them is a canopied chair, with reading-desk made in 1456, a clock-case from a design of the fifteenth century, a quaint corner cupboard, and some tables.

NEW PLANING MACHINE.—An invention of Mr. W. H. Burnett for planing deals, mouldings, &c. was tried to-day before Rear-Admiral Superintendent Prescott, C.B. and the engineering officers of this dockyard, in the joiners' shop. It planes 80 feet per minute by steam power. The trial was pronounced successful.—*Portsmouth Times.*

A NEW CAB.—A "Brougham Cab" has been registered, to carry four inside, and run at same draught as the Hansom cab. The body of the vehicle is oval, and the seat semi-circular and stretching both behind and before the axle. There is a frame below on which to carry luggage, which is secured by a leathern strap. The driver's seat occupies the same place behind as in the Hansom cab.

AN EXTRAORDINARY PLANK has just come from Van Diemen's Land: it is harder than East-India teak, measures 140 feet in length, 20 inches in breadth, and 6 inches thick—without a knot on the surface. This specimen of colonial produce was intended for the Exhibition, but a variety of causes prevented its being forwarded in time.

SUBURBAN ARTIZAN SCHOOLS.—It will be seen that the committee are taking measures to establish schools at Islington, Paddington, Knightsbridge, and Lambeth. We fully appreciate the desire of the Society of Arts to aid in this movement, but they really ought to leave to those who originated it their London domain. The country is wide enough for them, and offers ample employment. The present school is very successful (having now 136 students), and the original committee have a moral claim to a precedence of London from their priority, success, and title.

TENDERS

For the erection of a New Temperance Hall at Derby, according to the design of Mr. Stevens, architect. The quantities were furnished by Mr. Wale.

Edwin Thompson, Derby	£2,344	0	0
Lilleys, Measham	2,253	0	0
Winferton and Dusantoy, Derby	2,250	0	0
George Thompson, Derby	2,150	0	0
Charles Moody, Derby	2,124	0	0
Freeman, Belper	1,953	0	0
Humphries and Bradbury, Derby	1,679	0	0

The last sent a letter after the tenders were opened, stating they had made an error of 90*l.* and unless that amount was allowed in addition to their tender they must withdraw it.

For taking down premises in Winetavern-street, and erecting in their stead stables for twenty-nine horses, with hay-lofts over, cart-sheds and stores (92 feet long by 42 feet wide, two stories), cart-sheds, yards, and urinals, together with a dwelling-house in front, comprising basement, parlour, and bed-room stories for the overseer. These buildings are for the Corporation of Dublin, and the plans, &c. were made out by the borough engineer, Mr. Neville.

	For main buildings.			Extra for additional story on overseer's house.		
Butler and Baker	£2,400	0	0	£130	0	0
J. and L. Barker	2,350	0	0	120	0	0
Whitla	2,150	0	0	125	0	0
B. Mayers	2,150	0	0	125	0	0
Hogan	2,130	0	0	120	0	0
Crowe	1,960	0	0	77	0	0
J. Nolan	1,895	0	0	80	0	0
S. Roberts (accepted)	1,850	0	0	125	0	0
Tough	1,570	0	0	90	0	0
Meade	1,634	0	0			

TO CORRESPONDENTS.

"T. O. J." (we cannot conveniently go into particulars. Such charges are usually by special arrangement). "G. C." (we do not care to meddle with fire-arms, though we keep a "Colt" within reach for fear of those whom we are obliged occasionally to affront). "W. G." "W. W." "P. M." "An Architect," "R. T. J." "H. C." "Q. in the corner" (declined with thanks). "W. R." (ditto). "B. B." (ditto). "G. G." "W. C." "R. W. A." (send particulars Drawing will have to be improved). "P. de T." (*quantum suff.* Thanks). "W. D." "H. M." "J. W." "T. S. G." "J. N. W." "T. T." "C. O." "G. S" (covers have been ready since 3rd of January). "Old Subscriber," "A Grateful Lady" (has made us her debtor). "W. G." "J. C." "F. D. W." "R. J. G." (license is not necessary). "T. W." (misunderstands our remark). "R. R." "Dr. H." "L. R." Notices of various books stand over.

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and *not* to the Publisher.

ADVERTISEMENTS.

ROYAL ACADEMY of ARTS, Trafalgar-square.—NOTICE TO ARTISTS.—All works of Painting, Sculpture, or Architecture intended for the ensuing EXHIBITION at the ROYAL ACADEMY must be sent in on MONDAY, the 8th, or TUESDAY, the 9th of April next, after which time no work can possibly be received, nor can any work be received which have already been publicly exhibited. The other regulations necessary to be observed may be obtained at the Royal Academy.

JOHN PRESCOTT KNIGHT, R.A. Secretary.

Every possible care will be taken of works sent for exhibition; but the Royal Academy will not hold itself accountable in any case of injury or loss; nor can it undertake to pay the carriage of any package which may be forwarded by carriers. The prices of works to be disposed of may be communicated to the Secretary.

ARCHITECTS desirous of sending in competition Designs (on or before the 8th April next) for the Erection of a CHURCH, PARSONAGE, and SCHOOLS, and TEACHERS' RESIDENCE, in the Parish of Portsea, Hants, may receive a Lithographed Copy of the Site, and a Statement of Particulars as under on application to H. HINSTEED, } Hon. Secretaries.
H. FORD,
16, High street, Portsmouth, Feb. 9th, 1852.

MEMORIAL WINDOW.—TO GLASS STAINERS.—It having been determined to fill the Great West Window of the Parish Church of Doncaster with Stained Glass, in memory of the late Sir William Bryan Cooke, baronet, of Wheatley, the Committee are ready to receive DESIGNS and TENDERS for the same.—Further particulars may be known on application to JOHN LISTER, Esq. Hon. Secretary to the committee, Doncaster, February, 1852.

TO RAILWAY CONTRACTORS.

DUBLIN and DROGHEDA RAILWAY. CONTRACT FOR WORKS.—Kell's Extension, 9¼ miles. Tracings of the drawings, copy of specification, and detailed bills of quantities, for the above works (the tenders for which are to be delivered on or before the 8th March) may be had on application to Mr. KELLY, Architect and C.E. 45, Upper Gloucester-street, Dublin.

TO GAS COMPANIES, GAS ENGINEERS, &c.

A QUANTITY of STOURBRIDGE CLAY GAS RETORTS, manufactured by Hickman and Co. and in good condition, are to BE SOLD very cheap; they comprise—
- 52 pieces (each 4 feet 6 inches long), making 13 perfect retorts 18 feet long; oval, inside dimensions 22 by 13;
- 28 pieces (each 4 feet 6 inches long), making 7 perfect retorts 18 feet long; round, inside diameter, 15 inches;

and several half and broken pieces.

They may be seen, at Bankside-wharf, near the steam-boat pier, Woolwich, by application to Mr. PRICE, Wharfinger.
February, 1852.

FRUIT TREES, SEED BEDS, &c.—NEW TWINE NETTING, to protect the bloom of peach, nectarine, apricot, and other trees; flower and seed beds from frost, thaw, and birds; or as a fence against fowls, cats, &c. at ONE HUNDRED PER CENT. CHEAPER THAN AT ANY OTHER MANUFACTORY! New twine netting, one yard wide, 1½*d.* per yard; two yards wide, 3*d.* per yard; Worsted netting, two yards wide, 4*d.* per yard; half-inch mesh ditto, two yards wide, 5*d.* per yard. Sheep-folding net, of superior quality, four feet high, 4*d.* per yard. The repaired damaged fishing netting, two or three yards wide, 1½*d.* per yard; four or six yards wide, 3*d.* per yard, exactly the same as advertised by others at double the above prices. Nets made to order. Casting nets, as a fence against fowls, cats, &c. at 2*s.* per square yard. Tennis nets for pounds, lakes, and rivers, with purse complete, twelve yards long, 1*l.*, twenty yards long, 2*l.*

The truce supplied at W. CULLINGFORD'S, 1, Strathmore-terrace, Shadwell. Orders by post punctually attended to.

THE ARCHITECTURAL EXHIBITION (with the collection of Materials, Patents, Processes, &c., connected with Architecture, IS NOW OPEN from Ten till dusk, at the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission One Shilling, including Catalogue. Season Tickets, including a Catalogue, admitting the holder from the 10th of January to the 13th of March, Two Shillings. Free Tickets may be had for Workmen, on application at the Galleries.

JAS EBMESTON, Jun. } Hon. Secs.
JAS FERGUSSON, F.R.A.S. }

NATIONAL DEFENCES.—ROYAL POLYTECHNIC INSTITUTION.—An Explanatory Description, by Mr. Cuzon, of the Cannon and Rifle Lancaster and Minie Rifles, the various Revolvers, and other Fire-arms, with the improved Conical Bullet, daily, at a Quarter to Three o'clock, and at Half past Eight in the Evening.—"Musical Cento," being a Lecture on the Sones of Dibdin, and other eminent composers, by T. Thorne Peed, esq. Professor of Singing at the Royal Academy of Music, on Monday, Tuesday, and Thursday Evenings, at a Quarter to Eight.—Lecture on Astronomy, by Dr. Bachhoffner, on Wednesday and Friday Evenings, at a Quarter to Eight.—Electric Lecture on Chemistry, by J. H. Pepper, esq. Dissolving Views, &c. Admission, 1*s.*; Schools and Children under ten years of age, half price. A New Edition of the Catalogue.

SUBURBAN ARTISAN SCHOOLS OF DRAWING AND MODELLING.
Founded May 1, 1852.
Patron H. R. H. PRINCE ALBERT.

COMMITTEE.

E. H. Baily, esq. R.A. F.R.S.	C. Lacy, esq.
Ford Madox Brown, esq.	J. H. Mann, esq.
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J. Jackson, esq.	T. Thornycroft, esq.
J. Leigh-n, jun. esq.	M. D. Wyatt, esq.

Treasurer—The Hon. W. Ashley.
Bankers—Commercial Bank of London, Covent-garden.

As the first of the above institutions, the North London School, at Camden town, has met with unequivocal success, the Committee in pursuance of their original plans have decided upon the foundation of similar establishments in the undermentioned districts, viz.

A North-Eastern School, at Islington.
A North-Western School, at Paddington.
A West London School, at Knightsbridge.
A South London School at Lambeth.

The classes in these schools will be open for artistic and geometric drawing every evening at a charge of 3*s.* per month.

Any communication in furtherance of the above may be addressed to the honorary secretary,

J. NEVILLE WARREN, Hon. Sec.
30, King William-street, City.
February 1852.

EVENING ARCHITECTURAL, ORNAMENTAL, and PERSPECTIVE DRAWING-CLASSES, conducted by THOMAS J. HILL, Offices, 12, Helmet-row, Old-street. Hours, Seven till Ten, Saturdays excepted. The whole of the valuable and rare collection of models and drawings of the late C. Davy are at the use of the Students. Terms moderate.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality.

SECONDS, PAVIORS', STOCKS, and other Bricks.
CHARLES RICHARDSON, 6 South Wharf, Paddington.

GREY-STONE LIME.—HALL, Brothers, Merstham Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery.

Grey-Stone Lime	6*s.* 0*d.* per Yard, or 22 Bushels.		
Ditto, for Manure	4*s.* 0*d.*	ditto	ditto
Ditto, Ashes	1*s.* 6*d.*	ditto	ditto
Black ditto	3*s.* 0*d.*	ditto	ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the Brighton, Dover, and South-Eastern Railways, or lines connected with them. A fresh supply hot from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.

Prices for Cash on delivery:—7*s.* per yard at the stations or works; 8*s.* per yard delivered within five miles; in not less than 3 yard quantities. Bond 1*s.* per yard; 2*s.* per yard off, if paid monthly. Collecting charged for. The Quality is warranted to be the Best.—Address, Merstham, near Reigate, Croydon; or Youle's place, Old Kent-road.

JORDAN'S PATENT MACHINE, CARVING and CHURCH-JOINERY WORKS, Belvedere-road, Lambeth.—The Proprietors of the above Works beg to return their best thanks to the Nobility, Architects, Builders, and the Public generally for the very liberal support they have received, and to assure them it will be their constant endeavour to deserve

In addition to the general machinery and carving business, they undertake Contracts to execute and fix every description of Joinery-work required in the fitting-up of Churches and Chapels, viz.:—carv d and moulded bench seatings, screens, pulpits, reading-desks, lecterns, sedilias, altar-rails, doors, tracery-fronts, reredos, altar-tables, chairs, faldstools, cravan-cases, moulded and carved cornices; together with tracery and moulded framings required in building and the construction of elaborate staircases, chimney pieces, doors, &c.

The Proprietors respectfully call the attention of Architects and all persons engaged in fitting up their new appliance of machinery for the inlaying of wainscot floors, doors, dados, hall and dining-room panelling, cornices, &c. specimens of which are being prepared for the Paxton House and can be seen at the works, as also every description of carved work and mouldings required in the building trade.—For prices and estimates apply to the manager upon the premises

N.B. A richly-carved oak screen, which obtained the prize medal at the Great Exhibition, for sale.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of worms and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

Impressed with these, and the like considerations, many persons who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c. without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUYS HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and no unitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

MR. BARRETT (late Fox and Barrett),
12 York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

BUILDERS' BENEVOLENT INSTITUTION.—An ELECTION of THREE PENSIONERS, Two Males and One Female, will take place on Thursday, 27th May next, at the London Tavern, Bishopsgate-street. Candidates may obtain Forms of Application to be returned on or before the 12th March, by applying to the Secretary, at the Office, 376, New Oxford-street. Pensions, 24*l.* per annum for Males, and 12*l.* for Females.

A. G. HARRIS, Secretary.

PROVIDENT INSTITUTION of BUILDERS' FOREMEN.—Notice is hereby given, that the late Special General Meeting of the Members of this Institution held at the Bay Tree Tavern, St. Swithin's-lane, on Wednesday Evening, February 18th, is ADJOURNED until WEDNESDAY EVENING NEXT, March 3, when the attendance of members is respectfully requested, to transact business of considerable importance.

W. ALLARD, Secretary.

PROVIDENT INSTITUTION of BUILDERS' FOREMEN. Established for the relief of its Decayed Members, Widows, and Orphans.

G. BAKER, Esq. Governor.

PATRONS.
The Right Hon. Earl of Carlisle.
The Right Hon. Earl of Paine.
The Right Hon. Earl of Ellesmere.

S. Angell, esq.	H. E. Kendall, esq. F.S.A.
G. Baker, esq.	J. Kelk, esq.
Thos. Cubitt, esq.	J. Locke, esq. M.P. C.E. F.R.S.
William Cubitt, esq. Ald. M.P.	H. Lee, esq.
J. Chadwick, esq.	H. Lee, jun. esq.
C. R. Cockerell, esq. R.A. F.R.S.	J. Lee, esq.
J. W. Donthorn, esq.	W. Lee, esq.
T. L. Donaldson, esq.	J. Mowlem, esq.
G. Godwin, esq. F.R.S.	W. Nixon, esq.
S. Grimsdell, esq. F.S.A.	T. Piper, esq.
T. Grissell, esq. F.S.A.	W. Piper, esq.
H. T. Hope, esq. M.P.	S. M. Peto, esq. M.P.
W. Harrison, esq. (F.S.A.	G. Rennie, esq. C.E. F.R.S.
P. Hardwick, esq. R.A. F.R.S.	Baron DeRoth child, M.P.
Thos. Hatfeild, esq.	W. Tite, esq. F.R.S. F.S.A.

The FIFTH ANNIVERSARY DINNER will take place at the London Tavern, on Wednesday, March 24, 1852.

T. PIPER, Esq. in the Chair.

HONORARY STEWARDS.

A. N. Armam, esq.	J. Hasler, esq.	T. Nye, esq.
J. M. Blashfield, esq.	T. Jackson, esq.	T. Peake, esq.
R. P. Browne, esq.	J. Jay, esq.	M. Pass, esq.
G. Briand, esq.	W. Jenkes, esq.	W. Richardson, esq.
Y. Bellman, esq.	R. W. Kennard, esq.	T. Stirling, esq.
R. L. Curtis, esq.	G. Lock, esq.	R. Stevens, esq.
E. Carter, esq.	C. Lee, esq.	J. Taylor, esq.
H. Christie, esq.	C. Lucas, esq.	S. Trickett, esq.
H. M. Cooper, esq.	J. Litt e, esq.	J. Tillett, esq.
J. Clarke, esq.	G. M'Murman, esq.	H. Teggon, esq.
J. Dale, esq.	W. Mosley, esq.	W. Tuckwell, esq.
W. W. Dennis, esq.	A. Mason, esq.	J. Walker, esq. C.E.
G. H. Ellis, esq.	T. Mogridge, esq.	S. Watkins, esq.
J. Glenn, esq.	G. Myers, esq.	W. Webb, esq.
P. C. Hardwick, esq.	T. Nesham, esq.	E. Wallis, esq.
H. C. Holland, esq.	W. Norris, esq.	T. Wallis, esq.

Tickets to be had at the London Tavern; also at the Bay Tree Tavern, City. W. ALLARD, Secretary.
Bay Tree Tavern, St. Swithin's lane, Feb. 19, 1852.

TO DRAUGHTSMEN AND CIVIL ENGINEERS.

H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.

These Pencils are prepared in various degrees of hardness and shades.

H H H for drawing on wood.	F F for engraving.
H H H for architectural use.	F for engineering use.
H H for engineering.	B black for shading.
H for sketching.	B B ditto. ditto.
H B hard and black for drawing.	B B B ditto ditto.
	B B B B ditto ditto.
M medium.	

Sold by all the principal Stationers in town or country.

TO ARCHITECTS.

COMPETITION and other DRAWINGS.—Mr. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Antwerp, Rouen, and Switzerland" (London as it is), offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully competent to paint essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 18, Albany-street, Regent's-park.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting, as applied to Architecture, works may be seen in the principal public buildings of the metropolis, begs to inform his patrons, and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishment of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 58, Pall-mall, London.

ARCHITECTURAL DESIGNS COLOURED for COMPETITION and EXHIBITION by GEORGE CHILDS, 19, Amwell street, Pentonville. Designs Lithographed.

TO INVENTORS, PATENTEES, PATENT AGENTS, and OTHERS.—Drawings made, copied, or traced, with neatness and accuracy, on moderate terms, by a Draughtsman of extensive experience, who has long evenings disengaged.—Address R. W. 54, Commercial-road, Lambeth.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied neatly, expeditiously, or privately.

PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved.

BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous. TRACING PAPER and CLOTH; ditto in lengths. GENERAL STATIONERY for Use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.

WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament-street, London.

Contracts for the supply of large establishments.

BILLS of QUANTITIES.—DAY & SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.

Perspectives got up from Geometrical Drawings, either in Outline or Water Colours.

17, GATE-STREET, LINCOLN'S-INN-FIELDS.

MARTIN and HOOD, Architectural, Mechanical, Engineering, Map, and Plan Draughtsmen, Plain and Ornamental Writers, Engravers, and General Lithographers, respectfully intimate to their patrons and the public, that they are prepared to undertake WORKS OF ANY MAGNITUDE, in the above branches, on the most reasonable terms.

WORKING and TINTED DRAWINGS of every description of MACHINERY.

8, GREAT NEWPORT-STREET, LEICESTER-SQUARE.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY.
Incorporated by Special Act of Parliament.

TO SECURE THE ADVANTAGE OF THIS YEAR'S ENTRY, PROPOSALS MUST BE LODGED AT THE HEAD OFFICE, OR AT ANY OF THE SOCIETY'S AGENCIES, ON OR BEFORE THE FIRST MARCH.

61, Moorgate-street, London, 9th February, 1852. ROB. CHRISTIE, Manager. W. COOK, Agent.

CLARK AND CO. 31, CHANCERY-LANE,

AND TUNNEL IRON WORKS, WAPPING, LONDON, ENGINEERS AND MANUFACTURERS OF

PATENT CONVEX REVOLVING IRON SHUTTERS, AND PATENT REVOLVING WOOD SHUTTERS.

The CONVEX IRON SHUTTER is twelve times stronger, rolls in less space, works easier, less liable to get out of repair, has a better appearance, and is cheaper than any other description of iron shutter. CLARK'S PATENT REVOLVING WOOD SHUTTERS have metal hinges, substantial metal gearing, and are less expensive than any other shutter extant.

"MESSRS. CLARK,

"Gentlemen,—In answer to your request, I have great pleasure in adding my most unqualified testimony to the efficacy of the Iron Revolving Shutters erected by you at my shop four years ago, which, under the circumstances, afford a strong proof of their superiority over others: the glass being the largest in London, the shutter is without support, other than its extreme edges (there being no centre sash-bar), yet from their extreme rigidity the necessary protection is obtained, and which, from my experience, I can confidently assert would not have been ensured by any other shutter extant. "Yours respectfully, "GEO. DONNE.

"155, Leadenhall-street, Jan. 1, 1852."



"23 and 24, St. George's-place, Hyde Park-corner, Sept. 26, 1851.

"SIRS, Having occasion for some large shutters for several shop fronts at Knightsbridge, we took considerable pains to ascertain which principle was the best, and are glad to say we decided on yours; and now having had them in use for some years, we can most confidently, and with great pleasure, recommend them, particularly for their great strength and rolling up in small space, and intend applying them to other houses in course of erection.

"We must also add our satisfaction at your punctuality in executing our orders. "We are, Sirs, your most obedient servants,

"MESSRS. CLARK and Co. Wapping." "MOORES and DEAR.

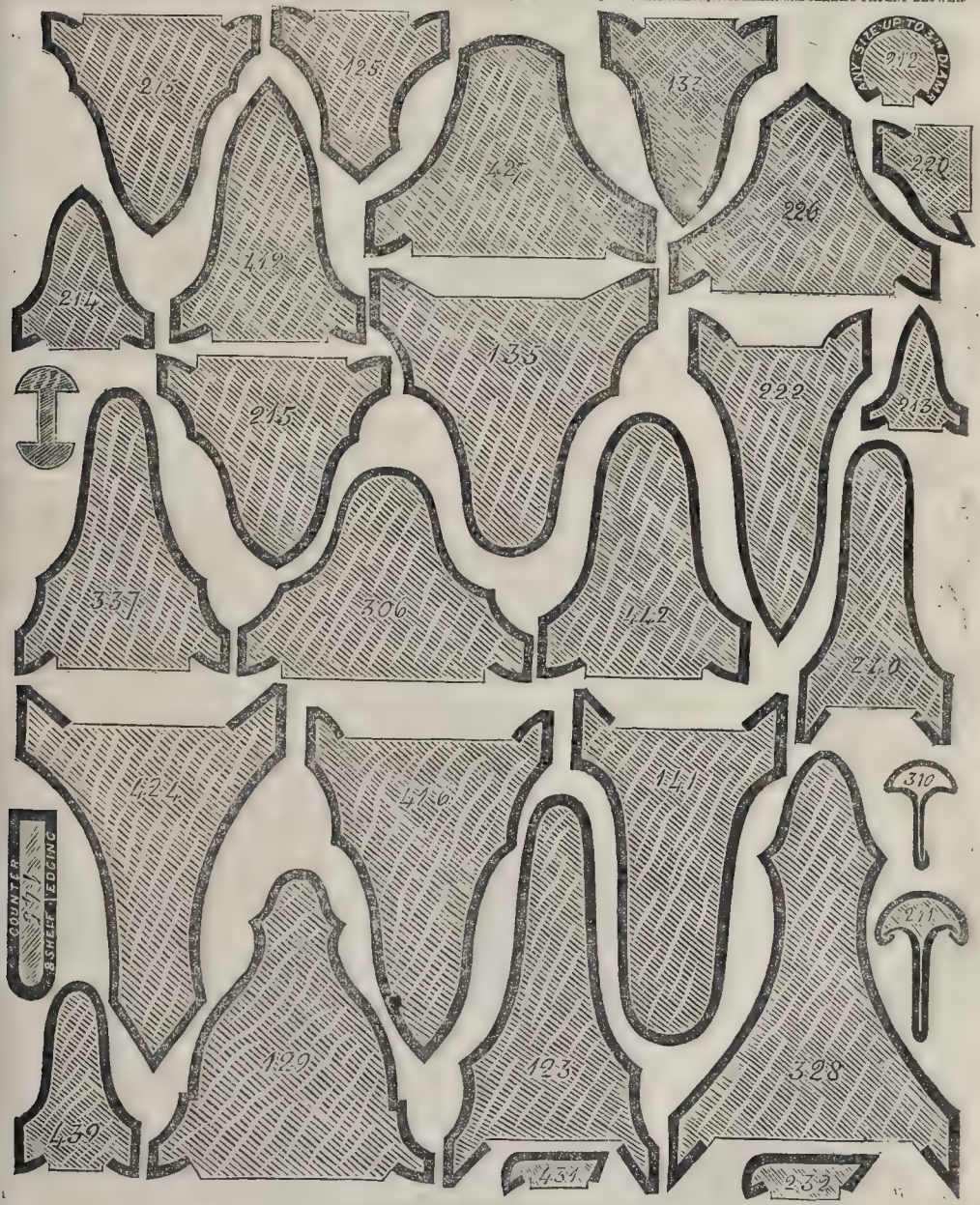
(Numerous other testimonials will be forwarded on application.)

Revolving Shutters can be applied above, below, or at either side of window.

IMPROVED DRAWN BRASS AND ZINC SASH BARS, STALL-BOARD PLATES, AND MOULDINGS,

FOR SHOP FRONTS, SASHES, SKYLIGHTS, CONSERVATORIES, &c.

Engraving in the first style of workmanship. Sun Blinds, Metal Entablatures, and Pilasters for Shop Fronts. Spiral Iron Staircases, Hot-water Apparatus, Fire-proof Safes and Doors, Wharf and Warehouse Cranes, Hoisting Machines, Sawing and Moulding Machinery of every description, Steam Engines, &c. Buildings Ventilated in an improved manner with CLARK'S PATENT BLOWER.



The Black Line shows the thickness of the Brass, Copper, or Zinc.

FULL-SIZED SECTIONS OF DRAWN BRASS AND ZINC SASH BARS FOR SHOP FRONTS,

elected from CLARK and CO.'S numerous Patterns, drawn on wainscot cores 20 feet long in one piece. Half Bars and Angle Bars in proportion can be had in cast Iron, same patterns.

SASH-BARS MADE TO ARCHITECTS' OWN DESIGNS WITHOUT EXTRA CHARGE.

ARCHITECTURE, CIVIL ENGINEERING, SURVEYING, &c.—Offices, No. 30, Southampton-buildings, Staple-inn, Holborn. Established above forty years Mr. GRAYSON begs to inform those gentlemen who are interested in the above sciences, that he continues to GIVE INSTRUCTION to morning and evening classes, where, besides architecture, &c., ornamental, perspective, and landscape drawing, with access to an extensive and valuable collection of models and works on the fine arts Mr GRAYSON in attendance from 9 a.m. to 2 p.m., and from 6 to 9 p.m.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.
CAPITAL 200,000l.

This Company assures diseased as well as healthy lives for sums of from 5l. to 5,000l.
The annual income is nearly 4,000l.
Lives declined by other offices accepted at equitable rates.
Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.
M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING CLASSES.
BRANCH OFFICE—2, EXETER 'CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo bridge), STRAND.
Open every Evening from Six till Eight o'clock.
Subscription for securing payment of 5l and up to 50l payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—
Weekly contributions for payment of 5l. at death.
Healthy persons whose age on becoming subscribers shall be—
From 10 to 35 years, to pay (one Penny per Week. " 35 to 45 " " Twopence " " " 45 to 55 " " Threepence " "
Collectors call at the houses of Subscribers for those weekly subscriptions.
The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.
Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.
N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to Mr. JOHN MOLINEUX, 2, Exeter 'Change, Wellington-street North, Strand

MERCHANT'S AND TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.
JOHN MACGREGOR, Esq. M.P. Chairman.
The Advantages offered by this Society are
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies through non-payment of premiums may be prevented.
LOANS granted on Personal and other Securities in connection with Life Assurance
Prospectuses and every information may be obtained at the Office.
GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 300,000l.
TRUSTEES.
Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robt. Swann, esq. York.
BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY.—Mr. W. L. Newman.
The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100l.

Age next birthday.	A MALE	A FEMALE	Age next birthday.	A MALE.	A FEMALE
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	45	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 14 3
18	1 11 3	1 8 10	55	4 11 6	4 3 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
29	1 17 0	1 13 8	60	6 6 0	5 16 6
30	2 0 3	1 16 3	65	7 4 0	6 7 8
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
39	2 12 0	2 6 4	80	11 16 2	11 5 6
40	2 12 9	2 13 0	76		13 1 9
43	3 3 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 28l. 10s.; and a lady of the same age can secure the same sum, for an annual payment of 19l. 17s 6d
Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.
LIFE INSURANCES
are also effected by this Company, on the most moderate terms.
Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to
Mr. RICH. WARD, Solicitor, 12, John street, Bedford-row, Agent for London.

SPECIAL NOTICE To secure the advantage of the YEARLY ENTRY, Proposals must be lodged at the Head Office, or at any of the Society's Agencies, ON OR BEFORE 1st MARCH.

THE SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY (Incorporated by Special Act of Parliament), is an institution peculiarly adapted to afford provisions for families. It is a purely Mutual Assurance Society. The profits are allotted every quinquennial period to the policies of more than FIVE YEARS' duration No partis, as in the case of a proprietary company, diverted from those who are assured and paid away to shareholders. The additions which have already been made to policies afford the clearest evidence of the prosperity of the Institution, and the great advantages derived by its members.
Since the Society was instituted in 1831, the additions to policies have been at the rate of two pounds per cent. per annum, not only on the sum assured, but also on all the additions accumulated from time to time, so that the bonus of two pounds per cent. declared in March, 1851, amounts to about two pounds fourteen shillings per cent. per annum on the sums originally assured by the earlier policies.
The total additions to policies made at the preceding 1st March, 1850, amounte to Four Hundred and Fifty Thousand Six Hundred and Sixty-five Pounds.

EFFECT OF ADDITIONS.
On a policy for 1,000l., dated 1st March, 1833, 1,486l 7s. 8d. will be payable if it becomes a claim during the current year, after payment of this year's premium. This is an addition of nearly 49 per cent. on the sum assured. Supposing such a policy to have been effected at the age of 30, the additions, if now applied in reduction of the future premium, would reduce the premium from 33l 10s 10d. to 8l 18s 8d., being 17s. 6d., or seven-eighths of a pound, per cent. only on the sum assured; and even this small payment must be reduced every three years during the existence of the policy, and may not only ultimately be extinguished, but leave further additions to be afterwards made to the policy.
The ADDITIONS or BONUSES may, in the option of the Assured, be applied three
1. They may be added to the sum payable at death;
2. They may be commuted into a present payment; or,
3. They may be applied in reduction of the future premiums.

Amount assured	£3,800,000
Annual Revenue	130,000
Accumulated Fund	638,000

Tables of Rates and Form of Proposal may be had (free) on application at the Society's Office, 9a, Hanover-street, City.
WILLIAM COOK, Agent.
*** Medical referees paid by the Society.

LOANS.—Persons desirous of obtaining ADVANCES from 50l. to 250l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

NATIONAL ASSURANCE AND INVESTMENT ASSOCIATION,
7, St. Martin's-place, Trafalgar-square, London;
AND 56 Tall-mall, Manchester.
Established May, 1844
INVESTMENT OF CAPITAL AND SAVINGS.
The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this institution offers immediate facilities, and an opportunity of realising the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.
Interest payable in January and July.

NATIONAL ASSURANCE AND INVESTMENT ASSOCIATION.
CAPITAL STOCK, £100,000.
The Capital Stock is altogether distinct and separate from the Deposit and Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.
IMPORTANT NOTICE TO POLICY-HOLDERS
Policies absolutely INDISPUTABLE; and made PAYABLE TO THE HOLDER BY SPECIAL ENDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.
FOR SECURING LOANS OR DEBTS
Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.
MUTUAL ASSURANCE:—
Assurances may be effected from 50l. to 10,000l. on a Single Life.
Entire profits belong to the Assured, and divided annually.
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence, greatly extended.
COLLEGE EDUCATION.
A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.
Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.
The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.
Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.
PETER MORRISON, Managing Director.
Applications for Agencies may be made to the Managing Director

THE TY-MAWR SLATE COMPANY, Llanllyfni, Carnarvon. — Upon the cost-book system. — Divided into 3,000 parts or shares of 3l. each.—Office of the Company, 23, Moorgate street.
TRUSTEES.
William Lucas Hauley, esq. Highbury.
Alexander Maclean, esq. Harrow-on-the-Hill.
DIRECTORS.
Alexander Maclean, esq.
J. Burgess Watson, esq. Manchester-street, Manchester-square.
John Todd, esq. Clerkenwell, Chelsea.
J. C. Gun, esq. Mem. Inst. C.E. Edinburgh.
Horace Green, esq. 141, Upper Thames-street
Solicitors.—Messrs. Hart and Belmar, 7, Finsbury-square.
BANKERS.—Commercial Bank, Lothbury.
PURSER AND SECRETARY. Mr. James Bacon.
This Company is formed for working the Ty-Mawr Slate and Slab Quarry, situate in Nantlle Vale in the Parish of Llanllyfni, near Carnarvon.
The demand for slate and slate slab increases so rapidly, and such enormous supplies are annually shipped to America and elsewhere, that few investments of the present day afford greater advantages for the lucrative employment of capital than the object proposed.
The quarry embraces an area of about 75 acres, having 430 yards on the course of the vein, which exceeds 600 feet in width, and yields two kinds of slate, the light blue and the purple red. The slate is of first-class quality, being very light, strong, and of even cleavage; smooth on both sides, and free from spots or stripe, finely laminated, full of metal, and will bear an edgeway pressure with a greater deflection than almost any other kind of slate.
A considerable sum of money has already been expended in opening the quarry, making tramways, and in machinery, of all which the Company will have the benefit.
The quarry is sufficiently cleared to enable three hundred men to commence working immediately, and is admirably situated for being worked with economy, the works having been so judiciously laid out, that ample space is provided for the refuse heaps on either side of the vein, leaving all the available rock unobstructed: and, moreover, an abundant supply of water is obtained from the adjacent mountains, sufficient to work every description of machinery required in the quarry, thereby dispensing with the use of steam power, which is calculated to be a saving of at least 400l. per annum.
The whole of the plant and buildings are included in the purchase of the quarry
At present the produce is conveyed to the port of Carnarvon, by means of the Nantlle Railway, which runs within half a mile of the quarry, at a cost of 2s. per ton, but this cost will very soon be reduced to 1s. 8d than one half, by means of the Bangor and Port Madoc Railway, now in the course of construction, and which will be completed as far as Carnarvon during the ensuing spring.
A most valuable appendage is attached to the quarry at Carnarvon, viz. a wharf and quay, free of any charge or dues; vessels of 150 to 2 burthen can lie alongside and load, and conveniences are attached for stowing away a large stock of slates; it is considered that a saving of 200l a year is effected by this privilege.
The property is held direct from the freeholder, at the very moderate royalty of 3d. per ton
The amount of capital required for the purchase of the Property, Works, Machinery, Plant, &c. is 11,000l. and 4,000l is proposed to be expended in enlarging the Works and increasing the capabilities of the quarry.
From estimates prepared upon the practical working of the quarry, a profit is shown after allowing for every expense, of 20l. per cent. which returns twice a-year (as is usual with slate works), gives an annual profit of 40l. per cent. available for dividends.
The estimates and plans, and also specimens of the Slate may be inspected by Shareholders at the Office of the Company, where applications for Shares in the following Form may be made, as also, at the Offices of the Directors, Messrs. YARDY and DELMAR, 7, Finsbury-square, London.
FORM OF APPLICATION FOR SHARES.
TO THE DIRECTORS OF THE TY-MAWR SLATE COMPANY.
GENTLEMEN,
I hereby request that you will allot me Shares, of 3l. each in the above Company, and I hereby agree to accept and pay up the same, and sign the Cost Book of the Company, when required to do so.
I am, Gentlemen, your obedient servant,
Name, in full .....
Profession, Trade, or Occupation .....
Residence, in full .....
Place of Business if any .....
Name and Address of Referee .....
Date .....

LONDON and PROVINCIAL JOINT- STOCK LIFE ASSURANCE COMPANY.
Established, 1847.—Offices, 17, Gracechurch-street
The Company effect every description of Life Insurance, both on the participating and non-participating principle.
They also lend money on the security of freehold and long leasehold property, reversions absolute or contingent, life interests, and incomes legally assignable. And on personal security, accompanied by at least three unquestionable sureties, and a policy of insurance effected with the Company for not less than double the amount borrowed. In cases of personal security, the loan is made for periods of from one to five years, repayable by annual, half-yearly, or quarterly instalments, with interest at 5 per cent.
C. INGALL, Actuary and Secretary.

THE ROYAL BRITISH BANK, incorporated by Charter, besides transacting all ordinary Banking business,
Continues to ALLOW,
ON DEPOSITS for six months, 3 per cent. per annum; and on sums for shorter periods and at Call—interest varying with the amount and time in Bank;
And GRANTS,
CASH CREDITS for indefinite periods, on sufficient securities, at 1 per cent. commission half-yearly on the amount of the credit, and 5 per cent. per annum interest on the balance only at debit; and
LOANS for short periods on marketable securities, at rates varying with the circumstances.
Every additional information and forms for opening accounts, &c. will be supplied at the Bank and its Branches, or sent by post on application.—By Order of the Court of Directors,
HUGH INNES CAMERON,
16, Tokenhouse-yard, Lothbury, London. General Manager.

DAMP WALLS.—NEW PATENT PAINT, as applied on the Thames Tunnel, guaranteed effective and permanent inside or out, in quantities to finish 20 square yards for 10s., if 100 yards 50s., and no charge for packages.
PATENT LIQUID CEMENT for the fine arts of houses, for beauty pre-eminent, giving the appearance of Bath stone, and only one-eighth the cost of Oil Paint, In casks of 1, 2, and 3 cwt. at 8s. 18s., and 21s. each.
PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 28. Greens and Blues, 3s. per gallon.
NEW PATENT COLOUR for inside work, may be applied on Wood Stucco, Cements, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.
G. BELL and CO., Steam Mills, 2, Wellington-street, Goswell-street.

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Office of the Washington Chemical Company,
73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

The Builder.

No. CCCCLXXIV.

SATURDAY, MARCH 6, 1852.

WE happened yesterday to be in one of the Thames Omnibuses, which flit about on the river from pier to pier like gnats in the sunshine, and had fallen into a reverie on the miserable condition of our noble river, both in bed and on banks. The resident topographer, in the shape of a small boy in very greasy trowsers, recalled us by shouting "Lambeth; Lam—beth." So we stepped ashore, as much to escape the fearful odour which was floating over the water from the mouths of sewers opened by the retiring tide, as to see what was going on in that neglected and ill-used locality. It is a place full of interest and full of wants; but little endeavour seems to be made to maintain the one or to supply the other.

"In the earliest record extant," says Lysons, "it is called Lambehith; in Doomsday Book, probably by mistake, Lanchei; by the ancient historians it is spelt Lamhee, Lamheth, Lambyth, Lamedk." Some etymologists derive the name from *Lam*, dirt, and *hyd*, or *hythe*, a haven; others from Lamb and hythe. For our own part we incline greatly to the "dirt" derivation, and would appeal to the present state of much of the district in confirmation of the opinion. Many obvious improvements suggest themselves, and there are some earnest men, dwellers there, who would assist: still nothing is done. Parts of the parish, lying near the river, are often under water, the drainage is very bad, and the general condition of the district discreditable to our age and knowledge. The bone-manure works and other factories contaminate the air, and the water with which the inhabitants are supplied was, until very recently, if it is not now, taken from the river in dangerous proximity to the mouth of the common sewer. In the first report of the Metropolitan Sanitary Commission, evidence was given that in some of the courts and streets fever was always present. At that time the average duration of life was *twenty-four* years, while at Camberwell it was thirty-four!

There are some miserable dog-holes of dwellings in Lambeth, although not worse than in many other districts,—murderous houses,—death-dealers, which no efforts on the part of the occupants will render healthful or decent. A remark thrown out by us long ago that "homes are the manufactories of men," was repeated far and wide, and made the text of many addresses, and of more than one book. Would that the obvious corollary was everywhere fully felt. From such manufactories what work must come forth!

In a pamphlet on "Home Reform," by Mr. Roberts, recently published by the Society for Improving the Condition of the Labouring Classes, with the laudable object of answering some who, in reference to the same writer's "Essay on the Dwellings of the Labouring Classes," have asked, how their tenants might be taught to improve their own homes,—the writer says:—

"We must begin by insisting that, however much of the physical and moral evils of the working classes may be justly attributable to their dwellings, it is too often the case that more ought in truth to be imputed to themselves. For surely the inmate depends less on the house, than the house on the inmate; mind has more power over matter than matter over mind. Let a dwelling be ever so poor and incommodious, yet a family with decent and cleanly habits will contrive to make the best of it, and will take care that there shall be nothing offensive in it which they have power to remove. Whereas a model house, fitted up with every convenience and comfort which modern science can supply, will, if occupied by persons of intemperate and uncleanly habits, speedily become a disgrace and a nuisance. A sober, industrious, and cleanly couple will impart an air of decency and respectability to the poorest dwelling; while the spendthrift, the drunkard, or the gambler will convert a palace into a scene of discomfort and disgust. Since, therefore, so much depends on the character and conduct of the parties themselves, it is right that they should feel their responsibility in this important matter, and that they should know and attend to the various points connected with the improvement of their homes."

This is, to a certain extent, true, and it is of the utmost importance that it should be constantly and widely impressed. It must not, however, be taken as an excuse for not providing innoxious, decent, and comely dwellings for the working classes. Much may be done by an energetic orderly mind in any situation; but there are hundreds and hundreds of dwellings that ultimately beat every occupier, and transform the tidy housewife into the slatternly shrew, and the industrious home-loving husband into a disorderly drunkard. Where there is no "mind," "matter" has it all its own way, of course; and how is it possible that an orderly mind,—careful of proprieties, anxious to improve, sensitive against evil,—can be manufactured, or even maintained, amidst darkness, dampness, disorder, and discomfort. As we have often heard clergymen say, sermons, exhortations, visitings, and the national school, are all useless against a damp, dilapidated, ill-drained, miserable dwelling, where decency is not possible, and immorality inevitable.

We have wandered, however, from the special to the general. Let us get back to "Dirt Harbour."

St. Mary's, Lambeth, the parish church, has been rebuilt by Haward and Nixon, under the direction of Mr. P. C. Hardwick, all but the tower at the west end, which was restored a few years ago. It is of ancient foundation, but was rebuilt 1374 to 1377, and the style of that period has been adopted on the present occasion, with the exception of the open timber roof; this is of somewhat later character. The walls inside, of random stonework, are pointed, not plastered; and this, or some other cause, in conjunction with the ill-advised use of the old pews in the body of the church, old galleries, organ front, and even altar rail, though quite inappropriate, gives an air of meanness that is to be regretted. There is a new font, with lofty carved canopy, which forms an important feature. The interior is much enlivened by the glass in a rose window at the west-end of nave, which is of good colour. Several of the windows have been filled with stained glass: one in the south aisle, in memory of Mr. John Barton; a second at the east end of the same aisle, the gift of Mr. E. Groves—both creditably executed by Mr. Gibbs; and there are four memorial windows in chancel. We missed the well-known figure of The Pedlar and his Dog painted on glass, which was in a window in the old church. It is stated that a person unknown left to the parish of Lambeth a piece of land, formerly the Church Hope (now Pedlar's Acre), on condition that they kept in repair a representation of a pedlar and his dog, in stained glass in the parish church. Mr. Lysons thought it a rebus on the donor's name. There was a Mr. *Walker*, who was a benefactor to the parish, but whether or not it belongs to him is uncertain. "In 1504 the Church Hope produced only 2s. 8d. per annum. It was let on lease in 1797, at the yearly rent of 110*l.* and was capable of further improvements. A fine of 800*l.* was received by the parish, upon granting a lease in 1752."* What is it worth now?

On inquiring for the "Pedlar" we learnt from Mr. Taylor, one of the churchwardens, that the glass is in safe custody, and that it has been kept out in order that they may have "such a stained glass Pedlar and his Dog as the best talent of the day can furnish." There is, of course, no objection to this, but they must put back the old Pedlar too.

In the chancel, Mompesson's monument—a perpendicular altar-tomb, dated 1524—is set up on the south side; and a similar tomb, in memory, if we are not mistaken, of "Magistri Hugonis Peyntwin" (1504), inscription now scarcely legible, on the north side. The monumental tablets, which had overrun the old church—many of them in memory of persons who ought not to be forgotten—have been placed at the east end of the north aisle, and in the south porch. The *Athenæum* of last week gives the architect a smart cut or two for "shouldering the monuments about in a way that 'Old Mortality' would have wept at seeing;" and for either removing or concealing "some old blue ledger stones that distinguished the graves of men of name." The writer urges that "a committee of taste and associations is sadly wanted wherever an architect is now called in. Your first, second, and third Pointed men, your hip-and-thigh Early English, Decorated, and Perpendicular Architects would destroy Shakspeare's tomb to replace a useless piscina."

Now, for removing or concealing memorials of men of name, if this has been done, we will find no excuse. However discordant with the rest of the building the monument may be, the value of memorials of the good and great far outweighs the objections which may be brought against them on æsthetic grounds. But, surely, when an attempt is being made to bring back to an ancient building congruity and beauty, it is desirable to dispose those incongruities—which, because of their value in other respects cannot be parted with—in the way least calculated to mar the object aimed at.

The monumental brasses at present loose will of course be put down. Here was buried Elias Ashmole, the well-known antiquary, and founder of the Ashmolean Museum at Oxford, who died in 1692; and in the churchyard is a monument to the Tradescants, the noted collectors. The epitaph says:—

"These famous antiquarians that had been
Both gardeners to the rose and lily queen,
Transplanted now themselves, sleep here; and when
Angels shall, with their trumpets, waken men,
And fire shall purge the world, these hence shall rise
And change their garden for a paradise."

* Hughson's "London."

At Lambeth Palace works are still going on. All know how much this building contains of interest: every stone has a story; and those who may have an opportunity to see it should not let it slip. The oldest part of the palace is the chapel, which belongs to the thirteenth century. The Lollard's Tower is supposed to have been the prison of some of Wicliff's followers. One of them has cut in the wainscotting—"Jhs cyppe me out of all el compane, amen." To which we may echo, amen! and so end.

FINE ART: ITS NATURE, RELATIONS, AND TENDENCIES.*

I NOW proceed to the second branch of my subject—the inquiry into the position of art with regard to the more exact and practical developments of the human intellect, or its relations to science.

To many, this question will suggest the idea of an argumentative antagonism, as between art and science and social policy, to be determined by an absolute election of one or other over the rest; whereby art is either to be exalted as in every case superior and preferable to the exact formalities of science, or the materialism of social policy,—or to be condemned as a visionary and unreal thing, destructive of the precisions of observant induction, and of the material requirements of the absolute present. Nothing can be farther from my intention. That art may be both over and underestimated and followed, is undoubtedly true; and the same may be said of every branch, both of science and of policy,—in the one case, from a deficient comprehensiveness; in the other, from an exclusively directed energy of the intellect; and in most men we find the limitations of mental power to produce this effect, either from a deficient faculty of retention, or from (what is often the cause of this) too exclusive a routine of mental action; leading them to look too much on what lies within their intellectual circle, and too little on what lies without. But still in every subject of intellectual power, after subtracting all error, either of diminution or excess, there is a residuum of truth left, in which consists its absolute entity. It is in this view, and in this only, I would consider the question proposed; and looking upon art as the spiritual apprehension of nature, proceed to inquire what is its position with regard to the social and physical necessities, and the spiritual aspirations of man; and what are its relations to science. I think this inquiry legitimate and necessary, inasmuch as the process of every true work of art appears to be resolvable into the divisions above indicated, *i.e.* 1stly, The spiritual necessity of conceptive power in the mind of the artist; 2ndly, The physical necessity of materials to express his conceptions in a manner suited to the social requirements of his time; and, 3rdly, The scientific necessity of a knowledge of the constituent properties and uses of his materials.

The oldest art-witnessers extant to the truth of historical record are architecture and poetry: in music antiquity has left us nothing intelligible; and though Egypt and Nineveh present us with both sculptures and frescoes, they are, æsthetically considered, far inferior to the architecture they adorn, the sculptures being for the most part rude general resemblances of form, and the frescoes partaking more of the nature of polychromic embellishments than of works of art. In architecture and poetry the case is different: in these, however ancient the specimens, however rude the material, we find the manifested presence of the art-spirit; and throughout the varieties of clime and nation, from the Trilithons of Sarum to the portals of Karnack, from the Scandinavian Voluspah to the Grecian Iliad, we can deduce those fundamental principles of æsthetic conception, design, and execution, the truth and obligations of which art recognises and inculcates to the present hour.

Looking, then, at architecture and poetry as the two most ancient developments of art, the first thing that seems to call for consideration is the extreme difference of mode or diversity of operation between them,—a difference so extreme, that if traced to its causes, must either nullify what has been previously asserted respecting the unity of art, by showing an absolute difference, or else confirm it by showing an absolute identity of causal principle. That it does not do the first has, I think, been evidenced by the sameness of use pointed out, as regards each branch of art, of the essentials of æsthetic expression: that it *does* do the second, I trust soon to be able to show. Architecture, as I said before, works in obedience to the same essential principles (to the extent of her power) for the attainment of any given expression, as poetry does to the extent of hers. Let us now compare the two in their æsthetic form with their respective physical elements: if, disconnecting man for a moment from his relations to eternity, we look upon him simply as the highest form of organised life—the ruling animal of the globe—we perceive at once the imperative necessity for his possessing powers of construction and of speech beyond all the other animal creation: one species against many, with a frame more exquisitely organised, and less efficiently protected from accidental liabilities, we feel that, unless gifted with higher constructive power than marks the inferior animal instinct, man could never have spread himself through the various climates of the world: he could never have replenished the earth; and with a destiny of dominion committed to his charge, we feel that unless gifted with more extensive powers of colloquial intercourse than that enjoyed by the brute creation, he could never have formed a social league of sufficient strength to overcome the natural obstacles presented to him: he could never have subdued the earth. The source, then, of the material form of architecture, *i. e.*, habitational construction, is physical necessity: the source of the material form of poetry, *i. e.*, language, is social necessity. How rose these material necessities into the higher sphere of art? How else, I would ask in reply, but by the action of the spirit, which, while aspiring with one hand to the immortal destiny before it, strove, on the other, to urge the present into that glorious future, and by the energy of its reaction did elevate the physical and social necessities into the ethereal regions of art?

The religion of the primitive ages was not so much an exertion of the intellect as a fervour of the soul; not so much a dictate of reason as an impassioned expanding of the imagination; and hence from the lips of the earliest priesthoods the burning words of prayer, of praise, or of prediction, poured out in rythmic flow; and when the band of spirit-communion linked them together in one chain of hopes and fears, gave rise to the social necessity of structure, specially appointed for the celebration of a common rite: the same spirit that had vivified the dead body of language with the soul of poetry, exerted its power over the constructive material; and what, in its rudimentary form, was a mere hut for individual protection from atmospheric vicissitude, became, when spiritualized, an architectural erection, expressing in its arrangement and adornment the soul feeling that gave it birth. Thus, too, by the action of the highest on the lowest element of life,—of the aspirations of the soul on the necessities of the body was brought to light the first germ of science. Architecture, in common with all the arts of form, as well as music, called for and became based on geometry; and the ruined temple and the bardic fragment are witnesses not only to the birth of architecture and of poetry, but also to the progress of the mathematics, of mechanics and of dialectics. The ruins of many of the primitive specimens of architecture set forth in their arrangement the exactitude of mathematical figure and proportion; while the massiveness of their constituent materials shows the existence of a knowledge of the mechanical powers, and their mode of application; and in the earlier poetry we often find a clearness of perception, an accuracy of definition, a power of harmony of language, and a critical sagacity, which, if not logic itself, is the spirit of the end that logic aims at.

Architecture, thus produced, has been ever, in common with all the arts of form, indissolubly connected with science: along with sculpture and painting it has been fed and administered to by nearly the whole range of its branches—chemical, mechanical, anatomical, mathematical. Euclid contributed, in no slight degree, to Greek architecture and sculpture, when he gave his propositions to the world: painting is indebted to optics and perspective, and to chemistry in the matter of colour; and whether the researches of Hippocrates in anatomy first led to the minute anatomical parts being expressed in Greek sculpture, as some contend, or not, certain it is that a knowledge of anatomy is an inestimable advantage to both the sculptor and the painter. Nor has art been slow in requiting the obligation: pictorial art has been the indispensable agent of science in diffusing knowledge on its various branches — physiological, botanical, zoological. The connection of poetry with science, though of a different nature, is not less intimate than that of architecture, though by superficial people the former has been thought and spoken of as a thing distinct from science, which has been supposed inimical to it, nay, destructive of it; and scientific men themselves have too often forgotton the true nature of poet's office: poetry has been well defined as the breath and finer spirit of all knowledge; the impassioned expression that is in the countenance of all science. Science and art divide the universe between them, and the tendency of the former is to extend the field of the latter, any new discovery presenting the muses with a new theme. "If," says Wordsworth, "the labours of men of science should ever create any material revolution, direct or indirect, in our condition, and in the impressions which we habitually receive, the poet will sleep then no more than at present: he will be ready to follow the steps of the man of science, not only in those general indirect effects, but he will be at his side, carrying sensation into the midst of the objects of the science itself. The remotest discoveries of the chemist, the botanist, or mineralogist, will be as proper objects of the poet's art, as any upon which it can be employed."

Such, then, is the position of these two branches of art in the scale of life,—such their relation to science: the office of the one appears to be to elevate language to the expression of the soul's highest aspirations; of the other, to dignify the physical and social necessities with the glory and grace of art; while both together are faithful and according witnesses to the spirit of their times. The ancient temple, the feudal castle, the dim-aisled cathedral are as the authentic and valid seal to the spirit feeling recorded in the bardic hymn, the chivalric war-song, and the mystic legend; and from the days of Amphion till now, the true architect has builded as the bard has sung.

The subjects of their offices have changed with the changes of the times, but the spirit of them is ever the same; the one working to an outward exaltation, the other to an inward enlightenment. The poet no longer sings the strifes of nations and the deeds of warriors, for they have ceased to be the limit of a prevalent ambition; but his voice still sounds trumpet-tongued through the din of life's spirit-battle, as he urges on the soul to higher efforts,—with a wider range of power to tread her luminous way; and explores the labyrinth of the heart, whilst the waters of deep thought are stirred with the breath of his inspiration. The architect no longer spends his energy on the erection of the cathedrals of an all-dominant creed, or the palaces of an absolute and arbitrary power; for the days of exclusive dominion are passed, and the vital tide of progress sets towards the many, and not towards the few; but, like the poet, he still speaks the same high lesson, though in more familiar tongue, and those splendour and graces which he formerly concentrated on the colossal shrines of an exceptional and solitary grandeur, he now disperses over the abiding places of commercial enterprise, of social enjoyment, and of individual comfort.

* See page 115, *ante*.

Of the province of the poet in the present day it is unnecessary now to speak: that of the architect still calls, and calls loudly, for remark and animadversion.

Of all the fine arts architecture is most naturally and inalienably associated with and related to the present, and to be benefited by every improvement in mechanical science. The architect's province is to work in obedience to the spirit, and according to the scientific status, of the age; to take the elements of his style, the material characters of his architecture from nature, through the medium of or assisted by extant works of art; but in the exercise of his profession he is to throw these into the mould of the actual requirements of the day, remembering that the age demands at his hands, and will not forgive in his work the non-recognition of the gifts of science. No true building is the fruit of a single mind: the chemist, the mineralogist, the founder, the manufacturer, all have their claim upon the design, in the face of which is reflected the light of all science: the experience of the ventilator, the theories of heating and lighting, the laws of acoustics, optics, &c. are all to have expression in the works of the day. And while architecture is administered to by all, it administers to all in return, —to commerce, to law, to politics, to religion, to literature, to science,—the requirements of which the architect must consider and understand: from these he must receive his commissions and march with their advance. The architect that has imbibed the true and living principle of his art feels himself forced onward by the physical, moral, religious, and social requirements of his countrymen,—the necessities of the body and the needs of the spirit; which are served by architecture, and served with perfect harmony; there being nothing, however humble, reared for mere utility, which may not be made an object for the exercise of the art-feeling.

The architect is, therefore, to express his own ideas, gathered from every source, modified by every natural and scientific influence and consideration, in his own tongue; not to put them in masquerade from the material clothing of ancient or foreign ideas, without fitness, harmony, or relation to the present. Architecture is not the child of archæology—the creature of the traveller's sketch-book. It is the offspring of its time; and its mission here is to originate not Greek temples or Romanesque churches or Swiss cottages, but British and nineteenth century edifices instinct with the life, and according to their peculiar purpose, embodying the ideas of the present hour.

I speak not against the use of classic elements, nor the elements of any other style: we may use these as we use words of a Latin or other source without pedantry; but they are to be digested in our minds till they become our own, and they are to be used as language only. Those who act or think counter to this I would ask,—has nature failed in her suggestions and teachings? In fact, it is incumbent upon the copyist in architecture to prove that nature, the immortal, the Hebe-mother, had maintained her vigour and freshness up to a certain point in the past, but is now exhausted, worn out, and unable to supply an æsthetic system adapted to the wants of the present generation.

But surely we are to make some use of extant art, it will be replied. Certainly we are. We are to make great use of it; just the same use of it that all wise literary men have made of extant literature; the same use that Dante and Spencer made of preceding poets; that Plato made of the wisdom of Socrates; just the same use that Watt and Davy made of known science. We are to study its principles, and as far as they are true to nature adopt them. Our ancient edifices are not patterns for the eye and hand, but food for the mind. We may take hints from the Italian and from the mediæval architects, as we would from one another; but we should no more copy them either in whole or in part, than we should compose a poem of borrowed stanzas. Nature, our type and model, is an infinity; and the elements supplied by her, truthfully and faithfully organized, will result in harmonious and living works worthy of the nineteenth century.

I have spoken of poetry and architecture as deriving their origin from the religious feelings: the same is true of the other branches of art—of sculpture, painting, and music; though of these the first alone makes any near artistic approach in date to the dawning glories of their predecessors. Nor is this delay in manifestation difficult to account for. In the case of the poet his inspiration relaxes in the hour of its strength the bonds of rule, and his thoughts mould themselves into metrical form, more by the power of a natural intuition, than by that of an acquired critical knowledge; while in that of the architect the materials of his art are open to almost any extent of modification, to meet the requirements of a varied idea; and hence we often see in our older structures the architectural expression of the feeling of different periods united in one harmonious whole. In the remaining branches of art this is not the case: there, to produce a really artistic result, manipulative exactitude must be coequal and coexistent with ideal discrimination; and the handling of the painter and the touch of the musician must give back an *immediate* as well as true reflection of the ideal image conceived in his mind. But this faculty in ordinary cases it takes years to acquire, and in the preternaturally gifted, a lifetime thoroughly to unfold; and hence we may comprehend why the imitative branches of art were doomed to a longer period of infancy than either the more exclusively ideal or the more extensively mechanical. Of the former, sculpture seems earliest to have arrived at years of art-maturity; for its manipulations admit to some extent of the same modifications as those of architecture; and the sculptor's chisel can follow at a greater distance the idea of its master than the implements of the painter or the musician, and can attain by reiterated action that nicety of excellence which the pencil or the musical instrument, to give effectively, must give at once.

There is, perhaps, another reason why sculpture achieved so great an advance of painting: though both arts arose under the influence of religion and were each first employed on the temple, painting was used as an embellishment only, or to represent the attributes of the Deity, and in times of distress and warfare, being less indispensable, its operations would be suspended and its cultivation neglected; whilst sculpture was altogether necessary to the idolatrous rites of paganism, the exigencies of which would at all times require the whole talent of the nation to be employed in its production.

Ancient sculpture appears to us chiefly in two forms,—viz. 1stly, that of historic or mythic records; 2ndly, of material representations of spiritual powers: the first appears more frequently in the form of relievos; the second, of single or grouped figures. Moreover, there is a very remarkable difference between the sculptural productions of different nations: in some, as in the Egyptian and Ninevite, the relievos are rude and formal general resemblances—the figures, extravagant and unnatural combinations: in others, as in the Greek, the relievos are artistic combinations of form, the figures visible types of its ideal or symbolic excellence. If it be asked (and the question naturally arises) whence this great difference, I know no more fit and concise answer than the line of Spencer, that

"Soul is form, and doth the body make."

Or, in other words, the intellectual manifestation derives its character from that of the spiritual. Where this last is either in deficiency or excess, it leads to social debasement and mental superstition; but as it the nearer approaches to a just balance with the intellect, we find it manifested in a purer and higher form of art. The Jews possessed the purest and most perfect spiritual theory; and in the Old Testament we find the most sublime examples of the highest development of art—poetry: the Grecian mythology presents us with the nearest spiritual approach, and that nation offers us the most excellent examples of poetry short of direct inspiration, and also the most perfect specimen of that imitative art of sculpture, which the lower and more indirect nature of their spiritualism rendered a necessary exponent. The Egyptians, with a more extravagant current of spiritualism, overlaid the intellect; and their art-exposition, typified in the fantastic hawk-headed Osiris, the same ideal power which the more exalted imagination of the Greek Agasius symbolized in the Apollo Belvidere. If the office of the architect is to idealize construction, that of the sculptor may be said to be the idealization of the human form: the one fitly symbolizes the soul-feeling of the congregated masses; the other, through the artistic excellence of corporeal resemblance, typifies the worth and dignity of that individual spirit whose shrine the body is; and the Parthenon, the expression of the religious feeling of the whole Athenian people, enshrined in its Minerva the type of the individual intellect whose combined powers rose to so beautiful and grand a summit of development. It is this exalting association with humanity that gives to the Greek sculpture that æsthetic superiority which it possesses in so great a degree over that of contemporary or preceding nations: the gods of the Greek sculptor did not confound and terrify the sense by unnatural combinations of form, or overcome the imagination by their colossal size, like the art-deities of Egypt and of Nineveh: their power and beauty lie not in a mysterious and overcoming strangeness, but in an exalted and uplifting similitude; and through the whole range of the sculptural mythology—in the Jupiter, the Apollo, the Diana, the Venus, the Hercules, the Minerva, the Mars, we see corporeal types of the excellencies of human dignity, grace, purity, love, strength, wisdom, and courage, of the intellectual powers and passions of men: thus the sculptor, like the poet and the architect, in the bright morning of art, was the exponent of the intellect, acting under the stimulus of the spirit's aspiration.

Sculpture, it should be observed, is independent of poetry in choice of walk: it is because poetry is the eldest that it has so often been the conceiver and inventor for other arts. Ancient sculpture followed in the footsteps of poetry, and petrified her conceptions; but had poetry slumbered through the morning of time, or delayed her advent till the other arts had reached their perfection, it is more than probable that most of such works would nevertheless have been produced. "Art," says a German writer, "would itself have arrived at and invented gods, had it not found them;" and it is possible that many of the highest and exclusive triumphs of poetry, as far as within its scope to embody them, would have been won by sculpture, and the Iliads and Odyssies have been written in stone.

But sculpture, like her preceding sisters of art, was destined to descend from her exalted pedestal, and follow out her mission in humbler paths. When polytheism sank before the growing power of Christianity, the classic school of sculpture sank with it; for those pure nudities which to the nature-worshipping imagination of the pagan were exaltations of humanity, to the spiritualism of the early Christian were idolatrous images of sin; and when sculpture obtained an entrance into mediæval art, it was under more rigid restrictions, and in a different relation to that of the classic age. The chief and almost the only nude figure in the early Christian sculpture is the one stretched in the ghastly agony of the crucifix; and this not as an example of art, whose path lies not through the degrading shadows of physical torture, but as a visible sign and exponent of a most momentous issue.

In its subordinate range Christian mediæval sculpture sank at first far below the life of the classic, and the saint was known, not by the vivid energy of the contour and expression, but by the accompaniment of his particular symbol,—Paul, the sword; Lawrence, the gridiron; Catharine, the wheel. And when ascending from sanctified humanity into the higher regions of heaven, sculpture assayed the forms of angels, she was doomed to sphinx-like ingenuity of artifice, and typified the heavenly host by adding to the figure of man the wings of an eagle. But while thus restricted in its development, and reduced by

the prevalent feeling of the times more to an architectural embellishment than to a branch of art *per se*, sculpture was not wholly extinct, and what she could not effect by direct action she aimed at in the spirit of a sister art; and while painting, which in its earliest form was essentially statuesque in its expression, melted into the warm life of colour and chiaroscuro, mediæval sculpture at length realised the constrained stiffness of its contour and formality of arrangement by a pictorial grace of countenance, and expression, whose place in the classic school was supplied by the pervading beauty of the form.* S. H.

ARCHITECTURUS TO HIS SON.

THE LAMP OF MAKING A LIVING: CONCLUSION.

After all, my son, this last lamp is perhaps the lamp of purest and most satisfying ray serene. After all, perhaps, the old Epicureans were right,—that quiet comforts and fireside virtues are a better happiness, both now and at the end, than pompous power, or dreamy poetry, or even laborious goodness. That worthy and ancient treatise, "The Shorter Catechism of the Westminster Assembly of Divines,"—the elaborate text-book in whose awful fields the young idea north of the Tweed is taught most dismally to shoot,—till the mere suggestion of its venerable name (as I well remember) comes to awaken in the juvenile mind no association but that of the utmost punishment and distress,—propounds, you must know, as its first question and elementary axiom, no such problem as, "What is your name?" but the bold and characteristic interrogatory, "What is the chief end of man?" To which, in moments of levity, many very various solutions have been suggested: till, at last, the ponderous wit of our Thomas Carlyle—leviathan rolling in the sun—propounds an answer, which, had it been so propounded in the days of the dominancy of that same Westminster Assembly, would have put him irrecoverably into the Tower,—"the chief end of man," says he, "is to eat and to find eatables." And so, on another hand, "Roast mutton," says Sydney Smith, "is the end of good legislation." If so, then is this our last lamp of making a living truly the best lamp of all the seven. I would wish to see my son a man of thoughtful science; I would wish to see him a man of keenest appreciation of beauty-work; I would wish to see his name transmitted to those who may come after as a worthy follower of the best who have gone before; but I would rather that he should fail in any or in all of these, than that he should carry an empty purse or his children's home be cold.

Now, what shall I say to you of this making a living? A question so universally a matter of instinct that one might wonder what can be said at all of a thing so simple; and yet a question of such complex nature in our artificiality of life—a question of such deep and far-fetched theory—that one ought rather to wonder what can be said at all of a thing so difficult. Yes, indeed, this question of making a living,—so potent an agency, so elastic a material, so explosive a thing is it, when you cast its theories into the fire of popular ferment, that not four years ago, in the hands of very humble men, it blew up thrones all round us, and wrecked its own fanciful commonwealths to boot; yes, indeed, so potent and inexplicable is it that in our very midst at this day the sophistries of half-read speculatists are so causing it to boil and heave and throw out threatening vapours, that if the matter were not in the honest hands of the best class of English mechanics—such men as I have heard a venerable political authority seriously declare, from his own experience of *all classes*, to be *the best class* in the *community*, we might dread to see even yet a French February 1848 in an English February 1852.

But we need not dwell upon generalities. Even although it is by no means my purpose to attempt an exposition of the theory of the architect's housekeeping, there is abundant matter ready to any one's hand for no small discussion as regards more than one question of the architect's position in business.

The summit of attainment in business for the architect, as the reward of experience and merit, is to be entrusted with the charge of important, extensive, elaborate, and decorative works—the great buildings of the period; and this not only as matter of renown, but as matter of profit. It is the same with the lawyer,—to be entrusted with important cases and estates; with the physician,—to be entrusted with the care of the most valuable lives; with the divine,—to be entrusted with the high charge of a bishopric; with the military or naval officer,—to be entrusted with important commands; with the engineer,—to be entrusted with operations of magnitude and skill; with the painter or sculptor,—to be entrusted with noble commissions; and so on in a wide range upwards and downwards. That is to say, like every other person in so far similar circumstances, the architect must begin at the lower steps of the ladder of progress, and work his way patiently up.

But there are but few who attain to such a summit as this; we cannot be every one a Barry, or a Smirke, a Blore, a Pennethorne, a Burn, or a Scott. Still for the others there is no lack of summits, more or less honourable and more or less profitable; indeed, there are more numerous directions of endeavour in the architectural profession than I care at present to catalogue, even if I were able to record them all,—so that for every variety of inclination and capability there is a fair field for the exercise of carefulness, perseverance, and energy, with the hope of ultimate success and satisfaction. The theory of success in this profession is in no wise different from what it is in others—in fact, in every department of life,—to learn your work well, and to do your work well, to make friends and to keep them, to be diligent, upright, and prudent. I care not what a man's business may be—from a king to a daily labourer—these are the elements of success which will carry him to the utmost attainments of his capacity in his walk of life; and these are the elements without which it is vain to expect such attainments. If you do not *learn* your work well, you cannot do it well,—you put your friends to shame,—diligence has a millstone round its neck,—prudence and uprightness are both in danger; if you do not *do* your work well, it matters not how well you know it,—you are the same as if you knew it not; if you do not *make* friends, not ever so large a sign-board will attract them to your door,—your skill is waste, and your diligence must be barren; if you do not *keep* your friends, you need scarcely make them; without *diligence* you reap but the sluggard's harvest of thistles; without *uprightness*, skill, carefulness, diligence, and prudence lead but a sickly life,—and friends made can never be kept; without *prudence* the best ship that ever sailed the sea may be lost in a moment, despite of all other excellence,—and all that excellence be lost to boot.

I may perhaps hazard the proposition that there are two ways of making one's fortune (as the phrase goes) in any department of business,—as, indeed, in achieving greatness in any department of human endeavour; first, by toiling diligently with the crowd along the beaten track, till patience and perseverance slowly attain the goal; secondly, by striking out some new path, and pressing on the unimpeded way fearlessly and alone. The first is the course of plodding commonplace; the second, the race of genius. There is a third way, however, which must not be forgotten, so far as the enumeration goes,—and perhaps the most successful of all in the way of taking the world by storm, in whatever matter; by assuming the brazen mask, and bullying, or blarneying, or teazing, or otherwise manœuvring this gullible old world, perhaps all the while against its very eyesight, to serve your ends. Simply by taking advantage of the world's politeness—of the unwillingness of respectable men to call a spade a spade to its face, or a quack a quack—there are thousands, as every one knows, who win their way to more or less of good fortune, and success, and fame, just as their amount of ability and assurance may be, laughing in their sleeve all the while at this very politeness of the world by which they live, and perhaps even in meditative moments scorning bitterly its imbecility and heartlessness, which can permit such as themselves, by the sheer vigour of impudence, to pick its pockets under its dignified nose, while virtue walks ill clad and intellect despised. This worthy class of the community is thoroughly recognised, and its craft specially named, at least in this England,—we call it *humbug*; and the word excites no smile and provokes no scorn,—in fact, is rather associated with some amount of respect, in so far that, as any one will tell you, to be a thorough master of humbug requires talent of a high order, just as it takes a wise man, as the proverb says, to play the fool.

Now, my son, of these three courses, choose one for your own. If your talents tend towards the third of these, I cannot say—do not take it; and, perhaps, as you need never feel ashamed of it, as the world at present seems to go, I ought to say—proclaim it manfully: for would I not rather see you (after a sort) a wealthy and respected humbug, than a needy genius? There are all sorts of men to make up the number; and why should I deny to this sort of men this course as the one pointed out for them by nature? But at the same time, if it be not your talent, give God thanks. All the world over, and all its workings through, high and low, now and for ever, *His* silent honour will attend the soul of the honourable, and none else.

If your mind should show itself capable of genius, let *patience* be the motto of your self-control. Take time. "Never start till you're *ready*," as the Yankees say. And when you are ready, start. "First be sure you're *right*," they say again, "and then go *straight ahead*!" Whatever may be the walk of life in which a man may be cast, genius can find an opening to push its way. I could recount legends of noble fortunes by the score won by such persons as an errand-boy, a dustman, a weaver at the loom, a mason in the quarry, a ladder-maker, a soldier in the ranks, a footman in the hall, a pale sempstress, a rosy milkmaid: fortunes, I mean, won by *Genius* in fair and honourable and simple business of their own. There is no department of life where genius cannot found originality; there is no foothold too small or too humble for genius to take its flight from; there is no sphere too obscure for genius to be fostered in. Pins and needles, jet blacking, dust-heaps, soot-bags, pens, ink, dolls' eyes,—none of them are too humble for the display of genius in business. The butcher, the baker, the tailor, the shoemaker, the pig-jobber, and the very donkey-driver and coster-monger, are every one alike capable of possessing and displaying in some way or another, and at length magnificently enjoying in fruition, the power of genius.

But if your mind should not tend to the origination of anything in the way of a new course in business, keep to the well-worn track, and let *perseverance* be your motto. This path is the safest, at the least, even if its being the easiest should go for nothing: and in our own department it may be depended upon as providing a fair livelihood for any qualified man, so long as his friends dwell in houses on the ground.

The fair race in the world of business is between these three classes of persons which I have spoken of,—the man of commonplace, the man of genius, and (let me plainly call him by his name) the man of humbug, or the quack. The first has his slow pace against him, the second, his risk of failure, and the third the badness of his cause: and with this balance of chances the contest is an even and fair one, and ought not to be interfered with—as matters go.

Now, in the architectural profession at the present day, I fear this fair race, to some extent, is interfered with. And thus I come to a matter which is of the utmost importance to us in whichever way we view it seriously as pertaining to the question of making a living,—I mean the system of "competitions."

Before entering upon this question, let me dispose of another in some connection with it,

* To be continued.

—the only other which forces itself into notice as of serious moment in our living-making. It is the proposition that the architectural profession is already far overstocked in numbers, and every year becoming more so. I do not hold with such a doctrine at all; and when I listen to those who maintain that to this circumstance is to be attributed the continuance and increase of the "competition" system, I can see, as I fancy, a much more rational explanation. I think they confound together two very different things; on the one hand, that *competition* for business which exists as a matter of course in all departments of business-exertion—the universal healthful rivalry of everyday emulation, the effect of which is only stimulative and beneficial,—and on the other hand, that positive invention which we happen to call by a similar name, the "architectural *competition*," the effect of which upon the profession at large seems to me to be such as to render its originator worthy of our immortal remembrance once per annum after the manner of Guido Fawkes. I think any good political economist would teach that the increase of numbers in such a profession, instead of diminishing its profitableness, increases it. The contrary is but Malthusian fallacy. For we do not, I think, find our employment come from necessity, but from attraction. The public could do without us for ever if there were none of us; but when they see us engaged in service to them profitable, they become attracted to us by the fact of our service so being to them profitable, and by no other that I can see. We all complain of the want of appreciation of our services even on the part of the most refined classes; the reason is, that there have been so very few architects hitherto that their services, both the value and even the nature of them, are little known. The public are not driven even to the physician or the shoemaker by necessity; if there were none or very few of these they would rely upon old wives' nostrums with the utmost confidence, and walk unshod with perfect equanimity. I think there is employment in the works of English building universally and constantly in operation, for several times the number of qualified architects at present practising,—and employment, I mean, of that legitimate kind which always produces more than it costs. Nine-tenths or more of the building done throughout the country is done without any architect's supervision; and is, consequently, as any one can see any where and any day, more or less uneconomically done, unscientifically done, unsafely done, unenduringly done, inconveniently done, unbeautifully done, and so on,—and therefore I say more or less unprofitably done. Of late years, as the services of architects have been gradually more forced upon the notice of the public mind, simply by their increase of numbers, those services have been steadily increasing in demand, and no doubt will still increase. Compared with such professions as law and medicine, who can pretend to say that of the architect is overstocked? And yet where is there a better field for either genius or perseverance than in those very professions? The more the merrier, in fact.* K.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.

In his sixth and concluding discourse, Professor Cockerell recapitulated the substance of the former lectures, and proceeded to consider the subject of decoration and ornament,—the last essential principle of architecture. Those ideas of activity and repose which the mind required no less than the body, could only be conveyed in architecture by decoration. The necessity of ornament was forcibly illustrated by Aristotle; and, as Shakspeare truly said,—

"The world is still deceived by ornament."

The legitimate use of decoration served in an eminent degree to relieve, adorn, and explain an architectural design, as was clearly shown by the ornamental mouldings of Greek and Roman architecture.

Decoration was most effective when it strongly marked the purposes and uses of the different parts of a building; as the Revival architects had felt and illustrated in the subordination of their decorations to main features,—such as floors, windows, keystones, &c. As the cornice and parapet originally represented the ends of the roof, so a modern house with such appendages, concealing a ridge and furrow roof, was an expensive solecism. Palladio and Vignola gave the utmost grace of form to the parapet, which formed an essential feature of their buildings; but of late years sad havoc had been played with the roof as an ornamental feature.

The successful union of taste and utility was illustrated by some beautifully decorated vaulted ceilings by Primaticcio and Leonardo da Vinci.

Sculpture, of all the decorative arts, was the most important adjunct to architecture, her favourite sister and right hand. It gave force and clearness to the otherwise mute and unexplained work of the ablest architect; developed the intention of the edifice, and associated with it a thousand images of beauty. In the first aspect of a noble building the mind recognised character, order, and adaptation to the surrounding scenery; and a nearer approach should confirm these impressions by the effect of the decorations employed. Whilst the composition of the buildings on the Acropolis, as seen from the surrounding hills, presented to the Greeks the *ne plus ultra* of perfection, its effects were maintained by their details, in which the architecture formed a framework for the sculpture.

Having described in detail the purpose and effect of the pediments and metopes of the Parthenon and the Panathenaic frieze, the lecturer proceeded to show the application of the same principle in the sculpture of Wells Cathedral. Westminster Abbey likewise contained, in the sculpture within its walls, a history which no foreigner could behold without astonishment and admiration.

The Greeks understood the technical application of sculpture to architecture better than the moderns. The diagonal lines of their figures contrasted most effectively with the horizontal lines of the architecture, and they carefully regulated the number and size of the figures in their pediments and the number of the columns, and other leading proportions of their buildings. Serious errors in this respect had been committed in the Madeleine and the Chamber of Deputies at Paris. The statues of the marshals on the steps leading to the latter were at first too large for the architecture of the building, and now, although their relative proportions had been altered, they were still unsatisfactory, and would probably be again revolutionised before long. The colossal statues of Schiller at Stuttgard, and of Gottenberg at Mayence, by Thorwaldsen, were both objectionable on the same score, being out of proportion with the buildings with which they were connected. Against this innovation of the younger sister on the province of the elder he could not too solemnly protest. The finest statues of the Greeks were seldom above the life-size, or one-tenth more.

The mediævals never attained a right understanding of sculpture in its proportions; their figures being adapted to tall and rigid niches. The churches of Henry VI. and VII. were covered with niches full of small figures; and he might observe that an empty niche, so commonly to be found in modern Gothic, was as great a solecism as a watchcase without a watch, or a nutshell without a nut. In modern times, and amongst Protestant people, it was a source of deep regret that the sacred office of sculpture had been altogether disregarded.

Painting was hardly less important as an architectural accessory than sculpture, especially as applied to interiors in this country. Air, distance, and perspective might be given and ceilings elevated by tints and tones. The mind naturally desired expansion, and a means of escape from the limits imposed by the walls of a building; and nothing could more effectually aid to carry the eye forward than the judicious use of painting, by which an uniform surface might be made as light as if it had been actually pierced with windows. The peristyle at the east end of the choir of St. Paul's was painted in imitation of lapis lazuli, and the judgment of Sir Christopher Wren in the selection of that colour had been strikingly proved, when, as an experiment to increase the effect, these pilasters were painted to imitate Sienna. The result was, that the space was apparently diminished to half its former dimensions. The admirable effect of distance produced by the original blue colour was totally destroyed by the warmer tint. The ceiling of the old Italian Opera House was a skilfully painted dome, which the artist had contrived to render almost as majestic in appearance as that of St. Paul's. The science of perspective had, however, lost its hold upon the public mind.

Whilst the admirable works of Raffaelle, in the loggia of the Vatican, proved him to be the greatest master of decoration; Corregio, by the introduction of large figures at Parma, had destroyed the impression which would otherwise have been made by the architecture of the church. Mr. Cockerell adverted to several instances of the success and failure of Julio Romano and other great masters; and proceeded to make a few observations on painted glass, the capabilities of which, in increasing architectural magnificence, he especially dwelt upon.

Finally, he mentioned the vast and increasing importance of the Iron order of architecture, in its artistic application. As the whole subject of decoration had been improved, and many prejudices removed by the great exhibition, he hoped this would be especially felt in reference to works in iron; the forms and proportions of which had never yet been determined. The Iron order was essentially Britannic: no other country possessed equal skill in it, or had employed it so extensively as our own; and whilst, from the abundance of wood and stone in England, the Masonic order would never cease among us, the like abundance of iron must cause it to give way in a great degree to the new order. It was an error to suppose this valuable material incapable or unworthy of decoration. Iron structures were susceptible of a similar classification to that of Doric, Ionic, and Corinthian in the Masonic order; for they might be governed by similar proportions to those of the palm, the cane, or the reed. The lecturer adverted to the strength of hollow columns, and also to the facility which they might afford for the construction of Gothic buildings, the characteristic lightness of which they would materially increase. A Gothic cathedral in this material might be rendered tenfold more astonishing in its effect. Iron columns of the proportions suitable to stone should be rigidly avoided. Next to England, Prussia and France had been most successful in the employment of the Iron order of architecture.

In concluding his lecture, Professor Cockerell said he had always felt much pleasure in laying before the students the result of his continuous studies, to the best of his ability. He regarded them as the depositories of the future architectural fame of England, and could only again urge upon them the importance of earnest and persevering study. He was much gratified by their zealous and kind attention, and till the next course of lectures sincerely bade them farewell.

We may mention that these lectures were illustrated by an extensive series of drawings and models. The number of students attending them has varied from about fifty to eighty.

Suffolk Fine-Art Association.—The annual meeting of this Association was held on Tuesday week, in the Town-hall, Ipswich, when the report of the committee was read by Mr. Phipson, the secretary, and from which it appears that the progress made is much greater than was even anticipated during the first year. The adoption of the report was moved by Mr. T. S. Gowing, a gentleman to whose active energies much of the successful result is to be attributed. He expressed his approval of a proposal by the committee to enhance the value of the annual exhibition by the delivery of a series of lectures on the fine arts. The report was unanimously adopted.

* To be continued.

NOTES IN THE PROVINCES.

Norwich.—On 29th ult. the chancel of the church of St. Peters Mancroft, in the city of Norwich, was re-opened for divine service. The whole chancel has undergone a new arrangement: the level of the floor altered: encaustic tiles introduced: the columns, which are particularly lofty and well-proportioned, restored: and richly carved benches put in the place of the old square pews. It is intended to arrange the whole nave and aisles in a similar way, as soon as the funds required can be obtained.

Stanford (Norfolk).—The old church here has been enlarged, and was re-opened on 19th ult. The north aisle has been rebuilt in the meantime, and, together with the nave, reseated. The aisle is covered in, as before, with a lean-to roof, and is lighted by five windows in the decorated style, by Mr. Adams, of Norwich. The seats, and the other works rebuilding inclusive, were done by Mr. C. Ayton, of Attleborough.

Tunbridge.—A waterworks company has been organised here, under the management of Mr. Purbrick, C.E. Ground for ponds and reservoir has been purchased, and a reservoir, to contain 120,000 gallons of water, or, at a trifling further outlay, 360,000 gallons, is to be formed. The estimates by Mr. Purbrick amount to 2,350*l.* The shares have been all taken, and the works will be completed in three months, unless the strike of the engineering masters prevents it.

Reading.—Some improvements and additions are being made at the Assize-hall, Reading, including a new room and new entrance, renovation of the council chamber, &c.

Wolverhampton.—The architect's report on the old collegiate, or parish church of St. Peter, according to a local paper, has been completed. The foundations of this very prominent church will require to be shored and drained throughout, the roofs of the nave and south transept and aisle to be renewed, and the other roofs repaired before any other restorations can be commenced. The present chancel will be removed, and a new one built in accordance with the rest of the church. The walls, buttresses, and battlements must be to a great extent rebuilt, and the whole interior rearranged. The restoration will occupy many years. The Ecclesiastical Commissioners are to contribute 3,000*l.* if the inhabitants provide an equal sum, to form the nucleus of the restoration fund.

Bolton.—The town council have confirmed the proceedings of the market committee, under which the tender of Mr. William Tompkinson, for the erection of the new market-house, has been accepted; as also that of Mr. John Evans, for the erection of Knowsley-street bridge, arches, &c. Both tenders were based on schedules of prices. One of the council stated, according to the *Bolton Journal*, that he had heard the erection of the market-house had been let for 18,560*l.*; the bridge and approaches for 9,000*l.* to 10,000*l.*; and that the land, he believed, would cost 20,000*l.* In all, he estimated the cost of the new market, compensation, &c. inclusive, at 70,000*l.* to 80,000*l.* Other members of council conceived this to be a grossly exaggerated estimate; the lowest named, however, being in all admittedly about 50,000*l.* The mayor stated that, as to the market contract, the amount depended on the manner in which the undertaking was carried out, and on the list of prices, no specific sum having been agreed on. It was objected that Mr. Evans had charged 8d. per yard for excavation, whereas the objector (Mr. Haslam) could have done it for 7d.; but it was explained that the amount of depth in relation to surface was unfavourable. Mr. Haslam also asked on whose plans the market-house was to be erected, as the architect's plans were erroneous, two of the sheets disagreeing. Mr. Robinson's original estimate for both market-house and bridge was only 13,000*l.* and for the shops in Knowsley-street and Fish-market, 5,000*l.* The area of the market-house, it was stated, would be 7,188 yards. The mayor said that Mr. Robinson's plans were being adopted, with alterations. Mr. Haslam was about to move an amendment, when he was told he was too late, and the committee's proceedings were confirmed, with two dissentients.

Stainland, Halifax.—New school-rooms are now being erected at Holywell Green, Stainland, near Halifax, at the expense of Mr. John Crossley, ex mayor of Halifax. They are situated on an elevated site on the turnpike road, at the entrance to the village, and are intended for numerous children from the surrounding mills. The principal room is 48 feet by 30 feet, connected with which are two classrooms, 17 feet 6 inches × 14 feet 6 inches, and an infant-school 30 feet × 30 feet. Galleries are provided both for the large school-room and for the infants'. In the rear of the building are entrance-porches for the children, with suitable accommodation for washing hands, &c. The style of the building is domestic Tudor, and the front elevation is divided by an ornamental bell-turret, with a clock, protected by a projecting barge-board with carved wooden brackets. Two porches with a high terrace-wall and decorated iron railings, and flights of steps, serve to give effect to the design; the steps being required by the difference of levels of the site and the public pathway, and which will be used only by visitors, masters, and others. The whole is to be warmed by hot water. The material used is a Yorkshire stone, from the Radcliffe Delft quarry. Mr. Joseph James is the architect; and the cost will amount to about 900*l.*

Swansea.—Some proposals have just been agreed to between the Duke of Beaufort and the corporation of Swansea, so says the *Cardiff Guardian*, as to the docks of this place, namely, that if the corporation would agree to a boundary extending from outside the lookout-house, in a straight line to the old gate-house on the sands, giving his Grace the land seaward of this line, he would abandon the claim which he was advised he had to several portions of land north of the proposed line. On this proposition being agreed to, the dock company, of which the Marquis of Worcester is the chairman, agreed to release the corporation from the subscription of 20,000*l.* towards the undertaking, as well as from the guarantee to the amount of 50,000*l.* under the Act of Parliament. On this offer being unanimously accepted by the corporation, it was announced that the Marquis of Worcester would visit Swansea, for the purpose of putting the first spade in the ground, in the course of a few weeks.

Holyhead.—About 5,500,000 tons of material out of the 6,000,000 required to form the breakwater have been deposited. Some of the stones submerged weigh upwards of 20 tons. They are extracted, as we have before noted, from a mountain of schist about half a mile from Holyhead, and are run down by railways to the sea. Charges of 50,000 lbs. of gunpowder are fired by galvanic batteries in the dislodgment of the quartz.

Chester.—The Earl of Shrewsbury, it is reported, has offered to give 10,000*l.* towards building and endowing a Roman Catholic Cathedral at Chester.

Stockton-on-Tees.—The imports of timber in 1851 at this port, according to the *Gateshead Observer*, were 15,172 loads in fifty-nine vessels, or about 2,860 loads, and eleven vessels more than in 1850.

Over-Darwen.—We are informed by Mr. H. P. Horner that the chapel stated in our last week's number, under head of Preston, as having been undermined by coal-workings, is St. James's Chapel, Over-Darwen, near Blackburn, not Preston, as stated.

Sunderland.—From a report by Mr. Meik to the River Wear Commission it appears that an extension of the piers seaward has been recommended, at an estimated cost of about 30,000*l.* for the north pier and 20,000*l.* for the south. The recommendation has been rejected, however, in the meantime, on account of the expense. A breakwater at the west side of the dock entrance has been ordered, with experiments to ascertain the cause of the silting up of the harbour.

Edinburgh.—The tower of Greenside Church has just been completed. It rises 100 feet above the threshold of the church.

Elgin.—Street and shop building seems to be in active progress here, some of it on plans furnished by Messrs. Reid, architects.

Forres.—One of the town council, Mr. Manford, has prepared plans and specifications for the erection of new markets at Forres. A joint-stock company is to be formed to carry them out.

St. Heliers.—A new cemetery, according to the *Jersey Times*, is to be formed at not less than a mile from the town.

POLYCHROMY.

THE subject of Polychromy, lately debated at the Institute of British Architects, implicates a vastly more important principle than mere archæological curiosity, for I am afraid that if it could be once proved that the Greeks pursued this system, so weighty in their authority in these matters, many of us would be led into a practice derogatory, I think, to the grandeur of our art, repugnant to a refined taste, and calculated in its results to draw us on to a puerile barbarism, destroying that which is incontestably *the* great principle of our art, viz., Form,—by setting up as a rival to it, what good sense and taste tell us is and must be merely an ornamental accessory, namely, colour; and we may be sure that if the Greeks really did pursue this system their knowledge of the true principles of art was infinitely inferior to our own, and their station, as models of perfection, would be justly forfeited. I will enter into no long statement of reasons which lead us to this conclusion, as far as architecture is concerned; but will refer immediately to that important adjunct of it—Sculpture. Let us refer to what one of the most judicious reasoners on art the world has produced, Sir J. Reynolds, considers the true aim and meaning of art, and of sculpture especially. "Imitation," he says, "is the means, and not the aim, of art. Sculpture is an art of much more simplicity and uniformity than painting: the object of its pursuits may be comprised in two words—form and character; and if, by a false imitation of nature, or mean ambition of producing a picturesque effect or illusion of any kind, all the grandeur of idea which this art endeavours to excite be degraded or destroyed, we may boldly oppose ourselves to any such innovation. If the producing of a *deception* be the summit of this art, let us at once give to statues the addition of colour. If the business of sculpture were to administer pleasure to ignorance, or a mere entertainment to the senses, the Venus de Medici might certainly receive much improvement by colour; but the character of sculpture makes it her duty to afford delight of a different and of perhaps a higher kind." Over and over again he denounces the attempt at deception as but the lowest province, and not even the legitimate one of art; and observes, as a fundamental ground common to them all, that they address themselves only to two faculties of the mind,—"its imagination and its sensibility." All educated minds will, I think, concur with him: it is for the vulgar to be struck with barbaric pearl and gold, to stand open-mouthed over minutely painted drapery, and the painfully life-like imitations of clever wax-work. It would seem indeed hardly necessary to treat this subject seriously; but that in an assembly practically connected with all the arts such a system has been approved of and advocated. As to the result of such a practice we may learn what it would be from what it has been. At the close of the 16th century there existed in Spain a school of painted sculpture of a most remarkable excellence, in which the works of Hernandez and Juan de Juni are pre-eminent; but as time flew on, and as genius died without successors, the real art of that school departed. Form, the most difficult and highest branch of all art, was soon neglected and quickly lost, and finally Colour became the artist's sole study, and the school was drowned in a deluge of yellows, reds, and blues: a similar fate would probably follow the introduction of such a system among ourselves, for from a vicious

principle we must expect bad results as a sure sequence. In the works of Luca della Robbia we have another instance of the bad effect of colour as applied to sculpture, for I think those who have seen his works will agree with me that the coloured subjects are ruined, whilst his works in marble or plain porcelain are admirable. I think that no man of taste would desire to see a repetition of the frieze on the Hospital of Pistoia except as a curiosity; and I would invoke the great names of the noblest period of art which modern times has known —Sangallo, Sansovino, Palladio, Raffaelle, Sanmichele, Peruzzi, and Michelangelo,—as powerful authorities against the introduction of such a system, which, whether practised by the Greeks or not, is revolting to the dignity, grandeur, and simplicity of a noble art, feeling, from what we know of their principles and practice, that they would energetically have opposed such a system, and never have allowed, as was asserted at these meetings, that if the ancient buildings were so treated, it should be our "pride and pleasure" to imitate, and our ambition to equal them. J. B. Waring.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

The Kroll Winter Garden at Berlin.—After this splendid establishment had been consumed by fire last year, its re-opening, after complete reconstruction, took place on the 24th February. A spacious entrance, capable of accommodating two coaches, leads the visitor through a vestibule to the entrance, where the bureau and the wardrobe are situated. To the right, an elegant winding staircase of iron leads to the corridor and the boxes of the first saloon. This, called the *Roman Saloon*, has a length of 80 feet, by 36 feet of breadth, and 26 feet high. It is painted gold, white, and red, and the ceiling has *casettes*, which surround two large fresco paintings. The walls are ornamented with groups in medallions. Large mirrors, 12 feet by 6, ornament the walls. By a colonnade, which divides the saloons, we reach the *King's Saloon*, which has a length of 100 feet, by 78 feet broad, and 40 feet high. Six chandeliers spread the light of 900 gas tapers over the space. The saloon and the surrounding boxes are painted white, gold, and green. The architecture is that of the Renaissance style: grooved out gilt pilasters and into caryatides, which support the ceiling; they are modelled by Professor Fischer. The ceiling consists of a network of gilt ornaments, containing medallion portraits of poets, painters, and architects. The third apartment is called the *Knights' Saloon*, and is of the same dimensions as the former. The ornamentation consists of paintings representing sports and mediæval gymnastics in eighteen arched niches. The other appurtenances of the new Kroll Winter Garden are of the same character, and the whole ornamented, moreover, with plants and shrubs. The very large attendance on the opening and subsequent day, proved the liking of winter gardens by the large population of the Prussian capital.

The Gallery of Ancient Paintings in Schliessheim Castle, Bavaria.—King Maximilian of Bavaria has commissioned M. Zimmermann, central director of galleries, with the formation of this collection (*Ahnen Gallerie*). It comprises about two hundred portraits of the rulers of the Bavarian dynasty, and begins with Otto the *greater* in the year 1180, who was the first Duke of Bavaria of the house of Wittelsbach. The *locale* chosen is a large saloon-like corridor in the upper story of the castle. Amongst the portraits are some of great value, especially by Behem, a pupil of Albrecht Dürer. Many were much impaired by age and bad usage, but have been ably restored by the conservators of the royal galleries. Besides their historical value, the portraits are faithful specimens of the costume, and the gorgeousness of those times, as the dresses of some of the princesses seem actually strewed with jewels.

Kaulbach's Frescoes.—The designs made after the frescoes of the New Berlin Museum, have been sold by Kaulbach to a Berlin publishing firm, for 1,000 thalers (150*l.*) The high-minded artist did not take the money, but presented it to the fund for the rebuilding of Cologne Cathedral. The king, also, has again this year allotted 50,000 thalers for that purpose, which, with some lotteries and the like aid, will adequately contribute towards somewhat upraising this hugest pile of mediæval building.

"THE BUILDER" ABROAD.

At a meeting of the *Société Libre des Beaux Arts*, Paris, Feb. 3, M. Moultat made a report upon a series of numbers of the Builder. The *Revue des Beaux Arts** says:—"This very interesting report, which contained a description of several remarkable monuments, was sent to the publishing committee, who, after examination, decided that an analysis of it should be published in the *Revue des Beaux Arts*. M. Moultat was congratulated on his work."——The last number of the *Journal de l'Architecture et des Arts relatifs de la Construction*, published in Belgium,† contains the first part of a translation of the articles "On the Dome in Modern Architecture," by Mr. Huggins, which appeared in our journal some time ago. Amongst the illustrations is an engraving, also from our pages, of the Street Elevation in Manchester (Messrs. Starkey and Co. architects), which we published some time since. The *Journal de l'Architecture* is exceedingly well conducted. The number to which we have referred contains an elaborate article on the ancient Roman Roads traversing Belgium, by M. Van der Rit, architect, with many illustrations, and a map of Belgium, showing the course of all the roads.

THE HOLMFIRTH CATASTROPHE.

The verdict of the jury on the cause of the death of one of the multitude of sufferers by the bursting of the Bilberry reservoir, at Holmfirth, is as follows:—

"We find that Eliza Marsden came to her death by drowning, caused by the bursting of the Bilberry reservoir. We also find that the Bilberry reservoir was defective in its original construction, and that the commissioners, engineers, and overlookers were grossly culpable in not seeing to the proper regulation of the works; that the commissioners, in permitting the Bilberry reservoir to remain for several years in a dangerous state with a full knowledge thereof, and not lowering the waste-pit, have been guilty of wilful and culpable negligence, and we regret that the reservoir being under the management of a corporation prevents us from bringing in a verdict of manslaughter, as we are convinced that the gross and culpable negligence of the commissioners would have subjected them to such a verdict had they been in the position of a private individual or a firm. We also hope that the Legislature will take into its most serious consideration the propriety of making provision for the protection of the lives and properties of her Majesty's subjects exposed to danger from reservoirs placed by corporations in situations similar to those under the charge of the Holme Reservoir Commissioners."

It appears from the evidence of a Mr. Leather, that "if a hole of 18 feet had been made in the waste-pit above the shuttle, the accident would, in all probability, have been prevented. He himself would have lowered the waste-pit below the level of the embankment. This could have been done at a trifling expense; in fact, would only have cost about 12*l.* 10s."

Mr. Littlewood, an architect and a commissioner, stated that so far back as 1846 he had pointed out the danger, and that an order was given to form this very opening; that he had employed Messrs. Thorpe and Co. stonemasons, to do the work, but that some of the commissioners threatened, if he proceeded, to resist the attempt by force!

A fatality far worse than even that at Holmfirth is dreaded, it appears, at Sheerness, which lies 8 feet to 10 feet below high-water mark at spring tides, while the beach wall and the stonework of the dockyard are not even a single foot higher than the usual reach of these tides, which only require the aid of a strong north-east wind to enable them to inundate the whole town and its vicinity. The walls, moreover, are said to be not sufficient in strength, even as they are.

* For Feb. 15. Rue de Clichy, No. 78.

† Livraison 4 of the 4th year. Office, No. 25, Montagne-aux-Herbes-Potagères, Brussels.

SWANSEA FREE GRAMMAR SCHOOL.

This academy is now to be erected at Mount Pleasant, from the designs of Mr. Thomas Taylor, architect; Mr. Rayner, builder. The style is Tudor, and the arrangement consists of a school-room, 70 feet in length, by 27 feet in breadth, with open timber roof; two classrooms, each 27 feet by 16 feet; hat and cloak room, a large dining-hall, library, undermaster's sitting-room, and residence for the head master, with accommodation for sixty boarders; all being approached by an entrance-hall, and united by a groined corridor, 100 feet in length (a separate approach and entrance being provided for the master's house). The entrance-hall forms the base of a tower, terminating in an octagon, 60 feet high. The principal front faces the south-west, and is 200 feet long, with a terrace 20 feet broad, extending the entire length of the building, and finished by a bank, sloping towards an extensive play-ground. The walls are to be built with the native stone, with Bath stone dressings.

This institution was founded, says the "Swansea Guide," "by the Right Rev. Hugh Gore, Lord Bishop of Waterford and Lismore, in Ireland, who endowed it with 650 acres of land, in the county of Glamorgan, by deed bearing date the 19th September, 1682, for the free education, in virtue and good literature, of sons of the poorer sort of burgesses of Swansea."

TELEGRAPH COMMUNICATION—SAINT GEORGE'S HOSPITAL.

In these days when every effort is made to improve social facilities of all kinds, and to complete and perfect every arrangement that can conduce to health or convenience, it may not be inappropriate to call attention to a system of telegraph communication just adopted at St. George's Hospital. Dr. Pitman, the zealous physician attached to the hospital, desirous of getting rid of the annoyance occasioned to the patients by the noisy transmission of orders through the different wards (thus the hall-porter was accustomed to ring a large bell in the hall until it drew all the nurses into the corridors, and then he shouted out the orders he had to give them), requested the assistance of Mr. John Braithwaite, the engineer, who visited the hospital and suggested the manner in which it should be done.

In the hall is a column three feet high, having in its top a dial on which are engraved a number of signals:—on the walls of the different wards are corresponding dials similarly engraved, but much larger; and when the pointer to the dial in the hall is moved to any signal, all the others move in precisely the same way—and at the same time a little hammer falls on a small bell, and draws attention to the fact that the pointer has moved. In this way about fifty signals are transmitted daily in each ward without the possibility of error or the least noise. The cost in the first instance we are told was very trifling, and that of maintenance is really nothing. The same arrangement might be made useful in dwelling-houses for ordinary domestic use. Messrs. Thompson and Grafton executed the work.

Metropolitan Sewers Commission.—It is understood that the present commissioners will not appoint a new engineer, considering that the five surveyors who superintend the five districts, into which the property within the jurisdiction of the commission is divided, are equal to all that may be required of them. The fact is, they will not be able to do anything: they are about 86,000*l.* in debt, without the means of clearing themselves, so that the execution of any works of consequence is quite out of the question.

THE PLYMOUTH AND COTTONIAN LIBRARIES.

Messrs. WIGHTWICK AND DAMANT, Architects.



PLYMOUTH PUBLIC LIBRARY.

The Plymouth Public Library, of which we this week give a view, has lately been altered and enlarged from the designs of Messrs. Wightwick and Damant, for the reception of a munificent donation from W. Cotton, Esq. F.S.A. &c. of Highfield, near Plymouth.

This donation, consisting of scarce and valuable engravings, original sketches and etchings by the old masters, with other curiosities of literature and art, will occupy one of the new rooms added to the original building, and be called the Cottonian Library. The room is 32 feet long by 24 feet wide, and upwards of 20 feet in extreme height. The sides, which will be hidden principally by cases, are plain, but the ceiling is of ornamental character. A plate-glass lantern gives light to the room.

The remaining internal additions consist of a news-room 24 by 20 feet, a law library, and an additional general library, each 36 by 20 feet.

The only portion of the exterior which is visible (that shown in our engraving), fronts Cornwall-street, and is Italian in character. The length of the façade is above 50 feet, and its height in the centre 48 feet. The effect is satisfactory, but would seem to be injured by the projecting houses on either side.

Mr. Thomas Marshall, of Plymouth, builder, executed the work at an expense of something under 1,200*l*.

THE NEW ENCLOSURE, BRITISH MUSEUM.

The new enclosure round the British Museum is now nearly completed; and whatever opinions may be entertained as to the expediency or otherwise of putting up so large and costly a railing, it must be pronounced a fine work of its class.

The iron-work has been executed by Messrs. Walker, of York, and the very great pains they have taken from first to last to carry out their contract in all respects, well deserves commendation.

The models were executed by various parties: they were commenced by Lovati, an artist of considerable talent, who, however, died before he had made much progress: they were then taken up and completed by Mr. Thomas and by Messrs. Collmann and Davis.

The frieze is wholly of hammered iron: the remainder of the iron-work is cast from metal moulds, and was chiefly piece-moulded, in order to obtain relief. The carriage-gates are opened by a windlass, both sides opening simultaneously. Each half of these gates weighs upwards of five tons. An underground passage gives access to the works for oiling the machinery and pivots, &c.

The height of the granite curb varies from 2 ft. 9 in. to 3 ft. 9 in.: the height of the iron-work is 9 feet up to the top rail: the length of the whole palisade, from one extremity to the other, is about 800 feet.

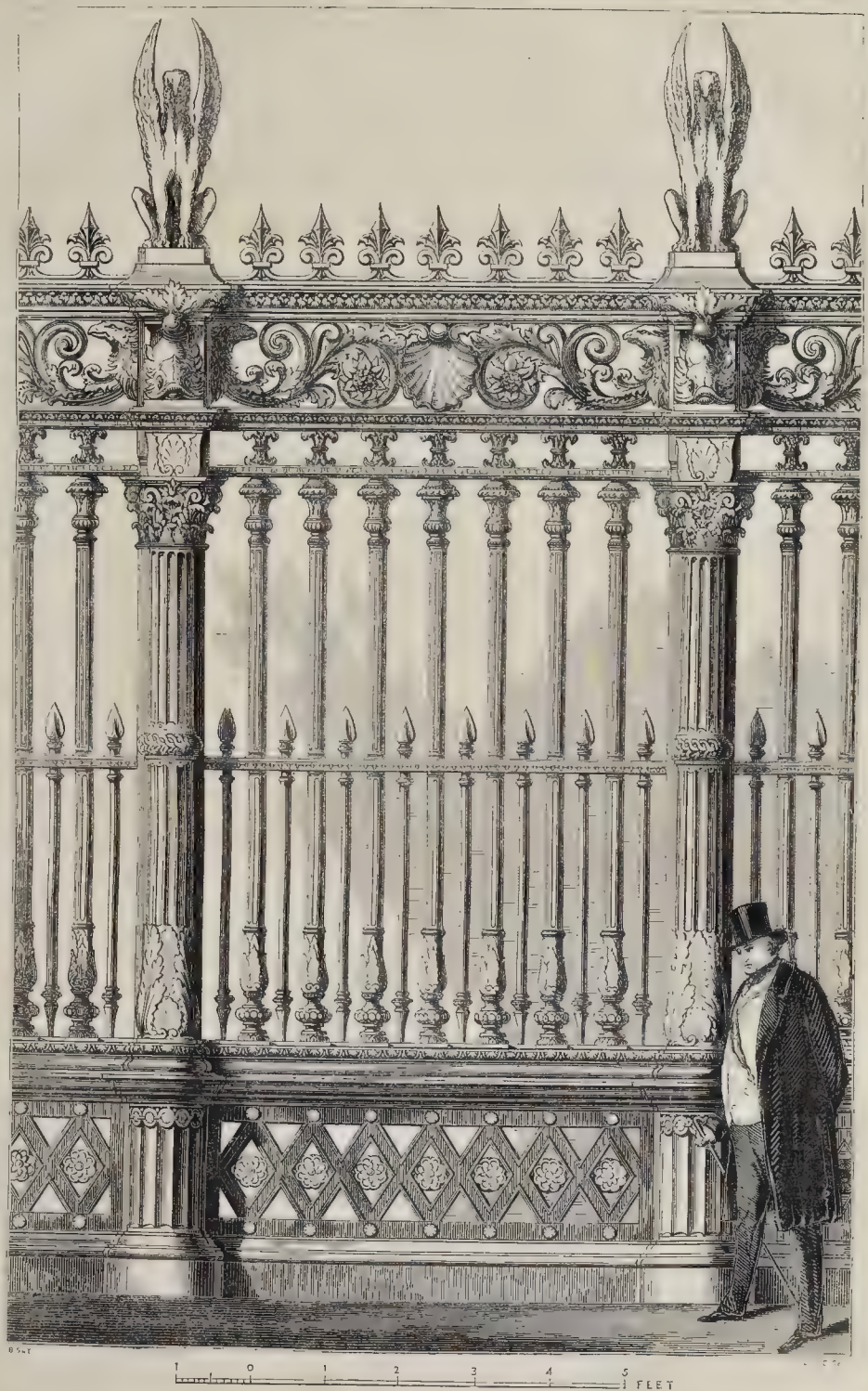
The iron-work was contracted for by Mr. Walker, whose tender, amounting to 6,786*l*. was the lowest. The actual cost will probably be a trifle less, on account of some small omissions.

The granite pedestals are intended to receive sitting statues of Shakspeare, Bacon, Milton, and Newton, small sketches for which have been modelled by Sir Richard Westmacott.

We have engraved one of the foot-gates, as affording the best means of showing the work on a large scale. The spear-tops and some other parts are gilded.

Stone Walls or Hedges?—At the last meeting of the Haddington Farmers' Club, Mr. Scott Skirving, of Campton, delivered an address on the question, "Whether stone walls or hedges form the more economical fences for arable lands? and secondly, what are the best modes of rearing and maintaining hedges?" The meeting, after some discussion, adopted a resolution in favour of walls in high climates and indifferent soils, but of hedges in all suitable situations.

Metropolitan Cattle Markets.—A numerous meeting has been held at Brentford, to promote the adoption of a site in that vicinity for the proposed new metropolitan cattle markets. The site recommended adjoins the Thames, and is supposed to be highly suitable on account of the facilities presented by its direct communication, through the various railways, with all parts of the country.



PART OF THE ENTRANCE GATES, BRITISH MUSEUM.

Mr. SYDNEY SMIRKE, A.R.A. Architect.

SIGHTS AND SCENERY.

Royal Princess's Theatre.—The construction of the dramatic romance, called *The Corsican Brothers*, which has been produced here with great success, is very peculiar, and it is carried out with a completeness and a power that render it singularly effective. One peculiarity is, that the action of the first and second acts is supposed to occur simultaneously. While the first act ends with the one brother and his mother in the hall of their chateau, on the stage, and a tableau revealing, as in a vision, the death in a duel of the other brother, the second act ends with the duel on the stage, and the interior of the chateau as a tableau in the back-ground. The supernatural effects are admirably well managed. The burden of the piece is borne by Mr. Charles Kean, who plays the two brothers, with great ability and effect. Mr. Wigan has a too life-like sketch of a French *roué* duellist, which he fills up with the hand of a master; and all the smaller parts are well played. The scenery, especially the interior of the Opera House, Paris, during a masqued ball (painted by Dayes and Aglio), is very clever.

The French Plays.—Déjazet is one of the greatest mistresses of her art, in her peculiar line, living, and may be usefully studied by all our English comedy actresses with but two or three exceptions. It is not acting by starts with her: it is not a series of speeches and relapses, but a complete identification with the part, whether in conversation or silent. Mr. Mitchell has begun his season well, and if we may judge from the appearance of the house on Wednesday night when *Cæsar et Napoléon* and *Les premières Armes de Richelieu* were played, is receiving the encouragement he deserves.

THE COST OF COLNEY HATCH COUNTY LUNATIC ASYLUM.

You will, I trust, follow Mr. Northall Lawrie's example, and not be deterred from freely animadverting upon the matter of the Colney Hatch Asylum by its being "an unpleasant affair." Were their *unpleasantness* allowed to operate as a bar to inquiry and discussion, impunity would be held out to all abuses. Take my word for it, there is, as Carlyle says, "nothing like making a row about things." I once told an editor friend of mine, whose foible was scrupulousness and false delicacy, that either an action against him for libel, or a horsewhipping, which would enable him to bring his action for assault against the flagellator, would be the making of his publication. Speaking quite impartially and disinterestedly, I should recommend the chance of a horsewhipping, with a thousand pounds damages, as the best course of all.

Q. IN THE CORNER.

SIR,—A second premium for a design for the Colney Hatch Asylum having been awarded to Mr. Godwin and Mr. Harris, I am aware that the Editor of THE BUILDER would feel a delicacy in making any observations on the deception that seems to have been practised as to the cost of the selected design, which had, at all events, one vote (I can *affirm*) in opposition to strong prepossession in favour of the second design, simply because it was stated that it would be less expensive. Surely, however, it is due to the profession and the public that you should record the facts. Permit me, therefore, to state, as already reported in the newspapers, that the magistrates held a meeting on 26th ult. at which Mr. Northall Laurie made an able statement as to the new asylum, the expenditure on which structure, he alleged, would now exceed 290,000*l.* although Mr. Daukes's estimate for the plan selected in competition was only 80,000*l.* to which, however, must be added 34,000*l.* in consequence of alterations which were made after the selection, especially in the wards, which were regarded as too small, and for ventilating and other towers, two school-rooms, and an enlargement of the chapel and offices. That thus 114,000*l.* was the actual amount of the architect's first estimates, but that the lowest tender, subsequently obtained, was 26,000*l.* beyond these estimates, or 138,000*l.* That a number of things, moreover, were proposed in the instructions which were not provided for even in these estimates, such as a boundary brick wall, 2,500*l.*; earthwork and laying out grounds, 12,281*l.* odd; and even roads, 16,430*l.* A fee of 300*l.* had been given for a design for laying out the grounds. Such expenditure he regarded as a reckless waste of the ratepayers' money. In conclusion, Mr. Laurie carried a motion that the Court be furnished with the instruction issued in July 1847, for the guidance of parties competing, and with any subsequent ones, also the specification, and the total expenses. Mr. Pownall replied at some length to Mr. Laurie, and stated that, without altering the plan, they were able to accommodate 1,500 instead of 1,000 patients, by improving the interior fittings; and that if the building were to be again erected, and another committee appointed, he was not aware that any material alteration could be made in the expense. What a lesson this should be to committees appointed to select designs sent in for competition, and to architects who are foolish enough to waste their time *on a chance*.

A JUSTICE OF PEACE.

*** "A Justice" comes much nearer our motives for silence on this occasion than "Q." We can honestly fulfil our duty to the public without any fear or probability of a "horsewhipping;" and fortunately our journal does not need the assistance of so slashing a catastrophe.

THE PRACTICAL INSTRUCTION OF WORKMEN.

LECTURES AT GEOLOGICAL MUSEUM.

A CORRESPONDENT, "C. B. A." in a communication which we regret that our limits prevent us from giving verbatim, offers, on the course of lectures now in progress at the Geological Museum, some important reflections, the pith of which consists in a proposal to substitute for mere words, models, drawings, &c. a practical explanation and conduction of some one process of manufacture or art, as far as possible, throughout all its details, so as to interest and instruct the workman, occupied in general with merely some one detail, as to the whole series of operations throughout which the material he works with passes in its progress from the raw state to the state of finished perfection as an article of sale. In this way the workman would be enlightened not only as to facts, but *their relations* or connections, in practical sequence. It is, as the writer agrees with us in remarking, a gross error to imagine that a collection of mere facts is knowledge. The relation, order, sequence, and other connections of facts are absolutely essential to a true *knowledge* even of the facts themselves, which, without their relations, are but so many bricks without either the mortar to cement them or the plan on which they are to be cemented. "C. B. A." admits that in such a lecture as that by Dr. Lyon Playfair on glass, no attentive workman could fail to add to his store of facts; but he demurs to the conclusion that any workman can ever be *practically* improved by such lectures, and if not practically improved, where is the gain?

GAS LIGHTING.

WE have been favoured by Messrs. Tallis with a letter in which they explain that they had no intention, in the pamphlet lately noticed in our columns, to infer that low-priced gas was invariably or necessarily dear gas, although their facts and figures went to prove that the gas supplied by the Central Consumers' Company was bad. Messrs. Tallis do not deny that much dear gas is also bad, and they complain that we misconstrued their meaning altogether in supposing that they wished to advocate the cause of dear gas. We are glad to find that they thus appear to regard the movement in favour of cheap and good gas as a practicable and a reasonable one. As to our misconstruction of the purpose implied in the title to their pamphlet "Is low-priced gas cheap gas?" it appears that Messrs. Tallis merely, but, we think, unfortunately, adopted that title from the *Journal of Gas Lighting*—a journal entirely in the interests of the old companies, who erroneously imagine that their prosperity is necessarily connected with dear gas although their own Parliamentary returns clearly prove the very contrary. An article with the title in question had appeared in the *Gas Journal*, and Messrs. Tallis simply adopted it as a connective link in a cognate question, overlooking, we presume, not only its origin but the *strongly negative* inference which such a question, put in such a way, would tend universally to evoke in the public mind. The negative strength implied in an affirmative *question* is well known, and hence in the present instance its adoption in the journal of the upholders of dear gas. Messrs. Tallis, we must add, complain of the illuminating power of the Central Consumers' Company's gas, as well as of its heating power, being inferior to that of the Chartered Company, but, according to their own statement, "the consumption was enormously increased" in the department where heat was required. —— A patent has been taken out by Mr. G. R. Booth, of Portland-place, Wandsworth-road, for a method of manufacturing oil gas from oil extracted from Banana leaves. The oil, it is said, is so plentiful and so cheap that it can be sold at a 1s. a gallon. It yields a sort of oliferant gas. The oil is exposed to destructive distillation in a close vessel at a moderate heat, and it is said that the apparatus is so simple, compact, and easily managed, that it is well suited for single dwellings, as the manufacture may be carried on in a cellar. The gas is declared to be very superior to coal gas, and the cost to be not more than one farthing an hour in a household furnace. Eton College, it seems, is about to be lighted with it, and many large mansions have already been lit up with it on an extensive scale.——A gas consumers' company is being set on foot in Marylebone to produce a gas of superior illuminating power at a cost not exceeding 4s. per 1,000 cubic feet, to lay on services and furnish meters gratis, limit the divisible profits to 10 per cent. and apply any surplus to a fund for future reduction in price. The capital is 100,000*l.* in 10,000 shares of 10*l.* each, with power to increase it to 150,000*l.*—— The Blackburn Gas Company have declared a dividend of 10 per cent. intimated an intention to enlarge their works at a cost of about 12,000*l.* and announced an increase of consumption in their gas to the extent of 800,000 cubic feet during the past year, and a reduction of price for the future to 4s. 6d. and 3s. 9d. according to quantity consumed. —— "In Leeds," says the *Liverpool Chronicle*, "the price is 3s. and yet the last dividend of the company was 10 per cent. to the old, and 6 per cent. to the new shareholders. In Stockton the price is only 2s. 6d. and yet the company pay a dividend of 8 per cent. In Gloucester the price is 2s. 6d. and the company pay 7½ per cent. dividend. . . . No doubt, we believe, exists that the prime cost of gas of the first quality does not exceed 1s. 9d. per 1,000 cubic feet, and it is equally unquestionable that the existing Liverpool company could supply it at 2s. 6d. or, at the utmost, 3s. per 1,000 feet, with a large residue for profit." If 2s. 6d. actually yields 8 per cent. in Stockton, 4s. ought to yield a pretty fair return in London, making every allowance for the difference of locality. Such is the sort of conclusion to which every reasonable man must come, in spite of all the outcry of interested parties to the contrary. —— The paper just quoted is now urging the Liverpool people to repeat the same gentle "pressure from without," by which alone they have ever obtained reductions of the cost of gas. The amalgamated company have recently announced another of their maximum dividends of 10 per cent. the highest allowed by their acts; and the *Chronicle* remarks that as to the surplus which ought by the same Acts to go to the reduction of the price below 4s. 6d. it is sunk in form of additional capital, in pipes and branch works, spreading many miles east, north, and south of even the outskirts of the borough, into villages and districts far removed

from Liverpool, and that "with each new creation of capital the proprietors get enormous bonuses by the extra shares assigned to them."

SLIGO.

NEW INDEPENDENT CHAPEL AND SCHOOLHOUSE.

THE building is situated in Stephen-street. The form of plan is a parallelogram, 66 feet by 34 feet in the clear, and accommodates 400 sitters on the ground-floor, without any galleries. Entrance-doors are placed on each side, the label mouldings of which spring from carved corbels of the heads of the Reformers. The seats are open, with bench ends ornamented with foliated heads. At the end is a pulpit and sacramental table, which have been carved in the town by the Messrs. Clarke. The roof is open-framed with carved principals, the interstices between the common rafters being plastered. The exterior is plain. It is built in the early Decorated style of the 14th century. The principal effect is gained by a high-pitched gable surmounted by a bell turret springing from carved corbels. Beneath the turret is a five-light window, the upper part filled in with tracery.

The whole is built of a very hard limestone, which is obtained in the neighbourhood, and which, to judge from the remains of the once beautiful but now ruined Abbey of Sligo, in the centre of the town, was used many centuries ago in the erection of the ecclesiastical buildings of that period.

In the rear of the chapel, and now nearly finished, are schools for boys and girls with infants, caretaker's residence, and minister's vestry.

Messrs. Joseph James and W. Blackett are the architects. Mr. John Lynn is the contractor. The stone carving was executed by Mr. Parday.

The expenses are—

Purchase of ground	£ 200
Chapel, heating apparatus, fittings, &c.	1,500
School, &c.	600
Boundary wall	100

FARM SCHOOLS FOR PAUPER CHILDREN.

AT the Statistical Society, on the 16th inst. a paper was read by Mr. Joseph Fletcher, her Majesty's inspector of schools, containing the experience of farm schools, as they are employed in foreign countries, for the education and reformation of pauper and criminal children. Its data were chiefly those collected for the Belgian government, by Mr. Edward Ducpetiaux. More than 50,000 children and young persons under sixteen are constantly dependent upon the public guardianship in England and Wales, in workhouses or gaols, in which they are trained for the most part to indolence and vice. To meet such evils on the continent spade husbandry has of late years been variously employed.

The conclusions derived from the experience of these institutions on the continent, as applicable to ourselves, appeared to be:—

1. That the farm schools of the continent, applied to education for the *prevention* of crime, hold a social position precisely analagous to that of our own workhouse schools.

2. That, for the children in these schools, as in those of the continent, a training in vigorous rural industry and close domestic economy, by means of farm-schools, conducted on the principles of a Christian family, will yield the greatest attainable moral vigour, with the least amount of indolence and self-deception.

3. That by far the greater number of the present workhouse schools are now producing converse results; and that we have no experience strongly favourable to regimenting and warding the children in large district edifices, however pleasing their mechanism, while we have ample testimony in favour of the farm-school system.

4. That the children at a proper farm-school, required to work steadily at all its out-door and domestic duties, as well as at their own mental cultivation, will certainly not cost more to the public (if so much) than under the present system, or that of the contemplated district asylums, while the saving in their improved conduct for the future will be very great.

CAMBRIDGE MILITARY ASYLUM COMPETITION.

CAN you enlighten us as to what the committee have really done, and what they are doing in this protracted matter. Designs were sent in on the 1st of October last, of which nothing was heard until an announcement of tenders having been received appeared in your pages, the lowest much exceeding the amount stipulated for by the committee; and, upon looking in at the Architectural Exhibition the other day, to my surprise I saw what was described to be a view of the intended asylum about to be erected, &c. Now, if matters have really arrived at this point, I think it high time the committee should give some account of their proceedings, particularly as none can be obtained from them upon personal application. I therefore venture to seek your all-powerful aid in bringing to light what at present savours very much of some unfairness, if the exhibited design has been so selected and adopted; and further, assuming that to be so, why are not the other designs returned? Surely, a trifling matter like this cannot require five months to settle, if all is right and square.

ONE OF THE COMPETITORS.

Notices of Books.

Short Hints to the Student in Architecture. By J. B. ROBERTS. Whittaker and Co. London. 1852.

MR. J. B. Roberts intends his book only for the youngest pupils. He has endeavoured, he says,—

"To draw the attention of those for whom the work is chiefly designed, to the points which are most apt to be neglected, or if not neglected, passed by as things of little moment, and unworthy of serious consideration; but which after experience too often sadly proves to be essential qualifications, in those who practise architecture as a profession, and upon whom the onerous duty of instructing others may devolve."

It contains many useful suggestions, and is written with good feeling, but it scarcely flies high enough for the present day. For example, in pointing out the necessity of not neglecting any opportunity by which a knowledge of the strength, durability, and capability of all materials used in building may be acquired, he says,—

"Tredgold's formulæ are almost universally adopted in the profession, but the workman himself is generally the most competent person to instruct you in these particulars, and do not let a false pride deter you from seeking this means of information: rest assured that the time employed in gaining such knowledge is not wasted, and will produce a result in future years that will make you grateful that you early devoted yourself to its acquirement."

This, it is unnecessary to say, will not do now-a-days. The student must investigate for himself, and go to sources for information denied for the most part to the workman. Most desirable it is, of course, to learn what practical acquaintance with materials teaches, but the student will do but little who stops here.

Nevertheless we commend the book, as well calculated to awaken the attention of the young student to the work that is before him.

Report of the Works executed by the Hon. Commissioners of Sewers of the City of London, during the year 1851. By WILLIAM HAYWOOD, Surveyor to the Commission. 1852.

THE works done under Mr. Haywood's superintendence during the past year are far too numerous for us to be able to give any accurate idea of them. Perhaps, not the least important amongst them, notwithstanding continued and extensive improvements in house-drainage, sewerage, &c. is the fact that the surveyor has had borings made upon the line intended to be taken by the great intercepting low level sewer of the metropolitan commission, and that so far as regards the city, no delay need arise in the carrying out of this important work, as the surveyor "knows of nothing to prevent the court commencing such operation of the works as may be contemplated within the jurisdiction of the city commissioners within three months from any date upon which he may receive instructions to prepare for such purpose."

Acting on a suggestion in our columns, and what is less customary with those who do so act, acknowledging honourably the source of the suggestion, Mr. Haywood has caused to be inscribed upon certain lamps the word "Halt" as sufficiently indicative of localities which have been further multiplied by eight times twenty-four individual accommodations, and the utility of which appears to be duly appreciated.

The reporter in conclusion states that "within a very short period, the sewers of the City of London being now rapidly extended into the smallest courts and alleys, will be completed; and although much will remain to be done in the re-construction of the ancient sewers and the adaptation of others nearly a century old to modern requirements, yet I see no reason why, at the end of the present year, the sewers rate, which has for so many years past been levied and cheerfully paid by your fellow-citizens, may not be reduced."

The Machinery of the Nineteenth Century, from Original Drawings. By G. D. DEMPSEY. London: Atchley and Co. Great Russell-street.

THE first part of this work now before us, the plates large folio, the descriptions quarto, contains Bishopp's patent improved disc steam-engine (which we introduced to the public some time ago in the shape of a description of that put up in the *Times* office); Clayton's patent tile, brick, and pipe machine; Fairbairn's patent wrought-iron tubular crane (an ugly, however effective, application of plate iron); and Clymer and Dixon's patent Columbian printing press. The drawings are very clearly made; but they seem to need fuller descriptions, with references to the various parts of the machines, than accompany them. We shall probably have other opportunities to refer to the work, which will be found of great use by a large class of persons.

Transactions of the Architectural Institute of Scotland: Vol. II. Part II. Nos. III. and IV.

THE main portion of the present part of these transactions consists of a report on the sanitary improvement of the city of Glasgow. Remedial measures are proposed and legislative compulsion advised for the future improvement of those horrid nests of corruption, the Wynds and Closses, which, bad as they are in the old town of Edinburgh, are infinitely worse in Glasgow, inasmuch as those of Edinburgh, winding chiefly down the faces of hilly ground, are partially cleansed by every thunder plump of rain, and ventilated so far by every good strong hurricane; but those of Glasgow, on the contrary, mainly stand on level ground, and not all the rains and winds of heaven can ever scour or ventilate them to any purpose.

Key to Tate's Exercises on Mechanics and Natural Philosophy. By THOMAS TATE, F.R.A.S. &c. Longman and Co. 1852.

IN this little volume there are the solutions of many useful exercises in mechanics, relating, for instance, to the equilibrium of pressures on embankments, pillars, walls, &c. to the work of living agents, saw machines, steam power, &c. to work in excavations, to hydraulic power, and many others.

How to see the British Museum in Four Visits. By W. BLANCHARD JERROLD. Bradbury and Evans, Bouverie-street. London, 1852.

THE name of Jerrold is an honoured one in the eye of the reading public, and we doubt not that anything written by his son will be received with favour. The mental and refreshing drink to sight-seers here provided, however, "needs no bush." Each "visit" is accompanied by a running commentary of instructive matter on the subjects to which attention is called, so that the volume comprises a collection of little treatises which cannot but help to open the eyes of the sight-seers, and to enable them to *see* an immense deal more in what is before their eyes than many of them ever did before.

It is an interesting circumstance in the early days of the Museum that no one was admitted unless he had previously obtained a

ticket, that only ten were admitted at a time, and that only three hours were allowed to see the whole collection. The regulations by which access was hampered and made purposely difficult, stand out in strong contrast indeed with the free and unrestricted access for all classes now enjoyed by thousands instead of by tens.

The Solar System; or the Sun, Moon, and Planets. By J. R. HIND, Foreign Secretary of the Royal Astronomical Society of London, &c. London: Orr and Co. Amen-corner.

A BOOK on astronomy for a shilling, by a well-known and approved astronomer! It is a small book doubtless, but all the more valuable to the general reader on that account. Moreover, although it contains much less on any one point than larger books do, it is a well-condensed epitome, which, we happen to note, actually contains points of information for which we have searched in vain through larger works. The volume forms one of a shilling series of "Readings in Popular Literature," published by Messrs. Orr and Co. of which "The World in its Workshops," as our readers may recollect, is one.

Miscellanea.

CONTENTMENT.—"Be seized, dear friend, with a very dreadful idea of your own sufficiency. Distrust your own competency to walk straight; your own ability to detect shams from realities; your own power to see, even from one moment to another, what is best for you. Groan not so for the good things of this life, because it happens to be the fashion. Fill not so your mind with golden visions; long not so intensely for those one or two little things which, you think, after all, fate might really accord you. Above all, be more disposed to regard the wheelbarrow than the coach and four, the table spread with bread and cheese, than the banquet-board groaning with its plate. If you sleep well, be happy! Remember, man leads two lives, his days and *his dreams*; and if you are safe as to the latter, accept the former as the very best which could be allotted you. Depend upon it, my-not-altogether-so-hopelessly-wicked reader, that the only things which are worth attention in this world are those nearest at hand; and that, if you have a clear mind, a *small opinion of yourself*, and good resolutions, you are as happy as a prince, ay, and as powerful too!"—*Hargrave Jennings, in Military Magazine.*

RICHMOND, SURREY.—Steps have been taken here towards the rebuilding of the Independent Chapel destroyed by a fire in August last. The committee, considering it a good opportunity of affording a greater amount of accommodation in sittings than was obtained in their old place, which only held 400 sitters, came to the determination of erecting a building capable of holding 800 persons, with the addition of larger schools. The plan of the proposed new building is a parallelogram, and the style chosen is Decorated Gothic. It will be 68 feet 6 inches by 40 feet in the clear, and is divided into six bays by buttresses, between which will be two light windows of varied design. The front elevation will be divided by a buttress running up the whole height, supporting a bell turret, which will spring from carved corbels. The interior will be provided with low benches without doors. Behind the chapel a lecture-room will be provided, 30 feet by 18 feet, with minister's vestry, and other conveniences. Underneath, school and class rooms, 12 feet in height, will be placed for day and Sunday schools. It is proposed to erect the whole of the buildings of brick, faced with Bargate stone, with Bath stone dressings. Mr. J. James is the architect.

IMPROVEMENT IN GLASS MANUFACTURE.—Edwin Deeley and Richard Mountford Deeley, of the Dials glass-house, have recently enrolled a patent for certain improvements. Their claim is for "the construction of furnaces the manufacture of glass, with grates having inclined bars or perforated plates situate and arranged so that the flame may play directly on the pots."

ON TRUE PRINCIPLES IN ARCHITECTURE.—At a meeting of the Oxford Architectural Society, on the 18th ult. Mr. Street read a paper on "True Principles in Architecture, and the possibility of a Development founded thereon." According to a local journal, he showed how that for the last three hundred years all true principles had been ignored; each man's caprice being his rule in defiance of all laws either of construction or art. The great law at the bottom of all good art is truth, which by no means excludes religion, but is more applicable as a law, and on this all development must be founded: he would assume, therefore, first that in good architecture whatever is truthful must of necessity be in itself proper and good, though it have no old precedent in its favour, and second, that no development can be good which does not proceed upon this principle. The absence of a desire to develop had led men to imagine that our only object was to restore a dead style; whereas had we seized on the principles of that style, and worked boldly, we should soon have improved. In all architecture the first principles are constructional, and none could be good in which this was not the case, and as the Pointed arch is the greatest invention in construction that has ever been achieved, it follows that all imitations of classic architecture are barbarous and bad. The opportunities for development are various: first, by examination of foreign examples, the true view of these being that they are so many developments from the one great fact of the Pointed arch, not that they are the development best suited to the countries in which they are found, though this is often true of mouldings and so forth. Nor should we stop here, but classical buildings should also be examined, in order to see whether any beauties existed in them which might be available for all time. He argued in favour of the horizontal line, instancing the method of its use in Italian and Greek pointed churches, and proving from instances in England that it was not opposed to the principles of the style, and that it was eminently constructional; the modern method of quoining dark buildings with light stone being bad, because it does not look constructive!

TRAFFIC OVER WESTMINSTER BRIDGE.—On Saturday I counted the carriages which pass my door going to and coming from Westminster-bridge: they were about 500 per hour, and as the grinding of the way scarcely ceases till two or three o'clock in the morning, and begins again at five o'clock, you may readily admit that 10,000 of all sorts of carriages pass over Westminster-bridge daily, of which Parliament-street gets so large a share that new granite stones laid on it scarcely show the places where they were laid on the next day. Does not this immense traffic point out the necessity of an additional bridge, and in the meantime a better regulation of the old bridge? Suppose the bridge were lighted in the middle, and carriages obliged to go only *one way* over the parts, the footways narrowed 1 foot 6 inches each to be given to the carriage way, and foot passengers obliged to go on one side proceeding and on the other side on returning: this order would give abundance of additional convenience.—□

STEAM DIGGING MACHINE.—A patent has been enrolled for George Guthrie, Rephad, Stranraer, for a machine, which is described as imitating spade labour.

SUSPENSION BRIDGES.—We have not unfrequently felt it our duty, without meaning to excite any alarm on the subject, to draw attention to circumstances ever and anon occurring which tend to diminish confidence in suspension bridges as heretofore constructed. We now learn that the new one, not yet finished, at Portland-street, Glasgow, has already shown signs of insecurity in one of its towers; and that the bridge at Feochan, in Argyleshire, was destroyed by floods on 5th ult. As remarked in the *Bath Journal*, in reference to these circumstances, few of the bridges built on this principle have escaped some serious disaster. The late Lord Western contended that they contained the elements of their own destruction, increasing according to the increase of their length.

RAILWAY JOTTINGS.—The first suspension tube for the bridge over the Wye, at Chepstow, has been tested by a weight of 1,100 tons attached to it. By the first week in April one of the lines of rail will be opened for traffic. The bridge combines the Britannia tubular and Menai suspension principles. Mr. Stephenson, it is said, has inspected the bridge, and concurred in the plan adopted by Mr. Brunel.——The viaduct at Hoo Brook, near Kidderminster, is now complete, except the hand-rails. Mr. Holloway, the sub-contractor, and his assistants have put it together in five months. It is made entirely of wood, with the exception of stone abutments and iron bolts and castings. The bridge has twenty-two openings, each 51 feet from the centres of the abutments, and thus it is 1,122 feet in total length. The stone intermediate abutments are about 10 feet in height: upon each abutment five legs of timber, each 40 feet long and 24 by 14 inches thick are reared, and these support the platform through the medium of trusswork. The height of the viaduct will vary, according to the level below it, from 60 to 69 feet. The timbers and castings are much weaker than in some viaducts of this kind. The timber has been put through a preserving process in Mr. Tredwell's yard at Gloucester. The abutments which support the ends of the viaduct are of stone, and the trussing rests upon arches. In consequence of an alteration in the original plan of the bridge, these arches were lowered 5 feet, in order to give strength to the trussing by rendering the "struts" more vertical in their position. The sub-contractor has hurried his work in order to open a passage for the contractor's engine and waggons to the northern end of the line.

FIRES IN CHURCHES.—That fertile source of mischief, overheated flues, has of late placed some important buildings in jeopardy. On Sunday last, St. Margaret's Church, Westminster, immediately adjoining Westminster Abbey, and directly opposite the Houses of Parliament, was fired by a red-hot flue during Divine worship. The beadle had the discretion and the nerve to allow the service to go quietly on while he ordered out the parish engines, got out the fire-ladders, tore up 20 feet of the coping stone with the aid of ten or twelve men, and with fifty pails of water, put out the fire before a soul in the interior knew anything about it, although a crowd of people witnessed what was going on outside. We need hardly say, that had the slightest indiscretion led to the betrayal of the fact within doors, however paltry the occasion might have been, the lives of some at least would have been sacrificed in the certain rush to get out. ——At St. Peter's-in-the-East, Oxford, on the Sunday before last, a sermon had been preached in the forenoon to aid in raising funds to pay for a new flue and stove for heating the church; and, in the afternoon of the same day, the same flue became overheated and set fire to "a wooden coal-box which stood on the top of it!" The fire extended, and but for prompt measures, the flames from the blazing pews would have spread over the whole body of the building and reduced it to ruin. The carelessness displayed in dealing with flues is scarcely credible.

COST OF THE ENGINEERS' STRIKE.—Not fewer than 20,000 men have been out of work since 10th of January: average earnings at 25s. per week, 175,000*l*. About 2,000*l*. weekly, or 14,000*l*. have been expended in supporting the unemployed; thus making a total of 189,000*l*. In addition, great loss must have resulted to employers from the inactivity of their machinery, &c.; and altogether, it is thought, says the *Observer* of last week, that up to the end of the week, from 200,000*l*. to 210,000*l*. would be a fair estimate of the loss entailed upon different parties by the engineers' strike. On March 1st, 5,000 men had signed the masters' declaration in Manchester, and were at work.

DISTRICT OF WHITECHAPEL.—On the 26th February Mr. Harry Oliver was elected surveyor to the district of Whitechapel, by sixty votes. The other candidates were Mr. Cantwell (forty-six votes), Mr. Hill, and Mr. Eales.

THE EXHIBITION BUILDING.—I went into the "shell" of the Great Exhibition the other day, and was much struck by its melancholy aspect. The seats were all standing, tenantless, in rows, as if they were placed rank and file, to be marched off to another station at a moment's notice: after having borne the weight of all nations on their backs, they found their occupation gone, and were reposing. The water cans, all huddled up together in friendship without a single *split* among them, looked proud at having laid the dust of hospitable England, for the comfort of our foreign brothers and selves. The bell which once called the workmen together to erect this mighty palace will ere long use its metal tongue to call them to its demolition. The staircases now creak under the weight of a single individual, though they bore the tread of many a foreign power, without a murmur. I was overwhelmed with a melancholy by the sight of the building, remembering what it was. The effect, standing at one end of the building, and looking towards the other, through its immense length is very extraordinary, there being nothing to obstruct the view, and the two great looking glasses still remain, as if intended to deceive the spectator as to the real length. Over them in the west gallery is the large organ that once pealed forth to gathered thousands, but now alas! it is silent, although a printed bill upon it still intimates that "it will be played at three o'clock."

SID.

*** The sale of fittings has been going on during the week. Lot 1, "thirty-seven battens, about 8 feet," sold for 1s. 11d. per batten.

BUILDERS' TENDERS.—The tenders sent in from builders *invited*, for some additions and alterations, Nos. 5 and 6, Newington-causeway, under Mr. Henry Jarvis, architect, estimated from quantities furnished by him and Mr. Marsland, with 50*l.* added to each of the tenders, with the architect's knowledge, on account of the short time allowed for executing a portion of the works, were—

Brass and Son	£1,450	0	0
Pritchard and Son	1,437	0	0
John Wilson	1,394	0	0
Locke and Nesham	1,393	0	0
Lawrence and Sons	1,382	0	0
Thos. Rider	1,366	0	0
James Cooper	1,356	0	0

Mr. Cooper has written to us complaining that though his tender was the lowest, because he would not undertake it for 1,200*l.* the work is being done by a party who did not tender; and he urges persons "who are invited to tender for works, to stipulate that, if executed, one of the parties tendering should be accepted, and that such irregular proceedings should not be countenanced by respectable builders."

A MODEL OF WEST FRONT OF LICHFIELD CATHEDRAL.—At the Birmingham County Court last week, Dubber, a chaser and modeller, summoned Thornloe, a clock and watchmaker, for 19*l.* 7s. 6d. balance of 60*l.* alleged to be due for a model in brass, gilt, 2 feet high, of the west front of Lichfield Cathedral, designed for the Great Exhibition. Defendant estimated the worth of the article, or at least the cost he expected to pay for it, at 7*l.* to 20*l.* Plaintiff, however, led evidence to prove that 60*l.* was cheap, that there were 400 figures modelled for it, and that it cost 5*l.* for mere soldering, and 28*l.* for other payments, besides fourteen visits to Lichfield, and wax modelling, &c. Verdict, 9*l.* 12s. 6d. with costs, making the price in all 50*l.* exclusive of costs.

MOORE'S PATENT LEVER GLASS VENTILATOR.—This ventilator, intended to fill a square in any sash, has an advantage over others that we have seen in the extent to which the louvres can be opened, and the simplicity of the action by which this is effected. If the air be thrown at too sharp an angle against the ceiling in entering, it falls at once into the room, to the inconvenience of those who may be sitting near. Means for the escape of the vitiated air are even more important than for the admittance of fresh, and are too often disregarded.

GRAND SURREY TIDAL DOCK.—The particulars have been forwarded to us of a project to construct an immense dock, to be called Fountain Dock, with an entrance from the Thames at Deptford, and an outlet in the parish of Bermondsey. The object of it is to accommodate the sea-borne coal at a cheap rate, and to relieve the Thames of colliers. The projector should have his statement put into better *English* than it is, if he wish to make any impression on the public.

CAMBRIDGE ARCHITECTURAL SOCIETY.—At the second meeting of the Society for the Lent Term, held on Thursday, Mr. O. W. Davys, St. John's College, read a paper on the Churches of the Lake District; and a communication was read from Mr. Freeman on the subject of Mr. Sharpe's "Seven Periods of Architecture."

TRADE AND MANUFACTURES OF PARIS.—The manufacture of furniture and cabinet-makers is carried on by 1,915 masters, who employ 9,006 workmen. In the manufacture of chairs and fauteuils (woodwork only) the number of persons employed is about 3,459. The turners reckon 94 masters and 389 workmen. In carving and ornamenting articles of furniture there is an *ensemble* of 222 masters and 1,125 workmen. The sawing establishments occupy 347 persons, masters and workmen. The upholstery trade occupies about 3,920 persons, many of them women. In the paper-hanging trade there are engaged 141 masters, who employ 3,295 workmen. The number of persons, masters and workmen, employed in wood-gilding is 1,310. In the manufacture of gas-fittings and of lamps about 3,000 persons are employed.

ORGANIZATION OF LITERARY AND SCIENTIFIC INSTITUTIONS.—Mr. H. Chester has laid before the council of the Society of Arts a proposal for the affiliation of the literary and scientific institutions, mechanics' institutes, and other similar bodies throughout the country, with the view of infusing new life into these local bodies, and of founding a well-organised system, whereby industrial knowledge may be cheaply and conveniently diffused. The council, it is said, appears to be disposed to act upon the suggestion.

BLAST IRON FURNACE SOOT.—It has been ascertained by Dr. Penny, of Glasgow, that the soot of iron furnaces contains a considerable quantity of salts of potash, of marketable value.

WHITTINGTON CLUB.—The members of this institution held their fourth annual soirée on the 3rd instant, when Mr. Monckton Milnes, M.P. now their president, commenced the evening with an address. This was followed by a selection of vocal and instrumental music; then the votaries of dancing had it all their own way. We were glad to learn that the institution is in a prosperous condition. It is fortunate in having an energetic secretary.

BELL-RINGING BY HYDRAULIC POWER.—A bell in the spire of St. Peter's Church, Dundee, has been fitted up with a striking apparatus worked by water power, whereby a couple of hammers striking on different parts of it ring a peal every morning at six and every evening at ten, without any manual superintendence at all, the power supplied by the town water company, being applied at the proper times by a clock which is connected with the same bell.

GLASS PUMPS, PIPES, AND DISHES.—We some time since expressed a wish that glass could be practically substituted for pumps and pipes where water was apt to act on lead. We are glad to see that a process, something like the enamelling of iron, has been taken up which seems to offer the very probable means of carrying out our wishes. It consists simply in the coating of the surfaces of iron inside and out with flint glass, whereby not only water pipes and pumps, but chemical and cooking utensils, plates and dishes of all sorts may be made to combine the tenacity of iron with the utility and beauty of glass. Vessels thus composed, it is said, may not only be knocked about without breaking, but may be even suddenly quenched from a red hot state without injury.

ELECTRIC LIGHT AND HEAT.—The French Government has instituted a prize of 50,000 francs in favour of the discoverer who shall render the voltaic pile applicable with economy to industry as a source of heat, to lighting, chemistry, mechanics, or medical practice. Scientific men of all nations are admitted to compete for the prize, which is open for five years.

CORK TOWN-HALL COMPETITION.—Two plans were selected by the Town-hall Committee, from about forty submitted,—one from Messrs. Atkins and Johnson, to cost 14,000*l.*; and one from Mr. Hargrave, to cost about 12,000*l.* The council have awarded to these the first and second premium respectively.

[ADVERTISEMENT.]

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THE BRITISH MUTUAL LIFE ASSURANCE SOCIETY, 17, New Bridge-street, Blackfriars, entertains proposals of any description involving the contingency of human life, and invites Builders and the public generally to examine for themselves the advantages gained for Assurers by the plan on which the Policies are granted, and which are indisputable except in cases of palpable fraud. It also recommends to their notice the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES, established in connection with the Office, and which readily afford the means either for an eligible investment, or for obtaining pecuniary advances upon very advantageous terms, repayable by easy instalments extending over a lengthened period.

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TO CORRESPONDENTS.

REGGEO's third letter to SORILLAN next week.

"*Brick and Tile Machines.*"—Within the last three weeks we have received five requests to recommend a maker of brick and tile machines. We prefer to refer the writers to our advertising columns and their own judgment.

"D. A. R.," "F. G. T.," "T. L. D.," (thanks), "J. L." (any thing sent for inspection will receive attention), "Messrs. B." "Martha Mizen," "W. C. T." "Opifex," "J. N." "Tyro," "T. M. F." "*Antiquaris*," (there is not an architectural lending library. The library of the Central School of Design contains the books he desires), "J. B. B.," "J. E.," "Subscriber," Bristol, "J. D. P.," "G. H." (we cannot pretend to advise on special cases. As a general rule there can be no question as to the value of ventilators in the position indicated), "E. S." (under our mark), "M. T." (ditto), "W. S.," "D. D." (the discovery of skeletons, &c. has led to the now generally received opinion that cromlechs are sepulchral), "W. L." (improper folding of THE BUILDER rests wholly with the newsvenders), "E. T. B.," "W. H. B.," "E. H. M." (will our correspondent favour us with his address?), "W. M." (says he has the model of just such a machine for ramming street paving as we hinted at last week. He must take his own course to make it known), "C. T.," "Mr. B.," "R. T." "A Party Concerned," "J. F.," "Your Constant Reader," "S. L. M.," "H. O."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

JAMES CHERRY, SURVEYOR.—If any one will furnish the address of James Cherry, late of Sherborne Cottages, Sherborne-street, Islington, afterwards of Croydon and then of Hackney, to Mr. NIAS, 3, Copthall-court, City, they will be rewarded for their trouble.

TO ARCHITECTS, BUILDERS, CONTRACTORS for SEWERS, or Patent Brick and Tile Makers; also to Engineers, or other Workers in Metals.

VALUABLE INVENTIONS for SALE or otherwise, one of which is patented; the others are protected under the late Act.—Models may be seen on applying to B. C Wiltshire's Library, Portsdown-terrace, near Kilburn-gate.

NORWICH LOCAL BOARD of HEALTH.
PUPIL WANTED.—The Surveyor to the Local Board and Corporation of the City of Norwich has a VACANCY in his Office for a PUPIL.—For particulars apply at No. 21, Castle Meadow, Norwich

A CIVIL ENGINEER, holding a public appointment, and whose private practice will afford every opportunity for acquiring both a practical and theoretical knowledge of the profession, has a VACANCY for a PUPIL. A premium will be required.—Address A. B. 8, New Palace-yard, Westminster.

TO JOURNEYMEN PAINTERS.
WANTED, a Sober Man, who thoroughly understands his business, with Graining and Writing. Apply by letter, stating particulars and wages, to J. FAULKNER, 32, College-street, Portsea.

WANTED, in a Builder's Office, a respectable Young Man as CLERK. It is indispensable that he should be a quick and correct arithmetician.—Apply, stating age, salary required, and references, to A. Z. Messrs. Waterlow's, London-wall.

WANTED, a Young Man, about 20 years of age, who can write a good hand, to assist in the counting-house and make himself otherwise useful, in a General Builder's Jobbing Business.—Apply by letter to A. B. 139, Southwark-bridge-road.

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WANTED, by an Architect in Manchester, an ASSISTANT, who is fully acquainted with the usual routine of an architect's office.—Address, Z. Z. Z Office of "The Builder," 1, York-street, Covent-garden, stating remuneration expected, and with reference to last engagement.

WANTED, by a Jobbing Builder, as CLERK, one who is competent to keep accounts, conversant with prices, making out bills or estimates, and to take charge of the ironmongery department.—Address, T. G., Mr. Webster's, No. 58, Coleman-street, City, stating reference, amount of salary required, and hours of employment. N.B. Any one who is only partially employed, and wishing a further engagement, may apply as above.

WANTED, as FOREMAN of a Timber, Deal, and Mahogany Yard, a competent Person. Written communications only well, in the first instance, be attended to, which must state where the writer has been previously employed, and the wages he requires.—Address, postpaid, to Mr. WM. DRUCE, Timber-Merchant, Swan-wharf, Chelsea.

WANTED, as FOREMAN or MANAGER of the CABINET-MAKING DEPARTMENT in an extensive concern in a large provincial town, a steady, energetic, and experienced man. He must possess a thorough knowledge of all current styles of cabinet work, and give references as to sobriety and general character. A suitable person would be liberally treated.—Apply (by letter only) to A. B. care of George Wallis, esq Head Master of the Government School of Design, Birmingham

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WANTED, by the Advertiser, aged 25, an ENGAGEMENT with an Architect and Surveyor, or as CLERK of WORKS, in town or country. References given as to ability, &c.—Address, A. B. 101, London-wall, City.

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WANTED, by a respectable Young Man, aged 24, a RE-ENGAGEMENT as ASSISTANT in an Architect's or Builder's Office. He is a good draughtsman, understands measuring, taking out quantities, bookkeeping, and the general routine of an office. Salary moderate.—Address, A. C. 3, Summer's-terrace, Forest-road, Kingsland.

WANTED, a SITUATION as CLERK, by a person who has had much experience in keeping builders' books, and has a thorough practical knowledge of the business. He can measure up work, take out quantities, and make plans. References given.—Address X. Y. Mr. Butler's, No. 2, Goodge-street, Middlesex Hospital.

WANTED, a SITUATION as FOREMAN of MASONS, by a person 30 years of age, in a Mason's or Builder's yard, or on a job to superintend the brickwork and stonework, whose character will bear the strictest scrutiny as to ability, integrity, sobriety, &c. &c.—Address, post-paid, to W. T. care of Mr. Rowe, 55, Great Bland street, Dover-road.

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NOTICE.—The Annual General Meeting of the Society will be held at the Freemasons' Tavern, Great Queen street, Lincoln's-inn-fields, on Wednesday, March 10. The chair to be taken at Three o'clock precisely.
Information relative to the Society may be obtained of the Honorary Secretary, by whom subscribers' names will be gladly received.—By order of the Council,
4, Lower Belgrave-street. JOHN TURNER, Hon. Sec.

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W. ALLARD, Secretary.
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JOHN PRESCOTT KNIGHT, R.A. Secretary.
Every possible care will be taken of works sent for exhibition; but the Royal Academy will not hold itself accountable in any case of injury or loss; nor can it undertake to pay the carriage of any package which may be forwarded for the purpose. The prices of works to be disposed of may be communicated to the Secretary.

THE ARCHITECTURAL EXHIBITION (with the collection of Materials, Patents, Processes, &c. connected with Architecture). IS NOW OPEN from Ten till dusk, in the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission One Shilling, including Catalogue. Season Tickets, including a Catalogue, admitting the holder from the 12th of January to the 16th of March, Two Shillings. Free Tickets may be had for Workmen, on application at the Galleries.
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	£.		£. s. d.	£. s. d.	£. s. d.
15	2,000	6	315 0 0	164 18 8	52 6 6
25	2,000	7	375 16 8	347 13 4	44 16 3
35	2,000	6	431 17 6	184 18 0	42 11 8
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20	1 13 10	1 19 3	50	4 0 2	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

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Age when Assured.	Policy effected in	Sum Assured	Total Additions in 1851	
		£.	£ s d	
27	1838	1,000	4 12 3	Participators in Two Septennial Divisions of Profits
35	1838	1,000	26 14 8	
45	1838	1,000	49 6 6	
53	1838	1,000	215 19 8	
64	1838	1,000	268 1 3	
21	1844	1,000	49 12 6	Participators in One Septennial Division of Profits
35	1844	1,000	53 4 9	
46	1844	1,000	77 15 0	
75	1844	1,000	84 13 7	
66	1844	1,000	91 15 8	

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See Advertisement of Saturday, June 28, 1851.

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N.B.—Some of the specimens, removed from the Fine Art Court of the Great Exhibition, are now on view at the depôt, 14, Stafford-row, Buckingham-gate, Pimlico.

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The Builder.

No. CCCCLXXV.

SATURDAY, MARCH 13, 1852.

THE proper maintenance of the ancient tombs of WESTMINSTER ABBEY concerns the whole kingdom. They form a visible history of the utmost interest and importance; they are evidences of the state of the arts at the time when they were executed unquestionable, and not to be matched; they appeal to, instruct, and refine those who visit them: no equivalent could be given for their loss,—they are priceless! Mr. Donaldson's paper on the condition of these tombs, published in our journal, has informed English lovers of art and students of history (who, of course, never visit a place so near at hand as Westminster Abbey), of the condition of these treasures, and will, it is to be hoped, gain for them that judicious attention which is imperatively demanded.

"Thinke how many royall bones
Sleep within these heaps of stones.
Here they lie, had realmes and lands,
Who now want strength to lift their hands."

The subject was further considered and discussed at the Institute of British Architects on the 8th inst. Mr. Fowler in the chair; and we think we shall advance the object sought by giving publicity to the remarks that were then made.

Mr. Donaldson, in opening the discussion, drew attention to some information which he had received in addition to that in his former paper, and read a letter from Mr. C. H. Smith stating that the green fragments of the mosaic work were not serpentine, as he had said, but green porphyry. To show the extent of the injuries done to the tombs at Westminster, Mr. Donaldson produced a rubbing of a brass in the Confessor's Chapel, exhibiting a mere wreck of its original condition, together with a drawing of it restored. A part of this brass had been carried off by one of the workmen at the last coronation to facilitate the erection of a temporary gallery. He then produced a design for the restoration of the Shrine of Edward the Confessor, different in its character to that submitted at the last meeting: at the same time he disclaimed any interference with the Abbey architect; his object in this solely was to enliven his subject and show what might be done. Observing that the decayed state of the royal tombs offered temptations to still further wanton injury, he strongly urged the importance of restoring them, and invited those who were present to express their opinions on the subject.

Mr. G. G. Scott said he would first offer some remarks on the history and state of the monuments in question, and then on their restoration. The principal works were the group of tombs and pavements executed in glass and marble mosaic, by Italian artists in the time of Henry III.; viz. the floor in front of the Abbey Altar, that of the Confessor's Chapel, the Shrine of the Saint, the tomb of Henry III. and those of his children and grand-children in the ambulatory around the choir. Besides these a small mosaic pavement beneath the step of Henry V.'s tomb had recently been brought to light, and was proved to commemorate the son of William DeValence: and this was of the same class as the above memorials. On the history of these works he had not obtained much information; but it was clear that Abbot Ware, who was elected in 1263, was at Rome in 1267, and caused the altar pavement to be executed in 1268, immediately after his return. He, in fact, brought the materials and workmen with him from Italy. The name of the artist who executed the mosaic floor was *Odericus*, and the glass mosaics on the tombs were by one *Peter*, who was described as a Roman citizen. These facts were proved by the inscriptions still existing. Mr. Scott then proceeded to notice in detail the venerable Shrine of Edward the Confessor. Alluding to the seven trefoil-headed niches in its lower portion, three on each side, he quoted authorities to show that they were intended for sick pilgrims to kneel in, when seeking restoration to health by the miraculous power of the saint. It appeared that before the present addition to the upper part was made, there was a carved wooden cover over the shrine, which was raised up to display the latter to the worshippers; three holes might still be seen in the vaulting of the roof above, which were no doubt made for that purpose. From the old historians, it was also plain that the shrine itself, or feretory, was adorned with gold and precious stones. In the Abbey Library there was an illuminated manuscript, which contained a representation of this monument, showing the lower part of stone, and upon that a shrine of gold of peculiar form, with a representation of the king in his robes, probably in enamel, on one of the inclined surfaces. With an indifference to minute accuracy common at that time, the whole of the seven niches were in this drawing shown on one side of the monument; but he thought it did not follow that the upper part was incorrectly delineated, because the monks no doubt attached more importance to the golden shrine than to the stone monument beneath it. No doubt an altar stood at the west end of this shrine, and he thought it probably remained there till the Civil Wars. A hole made by some accident at the west end of the monument was filled up by a panel from some tomb of the seventeenth century, which confirmed that opinion. A wooden altar-table had since been temporarily used at coronations to place the regalia upon, and this was described, at the coronation of James I. as "the altar of Saint Edward." Probably Mr. Donaldson's suggestion, in his first restoration, that pillars were placed at the angles of the shrine to carry lights, was correct, for many lights were burnt about it; but whether placed around the gilt shrine, or on the floor around the marble monument, was doubtful. Mr. Scott then considered the design of the west end of the monument, in reference to the large slab inserted in it, evidently not in its original position, though, as he believed, not far from it; and he produced a sketch in illustration of this opinion. Much injury was probably done to the monument at the Reformation, when the feretory, with its precious decorations was removed; but there were probably some repairs executed in the time of Mary; and the evidence appeared to give an earlier date, perhaps this same time, to the wooden upper part than its style denoted. After a few remarks on the other monuments, the speaker proceeded to the question of restoration. Admitting the accuracy of Mr. Donaldson's description of the melancholy state of these monuments, what could be done with them? If renewed, would they be the monuments originally erected? If the beautiful modern glass mosaics were introduced in the shrine, it would no longer be the work of Peter, the Roman citizen. Besides, the very injuries these tombs had received gave them interest; they were wounds that proved the identity, and if restored the tombs might cease to be regarded with the reverence they now inspired. On the other side of the question, however, much might be said, and he would not attempt to settle it.

Mr. Godwin said this was a question in which he had long been interested; he had published some remarks on Westminster Abbey as long as eight or nine years ago, wherein he had urged the necessity of attention to these monuments. There was no building, indeed, in this country of which we might be so proud as Westminster Abbey. He knew nothing like it: and certainly the most wonderful spot in this wonderful building was that which contained the shrine of the Confessor, where around one of the oldest of our sovereigns were gathered so many of their race. It was a great delight to visit this interesting spot, where, apart from the noise and bustle of to-day (and yet so close to it), the sight of that remarkable series of monuments inspired thoughts which could not but be most healthful and elevating. He was sure that every person present must be anxious that means should be immediately taken to preserve such valuable memorials. He hoped it would not be inferred from what had been said that these were all the works of Italian artists. England might claim a considerable amount of artistic knowledge and skill, even in the reign of Henry III. The meeting probably knew a paper in the "Archæologia," on Queen Eleanor's Crosses and Monuments, by the Rev. Joseph Hunter. In this he gave the names of those who were engaged upon them, and they were nearly all Englishmen, such as William of Stowe, Michael of Canterbury, Alexander of Abingdon, who was also called the *Imaginator*, Ralph of Chichester, and William of Ireland. Nor was he disposed to give up Master William Torell, whom Mr. Donaldson and others seemed really anxious to prove an Italian under the name of Torelli, and so get rid of him. He was always spoken of as "William Torell," and there seemed no reason to doubt about his being an Englishman; but even if he were an Englishman, Mr. Donaldson thought he might have employed an Italian to execute the bronze work. He, the speaker, saw no reason to suppose this. Torell was employed on the effigy of Henry III. as well as that of Queen Eleanor; he did the great statue at Lincoln, too; and if he had been merely a middle man, employing other workmen, the names of those men would probably have been given, for the accounts of the works were particular in this respect. With regard to the question of restoration, he should regret most deeply, and he thought that would be the general feeling, if any mere theory should be carried out. The subject should be approached with almost religious care. He would not place a metal shrine, or a wooden one, upon the stone monument of the Confessor, though either

might be true; he would not even put a sceptre in the hand of Queen Eleanor because the hole was there to receive it. It was quite possible that there never had been a sceptre, and that the artist found the effect of the figure was much better without it. It was deeply to be regretted that these tombs had fallen into such a state (it should be a warning to other guardians of national monuments): every care should be taken to repair and preserve all that remained of them; but he should view with fear and distress any attempt to introduce modern graces and decorations. The Abbey, generally, required most careful supervision, disfigured as it was with monuments of all kinds, but which were yet so interesting in connection with the men they commemorate, that they must not be lost. He hoped, nevertheless, that some day they might be revised, and some of them might be placed in the triforium, or elsewhere. In the meantime the architect should have a veto upon the introduction of any fresh monuments. He hoped, if the authorities were unable to accomplish the necessary works to the royal tombs, the attention of the Government would be called to the subject, so as to secure the means of putting these memorials in as good a state as possible, in order that those who came hereafter might have, at least, as much as we had, but without any modern additions. Mr. Godwin said he could not conclude without an earnest expression of thanks to Mr. Donaldson for the ability and energy he was constantly displaying for the benefit of the profession and the advantage of art. He was always at work, and always at work well.

Mr. Scott said there was one point of great importance,—namely, the preparation, with the aid of the Government, if necessary, of a series of perfect drawings of all the mediæval monuments in the Abbey, in which every detail should be shown with sufficient minuteness, to serve as complete and imperishable records of their present state.

Mr. Edward Richardson read to the meeting a series of interesting extracts from Gough, Walsingham, Devon's Issue Rolls of the Exchequer, and other sources, in reference to the royal tombs. From these, he said, it appeared, in confirmation of Mr. Godwin's remark, that among the workmen employed in the 43rd Henry III. on the King's works at Westminster, were Richard of Colchester, John of Oxford, Bartholomew of Westminster, Richard of Chichester, and many others, all, without doubt, Englishmen, whose pay appeared to have been about 4d. a day. In the 1 Edward I. Robert of Beverley was employed upon the royal tombs; and in the seventeenth year of the same reign Hugh of Kendal erected a house or workshop in the burial-ground of Westminster, where the statues of the King's late father and consort (Henry III. and Eleanor) were being made. Other passages referred particularly to the erection of the tombs of Anne of Bohemia and Henry V. As to the question of restoration, admitting a fear of the loss of originality by injudicious operations, his own experience in the case of the Temple Church served to show what valuable monuments might be brought to light merely by careful cleaning. The effigies of the Templars in that edifice afforded a striking proof of this. Moreover, Mr. Donaldson had truly said that neglect engendered disrespect, and it was therefore most important that something should be done at Westminster Abbey. The motto of a judicious artist would be, "Cleanse, but destroy not; add as little as possible, and that little only on the best authority."

Mr. Donaldson suggested that it would be very desirable (an adjournment of the discussion being proposed) that the members of the institute should, as a body, visit and survey the royal tombs, and he was sure they would fully appreciate the necessity for some immediate operations. It was accordingly arranged that on Monday next, at twelve o'clock, the members should visit the Abbey in a body.

With respect to the question of the position of art in England in the reign of Henry III. it seems certain that our native artists were generally employed, and their work much prized. At this period Durham and Irish works in silver and gold were in great estimation. At the beginning of the next century English goldsmiths and enamellers were settled in Paris.* William of Gloucester, the goldsmith who cast the brass figure for the tomb of Catherine, the infant daughter of Henry III. and Walter of Colchester, whom Matthew Paris calls "*pictor et sculptor incomparabilis*," were both Englishmen.

As to Eleanor's tomb, the stonework was executed by Richard de Crundale, who built the Cross at Charing. Master Thomas, the carpenter, received 44s. 4d. in 1292, for timber and for making the scaffold, &c. for raising the image of the queen. Thomas of Hokynton, or Hoghton, *ingeniator*, received 70s. for making a cover for the image, and this was decorated by Walter of Durham, a skilful painter, who was at that time much employed on the works at Westminster. Thomas of Leghton had 13*l.* for the ironwork (a large sum), and Master William, the paviour, 7*l.* for making the pavement about the tomb.

FINE ART: ITS NATURE, RELATIONS, AND TENDENCIES.†

PAGANISM and high art no longer co-exist, and Sculpture busies herself no more in the embodiment of the false god; yet, as it appears to me, there is no decoration for the sanctuary of the true more appropriate than sculpture, no art being more susceptible of solemnity of treatment; and there is ample range of subject of the highest elevation and most becoming description in sacred history for such a purpose. For idealizing and exalting humanity and giving us worthy ideas of our species and ourselves, the sculptor's chisel is a magician's wand; and the Egyptians, Indians, and Greeks but responded to a natural call of the soul in their adoption of colossal proportions. Phidias aimed at this in the celebrated Minerva, and in his embodiment of the grand conception of Homer, the Olympian Jupiter. The colossus of Apollo at Rhodes was an issue of the same soul-feeling; and the proposal to cut Mount Athos into a statue of Alexander, or one of the Alps into an image of Napoleon, derived its motive probably from something besides servility and flattery.

At the same time this resorting to the colossal on the part of the ancients shows the limits of their art, the chief aim of which was the highest sensuous beauty, and which, I believe, it was reserved for the moderns to outstep. The glory of the material form of humanity is the glory of Greek art, and it was its ultimate goal. With the Greeks expression was subservient to form: they eschewed strong expression as militating against beauty; for even in subjects in which truth to nature dictated strong expression, we find it omitted or very sparingly used. We have never rivalled the Greeks in colossal proportions, and their sensuous beauty may be said to be unapproachable; but by making the expression of the immortal part of man—the revelation of the states and conditions of the soul, as manifested in the face and form—a prominent aim, we have, I consider, explored new regions in the realms of the beautiful and true, and enlarged the sensorium of art: in the Madonnas of Christian sculpture there is often found a sentiment of maternal affection and solicitude,—in the face of Christ, of benignity and compassion,—that touches all hearts; and when we consider the infinite scope thus opened up by expression, we shall differ from Sir Joshua Reynolds on this subject, who must have taken a limited view of it when he said that the boundaries of the sculptor's art have long been fixed. Modern sculpture, however behind the Greek in beauty, has reached a fuller and completer expression and embodiment of nature, and produced a whole from which the colossal style—I mean extreme colossal—may be cast out as unworthy of the spirituality and refinement of genuine art.

In our art we must have the truthful, the natural, the pathetic; and sensuous grace, so far as is inconsistent with this, must be sacrificed, or at least must be subordinated to them. Ideal beauty would sometimes interfere with the impression sought to be conveyed,—with the intellectual and moral expression of the work.

But, at the same time, it should be observed that faultless and ideal form and perfect beauty is one object of art; and nothing can justify the artist in preferring deformed and common-place nature to the beautiful, where the latter was not inconsistent with the nature of his subject, attention to which only leads generally to a selection of the right class or order of beauty, and seldom to the exclusion of it. To omit ideal beauty from art would be to neglect a part of his duty, which is, like that of the poet, to give pleasure as well as to convey truth; or to do the latter in the most agreeable, graceful, and elevated manner: beauty is the material clothing of his art, or at least its ornament; and to lose sight of it is to err as much as would the poet who should choose his words without respect to rythm or metre; for sensuous beauty, resulting from form and colour in painting, which is correlative of poetical diction, is to heighten the pleasure conveyed by the subject, where that subject is of a pleasurable nature, or to mitigate the painful feeling, if such be the kind received; just as metre is known to heighten the charm of gay and elegant verse, or temper the painful feeling excited by vivid descriptions of the profounder passions. And this, it should be remembered, is a characteristic of the fine arts, and constitutes a part of their claim to the appellation of the "Arts of the Beautiful." Besides, sensuous beauty, as far as consistent with the moral and intellectual character, is part of their means of expressing or representing beauty of mind: it is the outward and visible sign or symbol of inward purity, which can alone be rendered through the medium of corporeal grace. This is a casting of the body into the mould of the spiritual temperament, and is conformable to the analogy of nature as well as to the method of the antique: "the divine form of the Greek god is the incarnation and expression of divine mind," which the artist had no other means of asserting.

Neither must expression be set free from all restriction: as the ancient sculptors were careful to avoid injuring the sensuous beauty of their works by it, so we should take heed that it encroach not upon the moral dignity of ours. It is possible to degrade sculpture by exhibiting base or criminal passions, as in the Bacchus of Michelangelo, in which the sculptor sought to express the licentious and disorderly character of his subject. But to resume our remarks on the province of this branch of art.

From the sanctuary, sculpture, in Protestant times and countries, has descended to the lower walks of life; and leaving the ideas of deity and religion to the more comprehensive expression of the poet, has occupied herself with perpetuating the memory of those whom a grateful intellect delights to honour;

* See the late Mr. Hudson Turner's "Domestic Architecture in England:" J. H. Parker.

† Continued from p. 148.

and her most direct and legitimate work in the present day appears to be that of presenting to us in our places of public resort the idealised resemblance, not of the mere man of rank, raised by the accident of birth, but of the poet, the statesman, the philosopher, or by whatever other special name we distinguish the individuals included in that pre-eminent order of good and great men; and it is much to be wished that Sculpture would walk with wider and truer step through this path of her manifestation. The Greeks of old raised statues to wrestlers, and it may be questioned if we have awarded them much more worthily. Votive sculpture, in the shape of statues, has been raised to many who, living, could advance no claim whatever, and what is worthily voted has been too much monopolised for one or two classes of great men. Warriors and statesmen are not the only men who deserve well of society; nor are the faculties that lead to success in their professions the greatest endowments of man. These have their claim; but there are men of a higher mission. The poet is the "crowned one" of the world's benefactors; for poetry is the alpha and omega of all knowledge. Nevertheless, there is another guiding principle that should have influence in the distribution of such honours. Among the departed great, immortalised by the chisel, I would of course have poets, artists, engineers, architects; but there is a class of men, large benefactors of their kind, who, as their labours do not assume so tangible and visible a form, have more need of monumental commemoration to extend and perpetuate their just fame;—I allude to such men as Watt, Sir Humphry Davy, Arkwright, for the most part quiet followers of science; some scarce known to the general mass of the people, to whom posterity, without such mementoes, is likely to meet but scantily the meed of praise, whose memories therefore most need such offerings. In behalf of these especially, and of all true benefactors of their kind, it is devoutly to be wished that sculpture would, in such material as best suits our varying climate, stand out more openly in the sight of all men; and from the village highway, the town market-place, or city hall, notify in the imagery of her æsthetic language, the worth and genius that had in such locality found a birth or an abiding place, illuming the spot with the serene graces of art; and from her pedestals of honour proclaim to the daily life around, those incentive lessons of spiritual exaltation, failing which, man's life sinks to the level of the brutes without the palliation of its moral innocence.

What, for instance, if the sun, that struggles through the smoky atmosphere of our northern commercial metropolis, should gild with its beams the statue of Roscoe; or, through the thick fogs that darken the busy thoroughfares of Manchester, should loom the sculptured image of Cheetham or of Dalton? What, if the mountain breeze, that sweeps over the seclusion of Grasmere, should kiss with whitening lip the votive image of Wordsworth; while the smoke that rises from the lowly roof where Shakspeare first saw the light, should, as it melts to air in its passage towards his quiet grave, hover round a modern statue of one who even now we feel as fully as when it was first written, "Was not made for an age, but for all time?" What, if thus standing forth in the common way of common life, these kindred mute orators should, by their presence, typify and exhort to higher things; and to the weary plodder of the street or road should say, "We once were men lowly and weak as you, by fortune as slighted, and by trouble as tried; but from the depths of our social humiliation, from the darkening tumult of our distress, we looked up with an eye of hopeful endurance on the calm heaven of beauty, of goodness, and of truth; and in the strength of deep faith, with earnest toil, have earned the title of friends and benefactors to mankind; and passing by the heraldic honours of titular dignity as a failing and unstable thing, have achieved an entry into the higher and more enduring roll of the nobility of God: go, thou, and do likewise." What if this were spoken in the beautiful language of sculpture, throughout the length and breadth of the land, wherever genius had wrought its work? Would art be made too common and degenerate? Or would life be rendered too ideal and enervated? I trow not. True, there is an obstacle in the inartistic contour of the modern style of dress, which must to some extent render the task of the sculptor more difficult than formerly; but, as I think, not so much so, but that a deeper feeling in the artist, and a wider comprehension in the spectator, might find means to obviate.

The idealisation of form, which Sculpture effects through absolute relief, Painting establishes by the magic of colour and chiaroscuro: in her hands, art glows with the flush of life; and to the beauty of outline she adds an art-perpetuation of that veritable beauty of being which it is her peculiar province to express. Like her sister branches of art, she made her first appearance in the service of the temple, though she seems to have been destined to a longer period of infancy; for (whilst giving the fullest weight to the testimony of Pliny and others, as to the excellence of the painters of antiquity in the earlier ages) at its first appearance painting seems, as I before observed, to have partaken more of the nature of polychromic decoration than of a work of art. But in the hands of the Greeks it appears to have gradually developed its powers through the careful delineations of the cestrum and the monochrom, up to the pencil and the full scale of colour. Of the productions of their great painters none have descended to us, but the testimony of ancient writers warrants us in concluding them to have been both true and excellent works of art, though their custom of applying colour to sculpture, and the rather unaccommodating nature of their vehicle—the oil method being unknown—would lead us to attribute to themselves singularity of taste, and to their works a technical deficiency, as compared with the manageable materials and vehicles of later and modern times.

In its progress, both of decline and revival, painting appears to have followed the path of sculpture; and in the early mediæval specimens, in the hardness of outline, the pattern-like imitations of form, the crude nakedness of colour, we see the subject-matter of the art cramped within the limits of an undiscerning conventionalism, as was the statue of the saint within the limits of his narrow niche. Yet, in like manner as in the sister-art, we ofttimes see, amid barbaric gauds of colour, and semi-childish simplicities of invention, hints and presciences of ideal sentiment and expression, which, like the morning star, heralded the brightness of the coming day. And the day came; in that memorable time when, from the conquered walls of Byzantium, came out the relics of classic learning; when from the market-place of Wittenburgh blazed up the light of intellectual freedom; when from the presses of Germany welled out the stream of knowledge; and the west wind that curled the Atlantic wave came fraught with the breath of discovery,—then art awoke to the glory of her ancient strength, and put on the garment of her beauty, reaching in the design of M. Angelo, the expression of Raphael, and the colouring of Titian, a height of power never since surpassed.

After what has been advanced relative to the sculptor's province in the present day, little need be said on that of the painter, as far as history and portraiture are concerned. The latter are fields he can only share with the sculptor; but landscape art is one in which there can be no rivalry with sculpture: it is peculiar to the painter, and is his private walk, untrod by any other. As the branch of painting peculiar to the moderns it claims some notice here. What is chiefly to be desired in reference to it is, that the artist would, as he has been emphatically advised by Ruskin, walk lovingly and trustingly with Nature, and render in his works his own impressions, and not any conventionalism that may have been put for her by foregone painters. The landscape artist is to see nature with his own eyes, and not through the medium of the schools, and give his whole energy to a truthful rendering of her facts, on which all his combinations are to be based. And though the same object may thus come to be differently rendered by different artists, yet if each has given his own impression of it, its image on his own soul, their works will be all true pictures—psychical truths. In thus faithfully representing nature the artist follows the example of the poet, who but holds the mirror up to nature, and with him he will find no lack of room for the faculties of genius. Imagination and feeling are to penetrate the arcana of nature, and lead to a detecting of those beauties that to the dull or feeble are never manifested—to vivify the impression received, and influence the treatment of the subject. Landscape painting must not be underrated; while we expatiate on the refinement, spirituality, and difficulties of the expression in sculpture and in historical painting, we are apt to forget that external nature has also a soul to express, and that analogous subtleties exist in the art of the landscape painter. Expression in historical or figure painting is in the form as the artist sees it before him, and to catch it is doubtless the highest effort of delineation; but to seize the harmonious spirit of external nature as it reveals itself through the mysterious and fleeting glories of light and shade and colour,—to discover the secrets by which the effects of chiaroscuro are produced, and untwist the varied links that bind the soul of harmony,—to do this is also a task not unworthy of the highest minds.

I come now to the third and concluding branch of my subject, viz. the tendency of art,—what in its present state it does.

The question what art does must receive in reference to its different branches, very different answers. The influence of the poet has been wide in its sphere of operation, and great and ceaseless in its power. His page has not only been directly an instrument of the highest refinement and exaltation to the naturally gifted few, the elect of taste; but through the medium of their example it has conduced to the moral and intellectual improvement of the lowest in the social scale. The true poet, moreover, has succeeded in creating the taste by which he is duly appreciated: if we compare present society with that of the last century, or beginning of this, we shall find a regenerated taste in reference to literature generally: the morbid passion, for instance, of Byron and his followers so much in vogue no great while ago, is disappearing from our poetry, for it would no longer be tolerated; and the popularity of Scott and of Charles Dickens, the high moral aim of whose works contrasts so favourably with those of Fielding and Smollet, tells the same tale of the growth of a true refinement.

But whilst the poet is followed by all who think and feel, how few are the genuine recipients of the artist's inspirations, who enter his charmed circle and participate in his emotion! The true painter and sculptor are poets also who, through their respective media,—*their* epics and dramas—express truths as great and as sublime; but what, I would ask, have they done? where are their fruits of labour? They have, doubtless, given pleasure by the symmetry of form, contrast, and harmony of colour and light and shade, and all that go to make up sensuous beauty; they have gratified the animal feelings, but what nobler purpose in relation to the soul has been answered by their works? "Art," says a celebrated essayist, "has not yet come to its maturity, if it do not put itself abreast with the most potent influences of the world, if it is not practical and moral, if it do not stand in connexion with the conscience, if it do not make the poor and uncultivated feel that it addresses them with a voice of lofty cheer." This is true, but the failure complained of proceeds, I conceive, less from a want of power in our high art productions than from the prevalence of narrow and false views of art itself and of what constitutes the perfect and entire man. Pictorial and sculptural art speaks not merely to the intellect and senses, but to the heart and spirit, carrying "healing on its wings;" and there are inherent qualities in the human breast

that no false training can entirely eradicate, to which its objects appeal; for noble forms, which are the symbols of goodness, have a natural tendency to exalt the mind; but this truth is not generally recognised, and art is estimated too much from an intellectual point of view to the neglect of the spiritual. Few men, it has been well observed, have a proper sense of an æsthetic *whole;* and this narrowness of comprehension reflects back an injurious influence upon the quality of art-produce; for if a picture, a bas-relief, or a building be beautifully executed, it passes current as a true work, though, weighed in a just balance, it be false and wrong.

But a cause of the inefficacy of art which I have not heard adverted to, is its not being reflected in the daily lives of artists: we look for the most vivid manifestation of religion in the demeanour of its ministers; and if we do not find it, we hearken but impatiently to their precept. The artist is a revealer of the beautiful and true to others, but what does the truth and beauty of the universe profit himself? I use the word "artist" here in its widest sense, as including poet and musician along with the painter, sculptor, and architect; and I speak of them advisedly, and say, that whatever effect their art may have upon the lives of others, it appears to have none upon their own. Not only are their lives not in keeping with their professional achievements, but they are more out of harmony with the whisperings of art than other men's. So far from being great men,—men commensurate with their works,—they are, taken as a body, *less* than men. Individual exceptions could of course be pointed to—uniform and consistent men—stars in the hemisphere of art-history; and some, too, of the first magnitude, who have exhibited an epic grandeur in their lives, that shed an after lustre on their works; but, as a body, the reproach lies at the door of all generations of artists, and reaches to the very highest names, that inspiration is in their art-utterance alone,—that they are of those who *say* and *do* not; they are priests to the goddess of the fair and the pure, but they are not lovely in their lives. A living writer refers to this mysterious discrepancy as exemplified in the life of Shakspeare, and utters a pathetic lament over the fact that this man of men, who gave to the science of mind a new and larger subject than had before existed, and planted the standard of humanity some furlongs forward into chaos, should not have been wise for himself, that he should have led an obscure and profane life, using his genius for the public amusement! This is perhaps an extreme case, and, indeed, few could be pointed to so mournful in the contrast it presents; but the name is legion of those who never vindicated as *men* the high-standing which they claimed as *artists;* and the most melancholy reflection is, that the living race, to which I am of course precluded from making individual allusion, is not perceptibly better than the preceding one. Still—

> "The wise want love, and those who love want wisdom."

The "eccentricities of genius" generally means its follies and weaknesses; and the calamities and distresses of poets and others, of insensibility to which on the part of the public we are constantly hearing the reiterated complaint, are generally traceable to a non-fulfilment of the conditions on which alone comfort and happiness can be secured.

Is it a moral necessity,—an inevitable result of devotion to the service of art,—that men whose genius sheds a light upon our path, should stumble as in darkness themselves, and be wanting in self-government as well as deficient in reference to moral relations? If it be, it would, indeed, be better to dispense with art itself. But a small measure of faith in the rectitude of the divine government is sufficient to convince us that this is not the case, and that we shall yet behold, to quote the writer before cited,—"what the world has long needed, —its poet-priest, who shall see, speak, and act with equal inspiration."

SAMUEL HUGGINS.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

SINCE I wrote my second letter, which included a few remarks on Assyrian architecture, some additional examples of the art of that nation have been deposited in the National Museum, especially some more of the enormous winged animals which originally formed the doorways in the palaces or temples. I should have pointed out to you, in proof of my observation that Greece had some of her art from Assyria, the prototype of what is known as the Greek honeysuckle on several of the incised slabs in the cellars, but I thought it would come more forcibly before you when we are tracing the progress of Grecian art. You will observe, too, that *arched* doorways, and even what seems to be a bridge with arches, are represented on some of the slabs; but to these I will refer when speaking of the history of the arch. You will, of course, remember that there may be a considerable difference in the age of Assyrian monuments, ranging, as they do, from 2,200 years before Christ to 600 B.C. when the final destruction of Nineveh was effected.

The arrow-headed or cuneiform characters seen on the Babylonish bricks are found also at PERSEPOLIS, the ancient capital of Persia, and serve to show, with winged bulls at the entrances, and other coincidences, a certain degree of connection between the modes of building in the two cities. Of the latter there are more perfect ruins remaining than of Babylon, especially those of the *Chehil Minar*, or Great Hall of Xerxes; and in these there is seen to be a coincidence both with Egyptian architecture as we now know it, and the Temple of Solomon at Jerusalem, as described in the Bible. Mr. Morier, in his novel of "Abel Allnutt," has introduced a serious dissertation to prove that the ruins of the "Temple of Forty Columns" afford specimens of the architecture and general character of the Temple of Solomon.

The description of Solomon's Temple to be found in the 1st Book of Kings (ch. vi.) and the 2nd Book of Chronicles (ch. ii. and iii.) shows the enormous scale on which building operations were then conducted. 80,000 men were set to hew in the mountains, 70,000 to bear burdens, and 3,300 to overlook and direct. The building consisted of the main body of the temple, a porch or portico in front, and the *sanctum* behind. The length of the body of the temple in feet (if we consider the cubit as 1 foot 6 inches) was 60 feet, and the width 30 feet, or one-half the length. The height was 45 feet, or half the length of the temple and *sanctum* together. The *sanctum* was 30 feet long and 30 feet wide. The porch extended the whole width of the building, and projected 15 feet, or half its width. The whole of these dimensions show curious attention to harmony and proportion.

The temple was surrounded by three tiers of chambers, which were approached by stairs. They laid the foundations with great stones, costly and hewed, and the whole when completed was decorated in the most sumptuous manner. The two brazen pillars made by Hiram of Tyre resemble very closely, with their "nets of checker-work, wreaths of chain-work," "pomegranates," and "lily-work," both Persepolitan and Egyptian columns. The description of the position of these columns has led to much discussion. Perhaps it was analogous to that of obelisks before Egyptian buildings.

From the 1st Book of Chronicles we learn that the temple was built from a previously arranged plan. It says, "Then David gave to Solomon his son the pattern of the porch, and the houses thereof, and of the treasuries thereof, and of the upper chambers thereof, and of the inner parlours thereof, and of the place of the mercy-seat, and the pattern of all that he had by the Spirit, of the courts of the house of the Lord, and of all the chambers round about, of the treasuries of the house of God, and of the treasuries of the dedicated things."

Solomon was a great builder. Besides the Temple, for which David had prepared, he raised the House of the Forest of Lebanon, a much larger structure, a house for himself and one for his queen. All these were of costly stones, described, you remember, as "sawed with saws within and without, even from the foundation to the coping." Some of the stones were more than 18 feet long. He also built many "fenced cities," with "walls and gates:" especially Tadmor, in the Wilderness, now known as PALMYRA. The *existing* ruins here, it should be mentioned, are of a date long posterior; probably after Trajan.

The fact that Solomon married one of Pharoah's daughters about 1013 years before Christ (at which period, as we shall hereafter see, the Egyptians had erected many great structures), shows his connection with that wonderful country, and prepares us to find, at all events a coincidence in their buildings. Moreover, the Tyrians, to whom Solomon sent for a "cunning man," to work in gold, silver, brass, and iron, are supposed by some writers to have been extensively employed as architects by the Egyptians.

And now, instead of floating longer amongst the rills and tributaries, we will plunge into the main stream of progress, and speak of a people whose history, although obscure, is nevertheless more clearly to be traced, and comes more vividly before us, than that to which I have previously referred.

EGYPT, the "gift of the Nile," as it is often

* No. III. See p. 133 and p. 100.

called, although not the first inhabited, was probably the first civilized part of the globe, and attained extraordinary power and influence. The first king recorded, namely Menes, is supposed to have reigned, at all events, 2,200 years before our era, at which same time, according to some chronologists, Nimrod founded Assyria: Bunsen says 3643 years B. C. All before this is mere fable and perplexing speculation, but from that date we have a more satisfactory knowledge of the progress and condition of Egypt at various periods than might be expected. They wrote their history with an iron pen on granite tablets. "To study it, is to walk among ruins." And *what* ruins! Stupendous pyramids; temples of gigantic vastness; excavations of the most wonderful nature; colossal statues, sublime although purposely uncouth! An air of mystery is around the whole, and imagination fails in attempting to recall the appearance which must have been presented by these extraordinary monuments when perfect and peopled.

When we contemplate these enormous remains, evidences though they may be of despotism and slavery, it is impossible to avoid a feeling of respect for the minds which conceived such works. Architecture has a noble purpose, that of eternalizing (so to speak) the great efforts of man. How careful should we be in erecting monuments which are to remain long before the world, witnessing either for or against us, and exerting an influence, as they inevitably will, on future works of a like nature!

I am sure you will agree with me that it is scarcely possible to over-estimate the injurious effect produced by one monument of ill taste, or to say how long it may retard the advance of a people towards excellence in this respect. In order to avoid such errors the people themselves must be instructed, and be made judges of what is excellent; and most earnestly would I advocate all measures calculated to advance this object,—universal instruction in drawing, free admission to public monuments and works of genius, encouragement to obvious talent, the erection of fine structures, and the adornment of our buildings with works of art. Too long were such sources of pure pleasure kept closed against the people; and too often have they been reproached for not excelling in a race while the means of progress were actually denied them. Of this, however, another time.

I suggested in my first letter that different modes of living had led to the adoption of different habitations. Those who pastured flocks, and remained but a short time in one spot, adopted the tent; while the cultivators of the land soon found it expedient to construct an edifice of more solid and durable nature of such materials as the country furnished. The early inhabitants of Egypt sought their subsistence at first as hunters or fishermen, and finding along the borders of the Nile natural excavations which offered shelter, were soon led to improve them into dwellings, into temples, into tombs. Or where they did not exist, to excavate and carve the living rocks to their purpose. Countless numbers of these excavations still exist, adorned with columns, sculpture, and paintings. I shall not affront you with a history of Egypt, but I must, nevertheless, remind you of some points necessary for my argument.

Egypt was the scene of stirring events in the early history of the Jews. It was visited by Abraham nearly 2,000 years before Christ. Josephus says, he first taught the Egyptians astronomy and arithmetic. Joseph was there about 1706 years B.C. and the *Exodus* of the Israelites may have taken place 1491 B.C. Egypt was for a long time the capital of the civilized world, and men acquired a reputation by visiting it. It was considered the source of all art and science, and the best school for wisdom. The opinion in which the Egyptians themselves held knowledge is shown by their designation of a library, "the remedy for the diseases of the soul." Beautiful and true,—is it not? Lycurgus, when about to reform the laws, went to Egypt say 884 years B.C. Pythagoras (540 B.C. to 510), Solon (575 B.C.), Thales (born 639 B.C. fl. 586), and a train of Grecian sages, left their own country to study the wisdom of the Egpytians.

It is a wondrous story, as saith Sir Thomas Browne:—"Time sadly overcometh all things, and is now dominant, and sitteth upon a sphinx, and looketh unto Memphis and old Thebes; while his sister, Oblivion, reclineth semi-somnous on a pyramid, gloriously triumphing, making puzzles of Titanian erections, and turning old glories into dreams. History sinketh beneath her cloud. The traveller, as he paceth amazedly through those deserts, asketh of her who builded them, and she mumbleth something, but what it is he heareth not."

I shall not attempt to describe all the buildings which are still to be found there, but simply speak of some few of them with respect to the peculiarities of their architecture and the influence it had on that of other countries.

The most ancient structure remaining is the Great Pyramid,—one of those mighty works wherein, as Dénon says, men seem to have wished to measure themselves with nature. Quaint old Fuller says, the Pyramids are in their dotage, and have forgotten their makers' names. Moore, whom we have just now lost, calls the great one, in his exquisite prose poem, "The Epicurean," "The watch-tower of Time, from whose summit, when about to expire, he will take his last look." Herodotus, who visited Egypt about 450 years B.C. (some say 500), or more than 2,300 years ago, spoke even then with uncertainty of its date. It is, however, usually ascribed to Suphis (considered to be the Cheops of Herodotus), who reigned soon after Menes, and may be called 4,000 years old: Bunsen says 5,000!

The pyramid still seems strong enough to set Time at defiance for ages,—let us hope that man may not come in to the old destroyer's aid. According to Herodotus (Euterpe), 100,000 men were employed, who were relieved every three months, in hewing stones in the Arabian mountains, dragging them to the banks of the Nile, and transporting them to the required spot. Ten years were consumed in the labour of forming the road through which the stones were to be drawn. In the whole, according to Pliny, "366,000 men were employed twenty years together." It has been calculated that if it were required again to raise the stones from the quarries, and place them at their present height, the action of the steam-engines of England, which are managed at most by 36,000 men, would be sufficient to produce the same effect in eighteen hours. In this calculation it is supposed that the pyramid occupied 100,000 men twenty years.

The base of the Great Pyramid was 764 feet square (it is now 746 feet), and has always been called very nearly the size of the area known as Lincoln's-inn-fields. In truth, however, this area, large as it looks, is not so large as that occupied by the pyramid. Mr. Scoles, the architect, measured the "Fields" one fine moonlight night, and found the dimensions between the houses 625 feet 6 inches from north to south, and 831 feet from east to west, giving an area of 12 acres, while the pyramid occupies 13½. The present height is 450 feet 9 inches; measured up the angle, it is 568 feet; it was formerly 611 feet on this line. The pyramid is constructed externally in steps, as you probably know, varying from 2 feet 2 inches in height to 4 feet 10 inches, up which those who desire to ascend are dragged by the native guides; originally these were cased to present a flat surface. The top is flat, about 32 feet square, and I once met an English lady who, with something like your own desire to see and do everything (that is proper), had danced in a quadrille upon it. The ascent is far from easy, and requires a steady head, as may be imagined, when we remember how much higher it is than St. Paul's. Even more so the descent. The stones employed in the construction vary from 5 feet in length to 30 feet, and from 3 feet to 4 feet in height.

I have drawn for you a small "section" of the Great Pyramid (fig. 7): a representation of it as it would appear if it were cut down the middle from the top to the bottom, and one half of it pushed away so as to show what the inside is made of. Doubtless you know what a section means (although many ladies do not); and I need not point out to you its derivation in *seco*, to cut; or remind you that the French call such a drawing a *coupe*.

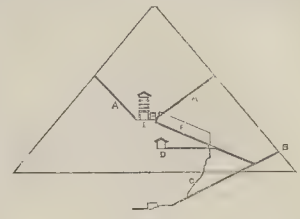


FIG. 7.

In the section drawn you will see what is called the King's Chamber (E), the Queen's Chamber (D), the Well (C), and the Entrance (B). F shows the main passage, and A A are channels for the admission or emission of air,—the device of some Memphian Reid to ventilate the Upper House. If we were to search far enough we might find, in what seemed to be simply the polychrome adornment of one side of a tomb, a touching record of his struggles with the architect, and the number of onions per week that he was allowed during his work!

The curious zig-zag passage (called the well) leads to an apartment in the base of the pyramid exactly under the central point—probably to contain the real kernel of this costly nut. There are strong evidences of design throughout the pyramids; one of the most striking is, that they all face due north. The entrance passage in the Great Pyramid forms an angle of 26° with the horizon; and learned astronomers have endeavoured to prove that it was so made to point to the pole-star. The angle in the other pyramids is not exactly the same. It is a more curious circumstance that the angle which the face forms with the horizon in twelve of the best preserved pyramids, varies only from 51° 10′ to 52° 32′. The passages were narrow and confined, and there were various devices adopted to prevent the possibility of access. The sketch below (Fig. 8) will explain a curious arrangement of this sort in a pyramid at Dashoor. At one point, the narrow passage-way was widened into a small apartment, and here a huge mass of granite was introduced, and was prevented by props or other means from closing the passage (*a*) until the whole was completed, and the interior of the pyramid appropriated. When this had been done the prop was removed (symbolised by the double line over the passage, in the section), and the mass of stone descended to the required position, and effectually cut off all communication.



FIG. 8.

The solid contents of the Great Pyramid may be called 85,000,000 of cubic feet. The King's Chamber only forms $\frac{1}{1067}$ of the whole. So that leaving half of it solid for division walls, there might be 3,700 such chambers in this pyramid!

At a meeting of the Egyptian Society at Cairo on 28th of July, 1843, Dr. Lepsius expressed his opinion that all the pyramids were formed originally in *steps* or stories, like the

temple of Belus, with a view to their gradual increase, dependent on the life of the king for whose tomb they were intended, and that they were ultimately completed and cased from the top. I think Mr. Wild, the architect, first suggested it to him. Thus over the sepulchral chamber (A) there might first be formed a small structure of three steps, which, if the king should at once die might be filled in and cased to form a small pyramid (B. B. fig. 9); but if

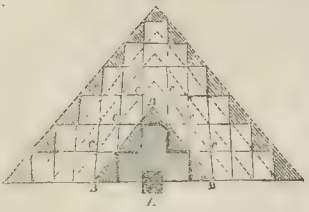


Fig. 9.

he continued to reign might receive another step of the same height, and an increase to each of the existing steps (*c c*), which would then be ready for completion, or might again be increased. Several of the smaller pyramids here (as we have already seen), as well as in Mexico, to which I will refer hereafter, were unquestionably thus formed. Moreover, this theory seems to agree with the description of their construction given by Herodotus. Will you excuse me if I quote the passage? He says:—"The ascent of the pyramid was regularly graduated by what some call steps and others altars. Having finished the first flight, they elevated the stones by the aid of machines constructed of short pieces of wood; from the second by a similar engine they were raised to the third, and so on to the summit." Again,—"The *summit* of the pyramid was first of all finished; *descending* thence, they regularly completed the whole."—*Euterpe*. It is a curious point, but I will not go further into it.

Egypt contains more than forty pyramids, some of brick, some of stone; and much ingenuity has been exercised in the attempt to discover their real purpose. Piles of books have been written upon them. Some, with little reason, considered that the Egyptians wished, by hieroglyphics on their surface, to convey to posterity their national history; others, that they were astronomical observatories; and a third, that they were the granaries erected by Joseph!

There seems, however, little reason to doubt that the popular opinion, that they were intended for the sepulchres and monuments of the monarchs, is correct. They are found, as we have seen, to be for the most part solid, with simply a few confined passages leading to small chambers for the reception of a sarcophagus. I dare say you have read Belzoni's account of his impressions on first entering the Great Pyramid; if not, do so.

"Great princes," writes Cowper, "have great playthings. Some have played
At hewing mountains into men, and some
At building human wonders mountain-high.
Some have amused the dull, sad years of life
(Life spent in indolence, and therefore sad)
With schemes of monumental fame; and sought
By pyramids and mausolean pomp,
Short-lived themselves, t'immortalise their bones."

It is difficult, at first, to realise the notion of 366,000 men being employed for twenty years to prepare a receptacle for the body of a fellow-mortal. Knowing, however, as we do, the importance which the Egyptians attached to their sepulchres, and the splendour lavished upon them, the fact ceases to be improbable. Diodorus Siculus, speaking on this subject, says (lib. i. cap. iv.), "The Egyptians call the houses of the living Inns, because they stay in them but a little while; but the sepulchres of the dead they call everlasting habitations, because they abide in the grave to infinite generations." To render this everlasting habitation, then, worthy of themselves, we can readily believe that the despotic monarch of an enslaved people would think no cost too great:—

"And round a tyrant's tomb, who none deserved,
For one vile carcase perish'd countless lives."
Thompson.

It is curious to note that, after all the trouble taken to preserve their remains, some of them should have come to be unrolled by a Pettigrew, and framed and glazed in the British Museum.

Whether or not the children of Israel, amongst their other labours, were employed on any of the pyramids, I will not pretend to say. The new King of Egypt, "which knew not Joseph," made their lives bitter with hard bondage "in mortar and in brick," and we learn that they built for Pharoah "treasure cities, Pithom and Raamses." Josephus, indeed, says, "They put them to the draining of rivers into channels; walling of towns; casting up of dykes and banks to keep off inundations; nay, the erecting of fantastical pyramids; forcing upon them the learning of several painful trades, and tying them up to a perpetual restlessness of labour." The Israelites left Egypt about 1490 years B.C.; Mr. Fergusson says 1312 B.C. Although captives of all nations, as well as the natives, were constantly employed in brickmaking, it is a curious fact, says Wilkinson, that more bricks have been discovered which bear the mark of the monarch who is supposed to have reigned at the time of the Exodus than of any other period. Bricks simply dried in the sun were extensively used, and, in consequence of the dryness of the climate, have endured well. I dare say you have noticed illustrations of paintings in Thebes, representing brickmakers overlooked by taskmasters.

I fear I have been led into more detail than will be agreeable to you, and will therefore break off. In my next I will endeavour to bring before you some of the architectural peculiarities of the buildings of Egypt; and, in order to smarten up this communication, to "put a trimming to it," as your maid might say, I append a view of a fine example of an Egyptian façade, the Temple at Dendera, which will serve me as an illustration when I next have the pleasure of addressing you.

Believe me, Dear Sorillah, ever truly yours,
Riggeo.



Fig. 10.—TEMPLE AT DENDERA.

THE POWDER MAGAZINE IN HYDE PARK.

As your publication presents several matters of interest to ladies, and proposes a folio or part of a sheet for them, it occurs to me to say that many of our sex living even more remote from the dread mine of danger called the *Powder Magazine* in Hyde-park, may, at moments of nervous excitement, feel as poignantly the terrors of a dreadful explosion as myself, who am but 300 paces distant from the fulminating deposit.

If editors would not tell too much of the truth (cabinet statesmen do not like it), but suppress, for the sake of *tranquillising weak temperaments*, such accidents as the blowing up of the gunpowder-mills near Hounslow (exploded and annihilated last year), or if the open-mouthed American feuilletons had refrained from proclaiming to the world the awful destruction effected *for miles* around the powder magazine near Boston, where portions of houses were propelled distances of three miles, whole forests of trees uprooted and borne like straws on a whirlwind, then might we of the weaker sex abide around, or even walk on the slumbering volcano unapprehensive because unconscious of the latent danger. What can be more mischievous, more destructive of the peace of retired society, than to sound such alarums? Ought a physician to foreshadow to a consulting patient all the horrors of an incipient malevolent disorder, merely because he had a clear idea of the prognosis? Should he not rather soothe, by removing, or by endeavouring to abate, the obvious symptoms of disease? Surely he ought not—would not—excite fears, unless, perhaps, he apprehended a repugnance to take the remedies prescribed in such a case.

In the American explosion it is said that only 150 barrels of gunpowder caused an eruption like Hæcla. It awes me to reflect whether there be not ten times that quantity sleeping in the mine, under the guard of two sentinels at the corner of Kensington-gardens, 500 paces from the Crystal Palace. Supposing that no accident arise that human precaution could prevent, what can we interpose to ward off the *natural strife of elements?* Several oaks in the Park have been riven by lightning. The church steeple near Victoria-gate (very lately), and many others, besides numerous more humble structures, have fallen under the bolt of heaven. Men can now direct electric fire to their purposes, but they cannot control the storm.

If in America 150 barrels spread devastation three miles, how awful is it to contemplate the ruin effected by such a calamity in a population compacted within that radius from such a centre! Hyde-park-gardens, and the concomitant squares—Grosvenor, Belgravia, Mayfair, and even Kensington, with her palace—are there no nervous spirits amongst you to sympathise with me in quailing under so dread a prognostic?

Liverpool, with calculating precaution for the soul of commerce (her teeming stores, warehouses, and ships), has devised and insisted on the removal of powder-magazines from her precincts: that prudence which, under our improved institutions, pre-admonishes men to insure their houses and property against loss by fire; and which, looking farther than our own generation, leads them to provide for children and dependants, by policies that come into reality and life when the insurer sinks into the grave; ought to stimulate transitory humanity in the endeavour to guard against even the remotest possible contingency of an overwhelming and indiscriminate destruction, such as, mayhap you will say, my idle apprehensions have elicited. Yet, Sir, I think you will not say so; but if you do, recollect there is no incorporated company within the limits of London which would contract for such a policy, and if there were, the register of its enrolment would have vanished from earth, together with every created thing within its vortex, as well as the astute policy-holder and thy reader, Sophia Q——.

P.S.—I hold gunpowder, like poisons, to have its uses, and even that weapons of war, like surgical instruments, are productive of good: the gangrened and morbid member must be amputated to save the diseased body. Store, by all means, store weapons of defence; guard safe the nation's thunder; but remove the elements of danger from our threshholds, and banded troops from habitual and residentiary intercourse with the people.

AMERICAN NEWS.

A BOSTON lady, Miss Harriet Hosmer, is announced by the *Home Journal* as a first-rate sculptor. She has studied anatomy under Professor McDowell, who declares she did him far greater credit than Powers did. She is said there to be the first female who has hitherto sought distinction in this branch of art; but the Princess Mary of Orleans seems to have been overlooked, if not others as well.——Nearly a million dollars' worth of iron and copper, it is said, was yielded last year by the mines about Lake Superior.——Nearly 100,000 tons of ice have been cut and stored at Rockland lake by the Knickerbocker Company, who employ 1,000 men, fifty horses, and one or two steam-engines, in quarrying and storing it. One of their ice-houses covers an acre and a quarter of ground.——Dr. Channing, it seems, warmly commends the fire-alarm telegraph at Boston, described in our columns a few weeks since. We are pleased, by the way, to see that an idea which we may say we were the first to come out with in regard to the electric telegraph, is entertained by Dr. Channing. As he truly observes it is destined evidently to constitute the *nervous system* of living communities.——It is proposed to swing people from wharf to wharf over the East River, says a Boston paper, in cars suspended from a locomotive to be run on timber tramways laid on piers so high as not to impede the navigation.——The number of steamboats belonging to the United States—ocean, river, lake, and ferry—is 1,370, employing 29,000 men, and conveying annually forty millions of passengers. The inland steam tonnage of the States, says the *Tribune*, exceeds that of Great Britain and her dependencies by 62,533 tons.——An advertisement as to "blower stands" reminds us of an old and useful invention, which, we think, is not used so frequently in this country as in America. This is the "hot blower"—a sheet of iron, tin, or other suitable material, made to fit and close up the openings of fire-places, leaving only a small opening for the air which enters and blows up a low fire with far greater speed than bellows.——A site has been secured for the World's Fair on Reservoir-square, New York, and many of the principal prize articles of the Fair at London have also, it is said, been secured. Prince Albert and a great many other distinguished persons, according to the *New York Mirror*, have declared their intention to become exhibitors. In order that the affair shall not be an exclusive, private speculation, a committee of trustees has been selected, who have issued a call, or rather thrown the enterprise open to general subscriptions, in all to the amount of 200,000 dollars, which is the estimated cost of the building. Two classes of subscribers are provided for—one, those who subscribe solely with a view to promote the enterprise, seeking no other profit: these are to have their money refunded from the first receipts of the Exhibition. The other class are subscribers for personal profit, being entitled, in proportion to their subscriptions, to one-half the profits of the Exhibition. The subscriptions are to be called in by instalments, the first half in one, two, three, and four months; and the second half in eight months.——A Boston periodical called *To-day* proposes a new scheme for an electro-telegraphic circuit round the earth. In place of a submarine one crossing the Atlantic, it proposes one to run from the telegraph station at Quebec northwards, and, crossing Bhering's Strait, to traverse Siberia and Russia in Europe, to all the chief European cities, and, amongst others, to Paris, and by Dover to London. All the chief cities and towns in the New World would thus at once be connected with most of those of the Old, without more than fifty miles of submarine telegraph. But what of the icebergs which occasionally choke up the Strait of Bhering, ploughing up and harrowing the ground even at immense depths, like nature's agricultural implements or her rock-grinding and soil-preparing machinery for future lands? We fear that a girdle must first be put upon these—a binding influence of eternal frost, or a dissolving influence of perpetual sunshine—ere Ariel can safely go to work with his earth-girdle, by way of this tempting strait.——Many of the American newspapers are now printed by a press invented by Mr. Hoe, of New York. His eight-cylinder-power press is 33 feet long, 14 feet 8 inches high, and 6 feet wide. It has one large central cylinder on which the type is secured, and eight smaller cylinders arranged around it, at convenient distances. Eight persons supply the eight small cylinders with the sheets, and at each revolution of the large cylinder eight impressions are given off, the sheets being delivered in order by the machine itself. The limit to the speed is in the ability of the eight persons to supply the sheets. At the rate of 2,500 sheets to each, the press would give off 20,000 printed impressions per hour.

VENTILATION OF THE HOUSE OF COMMONS.

DR. REID'S REPLY.

MY attention has been called to three recent and successive numbers of THE BUILDER, in which my name is introduced in connection with estimates and transactions at the Houses of Parliament, that must, as I am prepared to prove, necessarily mislead your readers as to the facts of the case. The course pursued by the architect, Sir Charles Barry, in respect to the documents he has used, his estimates, and proceedings on the works, has been such, that I have preferred specific charges against him, which have been submitted to her Majesty's Government. By these charges I am prepared to stand or fall whenever they shall be investigated before any proper tribunal; and therefore I have to request you to do me the justice of inserting this letter in THE BUILDER, that I may caution your readers against the reception of any statement emanating from Sir Charles in reference to my plans, and also as to others that have appeared in your columns on the same subject.

In page 97, No. 471 (14th Feb.), referring to the New House of Commons, you state, "We are informed, on good authority, that every requisition he made, with the exception of the removal of the paint on the floor, which the Commissioners of Works would not sanction, was attended to; and that the drains complained of by him were put in by his own men from his own drawings."

This is not the case. Whoever the nameless authority may be to which you allude, I give it the most explicit contradiction, and am prepared to show requisition upon requisition still unsatisfied, and the injurious result of alterations made in opposition to my views.

As to the drainage, whatever may be said to you on the subject, I have only to state that when Lord Seymour, on the day following my statement at the Bar of the House of Commons, saw the state of the architectural works of which I had complained, his Lordship at once accorded me the authority desired, and the principal vaults objected to are accordingly shut up till they shall be rendered as unobjectionable as others which the architect has completed for the House of Peers in a very different manner. Neither were the drains alluded to put in by my men, nor were they executed from my drawings.

As to the attempt made by a gentleman in the employment of Sir Charles Barry at the Houses of Parliament to impugn the facts stated by me at the Bar of the House of Commons, in the presence of the members, who, on every side, had been witnesses of the truth and fairness of my statements, it appears to me to be so gross as to require no comment. The proceedings of the House of Commons on the subsequent Wednesday is the best answer that can be given to his allegations. Nevertheless I may add the following facts, by way of illustrating what has been said by one in Sir Charles's employment:—The gas lamps in the division corridors were not ventilated on any one of the nights on which Mr. Jeakes, the gentleman referred to above, leads your readers to believe they were ventilated. The works required for this purpose were neither completed nor in satisfactory operation, and Mr Faraday did not undertake till a future period to have them satisfactorily ventilated. Again, this gentleman leads your readers to understand that the ventilation of the House was not in proper operation in consequence of the removal of an engine that had been the subject of complaint. The statement is utterly incorrect. Under the authority of Lord Seymour, arrangements were made for working the instrument which was to have been driven by the engine, and further it was used on every occasion when it was required.

Mr. Jeakes states that in addition to a staff which he refers to, I demanded and obtained the addition of three engineers. This statement is utterly untrue. The engineer in my service having entered into a partnership in a firm where he was too much occupied to give me the time he had formerly given, I obtained from Lord Seymour authority to expend that portion of the salary he had not drawn during the last year, in consequence of his absence, in replacing the services thus lost.

As to the oil paint question, I repeat that thousands of superficial feet of the ventilating chambers were rendered offensive by this paint to those whose nostrils have not lost their sensibility to its influence, and that the painting was continued in opposition to every remonstrance, when there could have been no possible objection to the substitution of a proper material.

As to the chimneys, I repeat that on every day referred to during which the House sat, smoke from corridors and districts not under my control was blown at different periods by strong external currents into the House; and also that, in addition to these, smoke leaked palpably from fire-flues in the walls of the House, manifesting itself on one occasion at least in the form of a dense cloud on the members' gallery on the east side.

In respect to the expenditure, either of time, money, space, or materials on any plans of mine in which Sir Charles Barry has taken a part, I have to state that his estimates afford no criterion whatever of the expenses justly due to my plans, but merely of the amount which it was possible for him to expend by alterations upon alterations in respect to which my opinion was not adopted, and under a system that has prevented me from acting for six successive years at the Houses of Parliament except under protest; while, during this period, Sir Charles has never once been confronted with me face to face as to the proceedings to which, as a public duty, I objected. The total sum spent under my immediate direction is under 6,000*l.* As to anything beyond this, your readers will recognise the justice of my demanding a sight of the accounts hitherto withheld from me, before adopting any estimates as yet brought forward on this subject. * * *

D. B. REID.

"INDISPUTABILITY DISPUTED."

A PAMPHLET under the above head, written by a Templar, or professing so to be, treats in a scholastic manner the now all-important subject of Life and Fire Insurances. It is not beyond the memory of living man that insurance was the exception, and not, as now, the rule of life. Compare the number of insurance offices fifty years back and now. About the beginning of this century the profits of such incorporations were enormous; and even now, the older companies of half that duration count their capital at millions, and their income at hundreds of thousands, and were it not for the increase of companies within twenty years, those established before that period should each of them maintain establishments equal in extent to the Bank of England, to embrace the whole of the business transacted at the present day in fire and life policies. Every householder who has property now insures his dwelling and place of business; and most men have occasion to effect either periodical or permanent insurances on their lives. In leases of houses, landlords either oblige the tenant to insure the premises let out, or pay themselves out of the rack rent the annual premiums; and to this circumstance is due the celerity with which

burnt ruins are cleared away, renovated if not improved structures occupying the place commonly within the first year; where, as in the last century, "the burnt house" tottered and exhibited, often for a generation, its calcined ribs and tottering walls.

Formerly, public subscriptions stood in the stead of the present self-confiding and independent policy; and on the continent (in France), it is scarcely twenty years since all the journals of Europe exhibited advertisements claiming eleemosynary relief for the unhoused inhabitants of Salins, totally destroyed by fire.

Modern calculations have much reduced the charge, *so far as the various insurance companies are concerned;* and that reduction has brought the means of safeguard against calamity within the compass of every man, and therefore led it home to the business and bosom of us all. *Government* has not, however, abated one jot of its imperious exaction upon this vital and religious necessity of the community.

The pamphlet we have named is published by Effingham Wilson, and its design is to explain what it makes palpable, viz. that to assert that any policy, howsoever effected with any insurance office, *is indisputable*, is a solecism in language and an impossibility in law. Good faith and truth must be the basis of every contract in a country possessing true and equitable tribunals. The maxim from Lord Coke, selected as a motto, will perhaps sufficiently explain the drift of the writer—"Covin doth suffocate right." Nevertheless, every wise office will regard their policies as "indisputable," excepting where positive fraud is evident, and every wise man will go only to those offices, being good in other respects, where they do so.

STEEPLE OF ST. NICHOLAS CHURCH, NEWCASTLE-UPON-TYNE.

THE beautiful structure which is this week carefully engraved, and which is so properly an object of pride to the inhabitants of this ancient town, was probably built at about the close of the fourteenth century; but the particulars and exact date of its erection are unknown. This remarkable church is situated on a bold eminence, which rises very finely from the river Tyne, and in all directions forms an important feature of the town. The view, looking from the bottom of a street called the Side, was, within the recollection of the writer, one of the most picturesque scenes to be met with in this country. Much of this effect has been destroyed by the necessary alterations of many of the projecting and varied gabled houses. The old steeple of the church still remains in its original beauty, and promises for centuries to continue an ornament to the "canny" town. A few years ago the steeple was considered to be in great danger, several cracks being noticed, and also it was observed that it was gradually leaning towards the old Norman castle shown in the engraving. By a liberal supply of money from the corporation this danger has been averted. Mr. Dobson, who was employed as the architect, placed an entirely new foundation below the steeple, repaired the cracks, and restored the lantern and other parts which were dangerously decayed.

It would have been well if these pains had been extended to other portions of the church, which during the last 70 or 80 years has been sadly disfigured. The finely carved oak seats, screen, and other interesting matters were removed; square pews were substituted, and an unsightly partition in the "Gothic" cast of the time of George the Third placed so as to divide the nave from the choir. There still, however, remain several fine examples of tracery, &c. in the interior, which would be much enhanced by the removal of the partition to which I have alluded.

The steeple of St. Nicholas Church is said to have suggested the plan of the steeple of St. Dunstan's-in-the-East, and has often been compared with that structure. The church of St. Dunstan is, however, deficient of the light and airy effect, the fulness and purity of form, and tasteful distribution of ornament which distinguish the steeple of the Newcastle church.

The engraving will give a good idea of the construction of the latter building, which consists of four octagonal, embattled, and pinnacle-surmounted turrets, that rise from the four angles of the tower: from these spring, diagonally, four crocketed flying buttresses, which, on approaching a common centre, severally divide, the superior portion sweeping lightly up into a graduated buttress, the inferior one proceeding to that centre, upon which, supported at the angles by four buttresses, rests a second, far diminished, but quadrangular and embattled tower, constituting, in fact, an elegant lantern, the four sides of which are almost wholly formed by as many open windows, that in their tracery speak this part of the fabric as being of a more modern date than the tower below. From the centre of the lantern rises, at a height of about 200 ft. from the ground, a delicate spire, crocketed, of octagonal form, and itself connected with four graceful pinnacled turrets, that rise from the superior angles of the lantern. Smaller turrets, but not exactly similar in form and decoration to the four large ones of the great tower, rise from a buttress that runs up the centre of each upper face of the latter. Thus does this celebrated steeple present an aggregate, including the spire, of thirteen pinnacles of different sizes, all crocketed and surmounted by vanes. J. B.

A NOTE FROM SPAIN.*

THE Spaniards are too poor to build now, and if they require public buildings in any large towns, they have procured themselves enough and to spare by their late edicts against the convents: thus, at Barcelona, the Custom-house is a suppressed monastery; so, also, the national tobacco manufactory. In other places, a more suitable change is to turn them into hospitals. From the many drawings and works on Spain you are acquainted with, you must know the "Revival," and indeed almost all more modern buildings of Spain, are Grecian, Roman, Modern Roman, or Revival, or what you will—run mad. Every part is over and over loaded with ornament, statues, vases, flowers, fruit, twirls, whirls, twists, knots, scrolls, chains, and all sorts of other "quips and cranks and wanton wiles;" and yet so large in general are the designs, and so very bold the projections of cornices, balconies, window architraves, doors, &c. that they possess not only immense "picturesque," but a certain grandeur. In my love for architecture, I acknowledge myself of the picturesque school, if there is such a one, and am, therefore, not so much horrified at some of these monsters as you might be; and have, after looking at some of these "gorgeous" fabrics, turned to a building by Herera, and thought his finer taste even flat and poor in comparison. The only new building of any kind, except mere common houses, I have seen, is the "Puerta del Mar," or Sea Gate, at Barcelona, which shows the lingering feeling for the "Moorish;" but they have not even copied the Moorish arch correctly, which in its plan is so very beautiful, as at one of the entrances here into the Court of Oranges, though not equal to that of Cordova, leading into the cathedral. Except this and two other entrances in good Pointed style, the exterior of the cathedral is ugly. But the interior! most superb—almost overwhelming. Its ground-plan is curious: being built upon the foundations of the destroyed mosque, it is quadrilateral, nearly square, so that you have a multitude of piers, there being a vast centre aisle and three side aisles the whole length, besides a fourth fitted up as chapels. It is very dark from the smallness of the windows and coloured glass, unless the sun shines, which he generally does at Seville, and his beams pierce through, and enlighten everything, except, to confess, in this room with a northern aspect, where I am *cold*, writing with my feet on a brazier under the table. In speaking of the exterior of the cathedral being, except in the doors, ugly, I sadly forgot the Giralda adjoining, forming its steeple as we should say in England. You know its architecture; but you cannot feel its effect, and its beautiful colour, warming—rather, cooling, for it is reddest at bottom—gradually upwards, and cutting sharp and high in air against the clearest of blue skies. It is far more beautiful than Giotto's Tower at Florence, though one is built of marble and the other of brick, of few varieties of form in the individual brick, but infinite in the arrangement of them. The view from the top is not as fine as from the San Michalete of Valencia.

Seville, streets and houses (and so in most Spanish towns), is greatly spoilt by white-washing, or yellow or pink, or some other unnatural colour washing, even over the churches; and for fear the glare should fade away, the washing is repeated every six months.

W. H. W.

* From a letter read by the Foreign Secretary at the Institute of Architects on Monday.

LIVING LONDON.

LONDON, a capital whose past history is as large a subject as its existing state, is a world in itself, and its records embrace a world's history. The laborious antiquary has delved amongst its registers and tombstones: the light essayist has hurried over its forms "of many-coloured life:" still no very complete work on this vast metropolis has been produced in any particular department. A reason for this may be found in the almost unlimited variety of aspects which London presents. The number of strangers who resort to the metropolis daily is equal to the population of many capital cities: the people who are tributary to this metropolis as the heart of the British empire amount to a sixth of the whole human race: there is scarcely a commercial transaction upon the face of the globe which is not more or less connected with or represented by London. It contains within itself all that is gorgeous in wealth, all that is squalid in poverty, all that is illustrious in knowledge, and all that is debased in ignorance; all that is beautiful in virtue, and all that is revolting in crime. Adequately to chronicle and to describe such a city as London,—every depth and shallow of the accumulated facts of the past, together with the recesses of the present, should be sounded: to analyze the moral and physical condition, or the complicated movements, of the inhabitants of a single street, is a task almost beyond individual powers: take a single family, and fully describe all the circumstances upon which they are dependent for the conduct of their lives; their food, their clothing, their supply of water and fuel, their means of communication, their employment, their education, their health, their social protection, and their obligations to perform certain duties, and it would be found that such a fraction as one family will furnish a subject large enough for the keenest observer to occupy a life in examining.

It may also be observed, that numbers of this population are growing up in habits more or less opposed to security and order: with such a reflection, considering the extent, it is marvellous to see how life and property are protected; for very many of the murders or assaults that occur are produced by sudden outbreaks of drunken or malignant passion, or aberration of intellect; and as to robbery it seldom happens that it is carried out with violence, the system being more by craft, cunning, imposition, or other subterfuge, and where numbers of degraded and indolent creatures prowl about, who prefer the gains of pauperism and imposture to the returns of honest industry. And if such, the philanthropist may exclaim, be the triumphs of civilisation in the midst of materials so rough and unformed, what may not reasonably be expected when education, combined with the influence of morals and religion, are fairly at work; when our prison discipline is improved, and benevolence has done its best to alleviate the miseries which spring from bad passions indulged, the culture of the mind neglected, and evil habits contracted. G. J. R.



CHURCH OF ST. NICHOLAS, NEWCASTLE-UPON-TYNE.

THE ARCHITECTS' BENEVOLENT SOCIETY.

THE second annual meeting of the Architects' Benevolent Society was held in the Freemasons' Tavern, on Wednesday last. In the absence of the president, Mr. Sydney Smirke, from illness, by which he was confined to bed under medical care, Mr. David Mocatta took the chair. The other members of council present were Messrs. Edwards, Hakewill, I'Anson, and Mair. The meeting, we must say, was a very poor one, less than a dozen and a half persons, including the members of council, being present.

The report which was read congratulated the members on the progress of the society, young as it was, and hoped a career of usefulness was open to it. The society had already been enabled to grant relief to several deserving families, particularly to widows and children, living in the provinces as well as in the metropolis. A time was coming, it was to be hoped, when their list of members would contain many names of provincial architects and surveyors as well as metropolitan, and the report urged metropolitan members, so many of whom were flying about by rail to all parts of the country on business or pleasure, to do their utmost to promote the welfare of the society amongst their provincial friends, for whose behoof while in adversity, or for behoof of whose widows and orphans, as well as of those of its metropolitan members, the society was founded.

The receipts of the past year amounted to 493*l.* 9s. 1d. The expenses of the Society had been 58*l.* 10s. The donations and subscriptions, to the extent of 400*l.* had been invested, and a balance of 34*l.* 19s. 1d. remained in the secretary's hands.

The Chairman moved the adoption of the report. Though an infant society it was gratifying, he observed, to be able to say that they had not only granted relief to a considerable extent, but had invested the basis of a permanent fund. The chairman also urged the members and friends of the institution to do their best to promote its interests.

Some routine business was then transacted, including votes of thanks unanimously accorded to the president, council, treasurer (Mr. Tite), &c.

A public dinner in aid of the funds was proposed, but postponed for the present.

NOTES IN THE PROVINCES.

Reading.—The new Assize Hall, designed by Mr. J. B. Clacy, has been completed by the contractors, Messrs. Carter. Besides separate courts, there are retiring rooms for the judges and for counsel, with accommodation for witnesses, &c. There is a glazed arcade over the outer entrance.

Bodicote (*Banbury*).—A new school for 90 children has been opened in this village. It is in the Elizabethan style from a design furnished by Mr. J. Livock, of London, architect.

Ryde.—A meeting has been held to forward the movement in favour of a new pier at Ryde. An estimate of the cost and the income has been made, on a plan by Mr. Hellyer.

Portsmouth.—The local commissioners have resolved unanimously to apply to the town gas company to reduce their present charges.

Wells.—The restoration of the choir of the cathedral is approaching completion. The stone stalls (forty-one in number) are nearly finished. The canopies are supported by columns of Purbeck marble, and the caps are of carved stone. The wooden stalls are also in a forward state. The old misereres are worked in.

Bristol.—A site for the Bristol and Gloucester Diocesan New Training Schools for Mistresses having been purchased, tenders for the new building were called for and sent in, amounting to 8,515*l.* to which must be added the cost of the site, architect's charges, &c. making a total outlay of 11,530*l.* The funds are not sufficient by 2,000*l.* The instructions to the architect have therefore been limited in the meantime to putting in the foundations.

Kinnersley.—A stained glass window, by Warrington, has lately been erected over the communion table at the east end of the church, by Mr. and Mrs. Lane Freer, of Bishopstone, to the memory of the parents of the latter. It is decorated, of the middle of 14th century, and is divided by stone mullions into three compartments below, supporting a cinquefoil above. In the centre division the angel is announcing to the "women who came early to the sepulchre" the resurrection of our Lord,—"He is not dead but is risen." In either side light, is an angel bearing a scroll. In the cinquefoil above, is the "Last Supper," symbolizing faith and love. The rest of the window is filled with traceery and foliage interlacing geometrical designs, surrounded by a border.

Swansea.—The Marquis of Worcester has been entertained at Swansea by Mr. T. Edward Thomas and the corporation, at a public dinner in the Assembly-rooms. The proceedings marked the commencement of the new dock in the Burrows, which has been auspiciously commenced. Mr. Pickering is the contractor for the works.——The new Guildhall and Assize Courts are now completed. The style is Corinthian, the two fronts broken by porticoes, supported by full and three-quarter columns, with capitals sculptured, from a drawing by the architect, Mr. Thomas Taylor, of London, from the Temple of Jupiter Stator at Rome. In front of the portico windows there are balustrades, and the building is surmounted with balustrades and vases. The entrance to the Criminal and Nisi Prius Courts, and to the Council Chamber, is surmounted with the borough arms. The principal entrance and staircase leading to the vestibule is ascended by two flights of stone steps, 10 feet in width, and on the right and left of the upper flight there is an arrangement of Doric columns and pilasters supporting entablature, having niches between for statues, the whole being executed in cement, and the walls jointed to imitate stone. The ceiling is coved and panelled. The vestibule is above 60 feet in length and 20 feet in breadth, lighted from a dome in the centre, and forms the approach to the two law courts, the council chamber, the judge's rooms, the justices and jury rooms, as well as the robing-room for the gentlemen of the bar. The Nisi Prius Court is 46 feet by 30 feet, and by means of a moveable dock, can be appropriated as a second criminal court. The council chamber is 36 feet by 30 feet, and 22 feet in height, the ceiling being panelled with ribs and Corinthian cornice. The windows of this room, and also those of the Nisi Prius Court, have been glazed with vitrified ornamental glass. Under the courts are offices for the hall-keeper, town-clerk, surveyor and receiver of corporation, offices of Local Board of Health, besides two fireproof muniment rooms. Under the Criminal Court there are cells for prisoners. The works have been executed by Mr. R. Richards, of Swansea, under the immediate superintendence of the architect.

Cardiff.—The ground for the new Bute Docks at Cardiff has been staked out by the engineer to the Bute estate, Mr. Plews, sen. of London, and, under the superintendence of the resident engineer, active operations have been commenced. Immediately several hundreds more men will be employed by the contractors, Messrs. Hemmingway and Pearson, and still larger numbers will be engaged as the spring progresses.——The Waterworks Company of this town has issued advertisements that it is prepared to supply the houses and premises at the rate of 6 per cent. per annum, if the rental is under 20*l.* and at the rate of 5 per cent. per annum if above that sum. This company is also advertising for loans.

Chester.—As some men employed in the Chapter-house of the Cathedral were removing the old flooring, they discovered a long, narrow stone, with two rings in the top of it. Underneath they found the remains of a man. The skull is a very thick one. A rough stone-built opening had been made in a hole in the ground, into which the naked body was placed. At present there is no inscription perceptible. There is a leaden coffin lying near, filled with dirt.

Birmingham.—It appears so little has been subscribed towards the restoration of the ancient church of Birmingham (St. Martin's), that those who did subscribe are about to be asked whether they will allow their donations to be expended in the mere restoration of the tower and spire, on Mr. Hardwick's plan, or have their money returned, after paying the architect's and other charges. A rate and a struggle are anticipated, unless the church be shut up altogether.

Derby.—A meeting has been held here to promote the subscription necessary to the erection of a midland observatory at Nottingham. About 6,000*l.* will do, exclusive of the founder Mr. Lawson's gift, and of this sum nearly 3,000*l.* will be contributed at Nottingham, and the remainder is expected from the three adjoining counties.

Nottingham.—The promoters of the bill for deepening and improving the river Idle, and for effecting the drainage of an extensive district adjacent, obtained the report of the examiner on 18th ult. that the standing orders had been complied with. This river is a tributary of the Trent, discharging into it at Stockwith, at which place the sectional area of the Idle was recently considerably enlarged in the erection of a new bridge for the county. This bridge stands entirely upon screw piles, and is from the plans of Messrs. Birch, the engineers to the promoters of the Drainage Bill.

Liverpool.—A report, submitted to the Chamber of Commerce by Mr. W. M. Ross, contains a project, devised by Mr. George Rennie, C.E. for the reclamation from the sea of the vast sand-banks in the estuary of the river Mersey by means of a breakwater, extending seaward from the Black Rock Point, five miles in length. Mr. Rennie thus estimates the cost and profit:—To 5 miles of breakwater, at 60,000*l.* per mile, 300,000*l.*; to converting 20,000 acres of sand banks into good land, at 20*l.* per acre, 400,000*l.*; to contingencies, at 15 per cent. 105,000*l.*; total, 805,000*l.* By value of 20,000 acres of made land, at 60*l.* per acre, 1,200,000*l.*; leaving a profit over and above the cost of 395,000*l.* The *Liverpool Times* says that so far from paying the company 18,000*l.* a year for the supposed improvement of the river, the conservators of the river would not allow the plan to be carried out, even if the company would pay them five times 18,000*l.*

Newark.—An influential public meeting of those interested in the re-pewing and restoration of Newark church was held in the Town Hall on Tuesday week, for the purpose of passing resolutions in favour of the object, and of raising, by voluntary subscription, a fund sufficient for the execution of the work.——At a recent meeting of the Newark Improvement Commissioners, the report of Mr. Crowley, engineer, employed to test the accuracy of the plan of the town prepared by Mr. Bailey, was read. It was resolved unanimously that Mr. Bailey be appointed the surveyor and inspector of nuisances. At a subsequent meeting the surveyor was instructed to report on new drains, necessary for draining the town effectually, the outfall to be given into the Trent from the bottom of North-gate, near the Spittals.

Shields.—The North Shields Water Works Company have commenced laying pipes to the village of Tynemouth.

Walker (*Newcastle*).—Public meetings have been held here for the promotion of means for the erection of public schools for the district. After various plans had been fully discussed, says the *Gateshead Observer*, Messrs. Losh, Wilson, and Bell, and the Walker Alkali Company, announced their intention of building rooms, capable of containing 400 scholars, for the use of the works and neighbourhood. The Rev. C. Thompson also announced his intention of procuring additional subscriptions towards the erection of a national school for the parish, when various friends offered their support.

Edinburgh.—Memorials have been sent to the town council by the Scottish Society of Antiquaries and the Scottish Society of Arts, in reference to the restoration of the brasses

of the Regent Moray's public monument in St. Giles's church, which were appropriated by the family of the present Earl of Moray, and taken to Donnibristle, in 1829, when the monument was demolished during the alterations in the church. The council have remitted to the Lord Provost's committee, with power to communicate with the family of the Earl of Moray.

St. Andrew's.—The "Martyrs' Monument" has been recently repaired. "The North-street improvements are now in rapid progress," says the *Fife Herald*. "The kerb-stones are of basaltic blocks, forming the side of the water-channels; and along the inside of the kerbs is laid a 4-feet strip of Caithness pavement. Our 'Dirty Close' has been repaved. The polished ashler Gothic gable to the Free Church is nearly completed. The unseemly pile of old buildings has been removed from the east end of the United College, and is replaced by a wall, which is also drawing to a finish. College-street improvement is also drawing to a conclusion, the mason work being nearly completed."

St. Helier's, Jersey.—The filling at the head of the Albert Pier is now nearly completed, and the excavating of the old harbour, from 4 to 6 feet, is now drawing fast to a close. All the walls around Victoria Pier are finished, as well as the road-ways, with the exception of a portion of the road at the north-east end adjoining the old French harbour. The shed on the east arm of the old south pier is removed, and all the quays are now free from obstructions.—*Jersey Times.*

Douglas, Isle of Man.—Arrangements are now being made for holding a bazaar, in order to raise funds for the erection of schools, to be attached to St. Thomas's Church, Douglas.

ASSOCIATION OF ARTIST WORKMEN.

WE understand it has been proposed to establish an Association of Artist Workmen, for the promotion of art and the general education of the artisan, in co-operation with the Committee of Suburban Drawing and Modelling Schools.

It is intended also to comprise a registry of artist and oth.r skilled workmen; such registry to state their names, addresses, and trades; to be kept in a convenient locality, for the information of manufacturers and others, and to be also periodically circulated.

WORKS IN IRELAND.

THE Wesleyan Methodists are about erecting a new chapel at Rathmines, Dublin, under the direction of Mr. Isaac Farrell, architect.

A new Roman Catholic church is to be erected in St. Catherine's parish, Dublin, according to the drawings furnished by Mr. J. J. M'Carthy, architect. Subscriptions are being raised.

The corporation for improving the port of Dublin are about building a tower and dwellings on Inisheer Island, at South Sound of Galway Bay, and also on Rock Island at the entrance of the North Sound leading into Galway Bay. Three fog-bells, 2¼ tons each, have been constructed at the Eagle Foundry, Dublin, by Mr. Sheridan, one of which has been placed on the eastern pier of Kingstown harbour.

Extensive improvements have been determined on for Westport harbour. New floating docks are to be erected.

A new church, glebe-house, and school, are to be built at Knappa, in the Union of Westport.

It has been finally decided that the electric telegraph between England and Ireland is to be laid down from Holyhead to Howth, instead of Kingstown, as originally intended, the harbour of the latter place presenting obstacles. A line of wires will be constructed by the Dublin and Drogheda Railway Company on their extension line to Howth, and when the messages are received in the metropolis they will be instantly transmitted by the different railway companies (who are making arrangements for the purpose) to the towns of Belfast, Galway, Cork, and Limerick. Mr. Jacob West is the engineer appointed.

The public baths and washhouses "in connection with the Dublin Mendicity Institution," have been completed, and, after an inspection by the Lord Lieutenant, opened for public accommodation. The expenses have been defrayed by subscription, and the cost was about 800*l.* Mr. J. S. Butler, architect. This is the first thing of the kind established in Dublin, but it is by no means sufficiently extensive for "general" purposes. Some time since the corporation offered a premium for the best plan of public baths, &c. and although the same was awarded, the project appears to have been (we hope only for the present) abandoned.

St. John's Hospital at Nenah is being converted into an auxiliary workhouse, according to the drawings furnished by the Poor Law Commissioners' architect, Mr. Wilkinson.

A new line of railway from Ballybay to Enniskillen is to be constructed by the Dundalk and Enniskillen company at an estimated cost of 227,249*l.*

The Town Commissioners of Wicklow are about having the town lit with gas, and are receiving tenders.

The Dublin and Drogheda Railway Company are receiving tenders from contractors for the construction of a branch line from Navan to Kells, the distance being 9¾ miles.

The United Service Club are having a new front erected to their house at Stephen's-green, Dublin.

ELECTRO-TELEGRAPHIC PROGRESS.

THE electric telegraph has derived from recent circumstances and events an impetus which will very shortly send its ganglial ramifications into *every* centre of life throughout the country. The old Electric Telegraph Company have issued a new map, in which is traced the present state of progress in the provinces and in Scotland; and it is a record of peculiar interest. Very little ideality is needed in the contemplation of it as an anatomical display of the ganglionic system of some immense leviathan, whose solar plexus, lunar ganglion, or vital enkephalon, is clearly established in the large round ring surrounding the metropolis, in the heart of which, at Lothbury, were we to regard this ring as representative of the cerebral nervous centre rather than of the abdominal, we see what Des Cartes would have called the pineal gland of the English telegraphic organism. Each station throughout the country, with its round red dot, has no mean resemblance to a ganglion, and some, at least, of the very purposes of such ganglionic centres of communication are carried out in the telegraph stations. The illusion is all the more complete that the *arterial* railways, where they are not covered by the telegraphic nerves, here and there peep out amid the general interweavement, which, we may here observe, now extends from Plymouth, in the south, to the vicinity of Dundee, by Edinburgh, and to Glasgow, in the north, the only imperfect link being that between Exeter and Plymouth, which, now that Paddington and Bristol are united, will also be speedily completed.

Let us see now whether the admittedly very moderate dividends of former days have been still further diminished, as was dreaded and prognosticated, by the reduction of charges to the extent of more than 50 per cent. since we urged, on the contrary, the profit and advantage of such reductions. The old company have just held their annual meeting, and declared their dividend for the past half-year. It is ingeniously managed—cooked, shall we call it, in a venial sense. The ostensible dividend is still a very moderate one of 6 per cent.; but let us analyse the accompanying statement.

A balance of profits to the extent of 14,701*l.* was recommended to be applied to dividends; yet a dividend of 6 percent. required only 9,369*l.* thus leaving out an unappropriated residue of 5,332*l.* Had the company divided the *whole* of the recommended available balance, then, they could have declared a dividend of nearly 10 per cent. But more than this, it is stated in the report that the proposed dividend of 6 per cent. includes a dividend on 47,750*l.* no part of which has yet become productive; and, moreover, that there is a reserve fund on hand of 68,534*l.*!

So much, then, for the commercial *injury* that was to result from the demanded and compelled reduction of charges. These charges have not yet reached their minimum, nor probably have the dividends, therefore, reached their maximum. Indeed the report admits that the increase in the number of messages received and transmitted in consequence of even the past reduction in the tariff is not yet fully developed.

The new company, however, for whose existence the old company have to thank their own obviously, and we presume now admittedly, erroneous policy, are likely to have a considerable share of future profits. They are fast progressing with their works, many hundreds of miles of their telegraph being now in course of formation in Lancashire, Yorkshire, &c. and they are about to connect the metropolis with the mining and manufacturing districts, an intention which the old company are said to have so far frustrated, till Parliament settle the point by enabling the new company to carry out the spirit as well as the letter of their Act. Petitions in their favour are being sent from many quarters to second their application.

The old company is at present engaged in connecting Greenwich Observatory with their metropolitan and provincial stations, in order to promote the establishment of uniform time throughout the country. A ball and pole, as at Greenwich, are to be put up on the dome of the office in the Strand, and the Horse Guards clock, that of the Palace of Westminster, and the Royal Exchange clock are to be regulated by Greenwich time.

A submarine telegraph between England and Belgium is to be carried out by Messrs. Carmichael and Brett, and a second one between England and France is also on the tapis. The Irish submarine telegraph project is also making active progress. In fact, the contracts, it is said, have been entered into, and the line is to be laid down in May next. "The tariff of charges will be so low as to encourage an almost domestic use of the telegraphic communication." So much the better for all parties.

THE NEW LANDING PIER AT MARGATE.

FIFTEEN plans for the above work were submitted for the consideration of the directors from Messrs. Ward, Hutton, Moorsom, Redman, Tress, Scott, White, Mitchell and Saunders, Beattie, Law, Crampton, Birch, Gardner and Wood, Giles, and Holland. From this list it will be seen that great consideration and care were required on the part of the directors in order that they might select that plan which best suited their requirements. Assisted by their surveyor, who had declined to compete, in order that no possible suspicion of favoritism might exist, the directors made a careful examination and analysis of each of the designs. Their next step was to reject those which palpably deviated from the instructions given either as to the amount of estimate or in any other particular. The remaining plans were then judged on their merits, and after long consideration the directors decided unanimously to adopt that sent in by the Messrs. Birch. The second premium, after some discussion, was awarded to Mr. H. Law, and the third to Mr. Gideon Scott. Although the directors had no doubt in their own minds of the stability of the plan they had chosen, they judged it wise, in order to place the matter beyond all reasonable doubt, to submit the same to Mr. Rendel for his opinion, in order that the shareholders, whose property they manage, might be assured that every proper precaution had been taken to ensure a substantial erection. The result of this application is not at present known, but there is little doubt as to its being satisfactory. We have reason to believe that in this case the directors acted with perfect uprightness and honesty. A correspondent writes us that "one of the competitors (unsuccessful) with an affectation of

honesty, thought fit to send in his designs under a device, although not required to do so, and then acquainted persons connected with the board of directors what that device was."

BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE general annual meeting of this society was held on the 10th inst.—Dr. Lee, F.R.S. in the chair. The report of the auditors was read, and thanks proposed and voted unanimously to them, to the council, to the officers, and to the late president of the society, Sir Oswald Mosely, bart. Mr. Pettigrew, treasurer, read the list of the deceased, retired, and new-elected members, by which it appeared that seven members had died during the past year, and twenty had retired, and that fifty-six new members had been elected, making an increase of twenty-nine members during the twelvemonths. The meeting then proceeded to ballot for the president, officers, and council for the ensuing year, when the following gentlemen were unanimously elected:—

President—The Duke of Newcastle. *Vice-Presidents*—Sir W. Betham, M.R.I.A.; Sir Fortunatus Dwarris, F.R.S.; J. Heywood, M.P.; John Lee, LL.D.; Monckton Milnes, M.P.; T. J. Pettigrew, F.R.S.; S. R. Solly, F.R.S.; Sir Gardner Wilkinson, F.R.S. *Secretaries*—C. Baily, F.S.A.; J. R. Planché, F.S.A. *Hydrographical Secretary*—Capt. Bullock, R.N. *Secretary for Foreign Correspondence*—Wm. Beattie, M.D. *Registrar, &c.*—Alfred White. *Council*—C. Ainsley; A. Ashpitel, F.S.A.; W. H. Black; A. H. Burkitt, F.S.A.; Syer Cuming; F. H. Davis, F.S.A.; H. Duesbury; George Godwin; N. Gould, F.S.A; J. Halliwell, F.R.S.; T. Lott, F.S.A.; W. Calder Marshall, R.A.; Major Moore, F.R.S.; H. C. Pidgeon; R. Tress, F.S.A.; Wm. Wansey, F.S.A.; and Wm. Yewd. *Auditors*—W. Hawkins, F.S.A.; and J. Whichcord, F.S.A.

SAVE LEICESTER-SQUARE.

SIR,—The proprietor of "The Great Globe," in Leicester-square, intends to get an Act of Parliament to authorise him to retain his building permanently; in other words, to take from the public an open space long possessed, and of priceless worth. Surely, unless a greater good is to be given in exchange for that which is taken, an Act of Parliament ought to be refused. I have no objection to his taking Leicester-square, if he will give the public in lieu of it as many superficial yards wholly free from buildings in another locality accessible to the public. But no, he cannot do this. Then he ought not to be suffered to take from *us* "that which enriches" himself only, and "makes *us* poor indeed." The squares of London are a kind of beneficial institution, from which we all derive unspeakable advantage; and if one gentleman be allowed to convert the area of Leicester-square into private property, how long shall we retain Grosvenor-square, Russell-square, Lincoln's-inn-fields, and others, which adorn London, and contribute to the health of the fast-increasing Babylon of modern days. Our squares are ventilators as much as the parks are London's "lungs," and ought not to be shut up for the interest of an individual. Be the Hampden of our squares, Mr. Editor; and "with dauntless *pen* the *sordid* tyrants of our squares withstand."

Instead of losing open areas, we want more. We want, too, *parish play-grounds* for the children of the poor. Nor would it be a bad thing if some "broken soldier" were appointed, with a trifle to eke out his pension to a life-supporting amount, to watch over them and drill them. Children would fare none the worse in after-life if they were taught to "turn out their toes and hold up their heads," and otherwise "take heed to their ways." As it is, one does not meet, in a day's walk in our crowded streets, half a dozen persons who walk as they ought to do, soldiers and well-trained gentlemen excepted. Perhaps, too, the habit of holding the head erect, and of expanding the chest, might counteract that tendency to apoplexy and to lung diseases which now exists among us. OPIFEX.

THAMES TUNNEL COMPANY.—The receipts during the past year have been, from tolls 5,928*l.* 0s. 8d.; rents, &c. 1,143*l.* 13s. 6d. The disbursements amount to 4,212*l.* 13s. 10d. 2,776*l.* 18s. 1d. have been handed to the Commissioners of Public Works, in part payment of interest on Government loan of 250,000*l.* The amount of tolls during the past year has exceeded the average of former years by nearly 2,000*l.*

RECOVERY OF ARCHITECTS' CHARGES.

NICHOLSON *v.* HOOSON.

THIS was an action upon an architect's bill, tried at Nottingham. The defendant paid into court 3*l.* 16s. 6d. and, as to the remainder of the claim, pleaded—first, that he did not make the contract; and, secondly, payment.

The plaintiff is an architect at Lincoln, and the defendant was one of the churchwardens of Worksop, in this county, as well as member of a committee formed for carrying out the project of restoring the old Abbey Church, which had fallen into very great decay. The services for which the plaintiff now sought to recover were rendered in superintending, as architect, the restoration of that church. He, in common with other architects, had in 1845 sent in plans and an estimate, and for the work then required to be done he had made an offer to the committee to do it for 150*l.* with which offer no dissatisfaction was expressed.

Other architects were afterwards called in; and the plaintiff was put into communication with them. Various alterations were adopted by the committee from time to time, so that the work lasted from 1846 to 1849, and the cost grew to a sum of about 4,649*l.* The roof had been coloured blue, but one of the committee having declared that he could not pray under a blue ceiling, a dark oak-stained roof was substituted. This was only one of many alterations and additions by which the work was varied after the plaintiff had made his original offer. The plaintiff charged 5 per cent. upon the outlay and some extras. On the part of the defendant it was admitted that the principal charges were reasonable, if the plaintiff was not bound by his offer of 150*l.*

The learned Judge thought that he was not; and ultimately, by consent, a verdict was found for the plaintiff,—damages, 250*l.*

Notices of Books.

A Visitation of the Seats and Arms of the Noblemen and Gentlemen of Great Britain. By JOHN BERNARD BURKE, Esq. of the Middle Temple, Barrister-at-Law, Author of the "Peerage," "Landed Gentry," &c. Part I. Colburn and Co. Great Marlborough-street, London. 1852.

MR. BURKE is indefatigable as an author, and yet his works must require great research as well as local trouble and time to mature them. The book now before us will form a peculiarly interesting record of all we can boast of, in the shape of our more distinguished English family-seats throughout the provinces. It is illustrated too with sketches, which, however, are of course in such a work rather more picturesque than architectural. We may here quote the author's own remarks as to the contents, and the objects he has had in view:—

"The county-seats of Great Britain are here historically described, and are accompanied, in some instances, by picturesque views: this portion we have endeavoured to enliven with legends, anecdotes, and traditional reminiscences; with the descent of each property shown down to the present possessor, and with reference to the ultimate fate of the different families which, in the course of time, have enjoyed and given vitality to the inheritance.

We have, in fact, taken these picturesque estates and placed the living figures, with their deeds, their honours, and their worth, upon them—imparting thus to each inanimate fabric and silent landscape, its own congenial and appropriate soul.

We have now to speak of what is intended in the second part of the work. . . . These visitations ceased with the seventeenth century, and have never since been resumed. To supply, in some measure, the want of such valuable sources of heraldic and genealogical information, is one great object of the present work."

The Prize Essay on the Application of recent Inventions, collected at the Great Exhibition of 1851, *to the Purposes of Practical Banking.* By GRANVILLE SHARP.

THIS is a reprint from the *Bankers' Magazine* of January and February last. Its purpose is sufficiently indicated in its title. It contains a fair view of much that is new and good in regard to all such inventions as may tend to promote the safety, convenience, healthfulness, and comfort of banking edifices, though on some points rather defective. Of course it is not limited to what relates merely to the buildings themselves in their fireproof construction, lighting, heating, ventilating, guarding, &c.; but treats also of all that relates to paper, pens, and ink; to copying, printing, and engraving, *et multis aliis.*

The Four Primary Sensations of the Mind. A brief Essay. By JOHN BELL, Sculptor. Chapman and Hall, Piccadilly. 1852.

WE are glad to observe that Mr. Bell has republished his essays on "the sublime, the pleasing, the low or ridiculous, and the unpleasing," which first came under the public eye in the *Journal of Design.* As remarked in the preface, Mr. Bell would have preferred, for the word "pleasing" the term "beautiful;" but as an opposite was requisite, and as he objected to those which suggested themselves, he reverted to the terms "pleasing" and "unpleasing," as more strictly significant of prominent modifications of *sensation.* He felt, also, a little at a loss for an antithesis to the word "sublime," its old correlative and associate "ridiculous," not fully comprehending all he meant to imply in the antithesis desiderated. He, therefore, felt himself obliged to add an accompanying term, namely, "low," although perhaps, as "sublime" implies height as well as depth, "ridiculous" might have been held to imply the low as well as the little. These are metaphysical distinctions, however, which do not necessarily affect the argument or scope of the essay itself.

Old Eighteen Fifty-One. A New Year's Tale for 1852. London: Houlston and Stoneman.

WE have here the occurrences of the year put into a pleasant readable form for children. It makes a very interesting little volume.

Miscellanea.

THEATRE ROYAL, DRURY LANE.—The successful production of a grand opera in four acts is not a slight achievement, and involves the exercise of a larger amount of varied talent, ingenuity, time, and money-expenditure than the public generally, who care only for the result, have any notion of. The knowledge of this fact should induce consideration for short-comings in such an attempt, when observable, and warm acknowledgments when successful. Mr. Balfe's last work, *The Sicilian Bride*, which has been produced at Drury-lane by Mr. Bunn with considerable splendour, contains some of the best music that our countryman has ever written, and if it should not have so widely spread and lasting a popularity as the *Bohemian Girl*, will owe this to the story which he has wedded to his music rather than to any defect on his own part. Mr. Sims Reeves, Mr. Whitworth, and Miss P. Horton, sing beautifully in it; and Miss Crichton, if scarcely equal to so arduous a part as its heroine, displays so much voice, taste, and knowledge as to lead us to expect for her a very honourable position amongst English singers. The first scene, a rich country near Syracuse, with Mount Ætna in the distance, is nicely painted. More might have been done with the "Armourer's Forge." Those who are in the habit of groaning over the deficiency of musical talent in England, and the few opportunities native composers and singers have amongst us, should show their willingness to aid in amendment by paying a visit to Drury-lane.

FRENCH AND ENGLISH WORKMEN.—On entering the department of Vulcan, in which were several forges at work, I could not help being struck with the difference between French and English smiths, with the latter of whom I had some little acquaintance. Both raise their sledge hammers with equal vigour, but the effort of the French seems to die away before it reaches the anvil; whereas with the Englishman the momentum invariably quickens. The same difference was apparent to me in heavy filing. The French workman makes a great effort to get the file into its position, and afterwards half gives it up. The English workman prepares gently, and then works spitefully. In two words, the French smiths appeared to work very neatly indeed, but, as we should term it, to niggle.—*Sir F. Head.*

LIVERPOOL ARCHITECTURAL SOCIETY.—On Wednesday, in last week, at the usual meeting of the Architectural and Archæological Society, of this town, Mr. Picton, the president, read a paper "On the Rise and Progress of Architecture and Building in Liverpool." After alluding to the admirable site on which the town stood, and mentioning Venice and Amsterdam as instances of what might be done by enterprise in overcoming natural difficulties, he commenced his review of the architecture of Liverpool in what was called the ancient time. He traced the few narrow streets, the badly-ventilated houses, the absence of any notion of sanitary arrangement which then prevailed amongst the inhabitants; the pool at the bottom of Lord-street, with the ferry extending to Ranelagh-street; the gradual increase in the wealth of the corporation; the building of the old dock; Hanover-street as the principal residence of the merchant princes of Liverpool; the fields and beautiful walks extending from the then confined town, and on which now stands the Tyre of the world; the gradual extension of the commerce of the port, and with it the increase in the size of the town and the numbers of the population; the erection of the various public buildings, such as the town-hall, built on the site of the holy cross in 1673, and other buildings of note. Sir Thomas Johnson, who took an active part in the affairs of the town from 1700 to 1723, Mr. Picton considered the founder of modern Liverpool. He was an arrant smuggler, and terminated his career as an excise officer in Virginia.

SMOKY CHIMNEYS: NO CURE NO PAY.—In the Norfolk Circuit, at Bedford, on 5th inst. a case was decided, in which the plaintiff, Mr. Bentley, a worker in metals, and smoke-doctor, in Bedford, claimed a balance of 79*l.* 10s. 10d. in addition to 23*l.* paid to account of an unsuccessful attempt to cure eight chimneys of Wavendon vicarage (a modern mediæval mansion by Mr. Ferrey), for the present vicar, the Rev. Mr. Burney, the defendant. Eight copper pipes, made to suit the style of the house, had been put up on as many chimney-stacks, and other alterations made in flues, grates, and doors, by the plaintiff, but without avail, and the defendant ultimately had to call upon his architect, who raised the stacks 16 feet. This the plaintiff claimed as his own original proposal, which he said the vicar resisted. On the part of the defendant it was urged that the bargain with the plaintiff was made on the principle of no cure no pay, and that the copper pipes were returned when found useless. The evidence to this effect, however, was defective, and a verdict for the plaintiff was given to the full amount claimed.

SOLDERING METALS.—M. Derode, of Paris, has specified his patent for a new process for uniting cast-iron to cast-iron and other metals, and for uniting other metals together. He claims—1. The uniting of metals by the agency of electricity (either magnetic or electro-galvanic), with the usual scouring process, and with the addition of ordinary heat. 2. The combining electric agency (either magnetic or electro-galvanic) with the scouring process. 3. The application of an electric multiplier to the scouring process and to the soldering of metals.

WIDE ESTIMATING.—Do, pray, insert these tenders, delivered for pulling down and rebuilding the Mitre tavern, Tooley-street:—

Sturges and Addams	£950
Cheeseman	839
Taylor.....	695
Cooper	680
Wills	675
Hill.....	653
Paul.....	557

M.

I HAVE read much in your pages about blind builders, and I think the following tenders, for alterations, repairs, and additions to the Royal Standard, Vauxhall-road, deserve a place among them:—

Lansdown	£1,065
Dean	661
Side.....	598
Gammon	568

By inserting the above you will oblige—A. S.

LINES TO AN OLD TUNE,* suggested by the London Art-Union print of "An English Merrymaking in the Olden Time."

Oh! what a merry group are they,
All alike seem blithe and gay,
Save the dame who, with disdain,
Listens to that homely swain!
Looks at him with scornful eyes,
Thus expressing her surprise,
That he should dare to ask her hand,
And join with him the rustic band,
When there's one of high degree,
Who, with gentle courtesy,
Takes that hand within his own,
And seems to say, "'Tis mine alone."

How that aged matron joys,
To see the happy girls and boys,
Urge her good man to advance,
And take a partner for the dance.
Will the grandsire willing be
To foot it now so merrily;
Sure that maid will not in vain
Entreat him to seem young again?
Youth and age, and childhood gay,
Hail their rural holiday;
Throng where manly sports invite,
Or in the mazy dance delight.

What will that cunning gipsy find,
To tell the damsel half reclined
Near a youth, who, there's no doubt,
Will help that cunning gipsy out
To tell a tale of fond true love,
And to the pretty maiden prove,
That he who lies beside her there,
Believes her fairest of the fair?
England's lads and lasses meet,
To trip along on nimble feet;
While fiddle, pipe, and tabor sound,
To aid them in the joyous round.

ISABEL C.

LECTURES BY WORKING MEN.—The foremen in the employ of Messrs. William Cubitt and Co. Gray's-inn-road, have recently made an arrangement, under the sanction of the principals, for the head of each department to deliver a lecture on the principles and practice of his trade and the nature of the materials employed, &c. to the sons of the workmen and the juvenile assistants throughout the establishment, in connection with the school and library which were formed on the premises two years ago. The first of these lectures was delivered on the 4th instant, in one of the large work-rooms, by Mr. Thomas Robinson, the head clerk and manager. The lecture being introductory, the subject was, of course, general in its character. The advantages of self-culture and mode of proceeding were pointed out in a manner suited to the circumstances of the listeners, at the same time with an earnestness which rivetted the attention of the adult part of the audience.

ROAD MAKING.—I beg to hand you a specimen of rather wide estimating for a road at Penn Wood, Bucks, under the direction of Mr. James Harris, Surveyor. The works consisted of a road, 1,920 yards long, to be formed 30 feet wide, and to receive a coating of gravel and flint, mixed, 12 feet wide, and 10 inches deep; 180 feet run of barrel drain, 12 inches diameter; and a large dell, to fill up, about 120 yards long, 12 yards wide, and 3 yards deep, containing 4,320 cubic yards:—

	Roads. £.	Dell. £.	Total. £.
Messrs. Earle, Westminster	480 ..	165 } 50 }	695
Contingencies			
Becks, London	336 ..	150 ..	486
Coulson, Forest-Hill (accepted)..	336 ..	48 ..	384
			H. H.

SPITALFIELDS CHURCH.—A correspondent complains that the Commandments, Lord's Prayer, and Creed have been removed from the walls of this church. He says,—"An omission it is not, for it has been pointed out, but in vain."

PEEL STATUES.—The statue for Leeds, by Mr. Behnes, is cast in bronze. The operation of pouring the metal into the mould was performed within the last few days at Mr. Robinson's foundry, Pimlico. It was cast in one solid piece. The bronze statue for the city of London, by the same sculptor, is also in a state of forwardness. Gibson's statue of Sir Robert Peel is now modelled in plaster, being nearly completed. It is destined for Westminster Abbey. The figure is clothed in classical drapery, falling in long folds around his person.

* "Come, let us dance and sing."

CHARING-CROSS BRIDGE COMPANY.—The tolls for half-year ending 31st January last, amount to 3,734*l.* 12s. 8d. being 724*l.* 3s. 7d. more than the receipts for corresponding period of previous year. 115*l.* have been expended in paving the northern abutment of the bridge. The directors have resolved to proceed at once to make a better access to the bridge. A direct thoroughfare will be thus formed from the bridge to the York-road, which will be lighted and paved for the convenience of foot passengers and opening as nearly as possible to the station of the South Western Railway.

PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.—We are anxious to draw the attention of our readers to the fact that the annual dinner of this very deserving institution is to take place at the London Tavern on Wednesday in week after next (24th instant), when Mr. Thomas Piper, jun. will take the chair. We are glad to see so full a list of stewards, and we hope that there will be a large attendance of the friends and patrons of the institution.

THE SALLYPORT OF WINDSOR CASTLE.—The workmen engaged in levelling the ground between the Garter Tower and the old Belfry Tower, known as Julius Cæsar's Tower, have discovered, at about 6 feet below the surface, a passage cut through the chalk rock. The filth and rubbish are now being got out. The passage is 6 feet wide and 10 feet high; the sides built of sound masonry, arched over with massive stonework. At present it has been traced to one of the Minor Canons' houses in the Horseshoe Cloisters, adjoining Julius Cæsar's Tower, where the entrance is bricked up. From this part there is a gradual descent into Thames-street. It has been conjectured that this is the ancient sallyport from the Castle, made as a means of escape in case of siege or invasion, and that it passes under the river to Burnham Abbey, about three miles distant, where there is a corresponding passage proceeding in the direct line to Windsor. For this, however, there is no ground whatever.

THE EDUCATION OF THE EYE.—A lecture under this title was given at Weybridge, on Saturday night, in aid of the funds of the Mechanics' Institute, by Mr. M. Digby Wyatt. The lecturer enforced the pleasure and advantage to be derived from a knowledge of the forms and other characteristics of the works of nature and art, and the facility with which, by judicious and careful observation, the eye might convey instruction to the mind.

FIRE IN WHITECHAPEL.—A large mass of building, eight floors in height, and it is said 250 to 300 feet in length, occupied by Messrs. Thorpe, paper-stainers and paper dealers, was destroyed last week by fire, and adjoining properties much injured. Messrs. Thorpe's premises were only insured for 3,500*l.* Most of the walls have fallen, and the building is a complete ruin. It is really lamentable, in these days of fire-proof invention, to hear of such constant losses by fire.

THE ACADEMY EXHIBITION.—As the period is now approaching for the opening of the Royal Academy Exhibition, will you allow me to suggest the issue of season tickets at a reasonable rate, whereby a great boon would be conferred on the art-loving public.

AMATOR ARTIS.

TO CORRESPONDENTS.

"J. Y." (we are unable to give addresses), "T. L. D." (thanks), "W. C.," "W. C. T.," "J. T.," "R. N.," "W. P. G." (thanks), "Correspondent," "A Peer," "E. W. H.," "S. G. and Co.," "Q." (will appear), "J. R. and Co." (will hear from the publisher), "E. N.," "W. M. B." "W. E. C." "J. B." "F. H." (not our practice), "M. M.," "Messrs. L.," "J. N. W.," "John."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

A PREMIUM of 150*l.* to 350*l.* will be paid immediately to Apprentice a Youth to a Civil or Locomotive Engineer in England or on the Continent, Architect, Draughtsman, Wood or General Engraver, Builder, Upholsterer, or any thoroughly respectable and genteel profession or trade.—Address, M. H. 15, New Bond-street. adv.

PARTNERSHIP.—A practical Plumber, having a connection, wishes to meet with a PARTNER, who can command a small capital; a knowledge of the business not indispensable, but a Painter and Grainer preferred.—Address, J. W. GOUDSON, 4, Union-street, Grosvenor-row, Pimlico.

TOWN of BRIGHTON.—TO ENGINEERS and SURVEYORS.—The commissioners acting under the Brighton Town Act give notice that they are about to appoint a SURVEYOR at a salary of £501. per annum, with an allowance for an assistant clerk. Particulars to be obtained on personal or written application to my office. Candidates are requested to forward written applications and testimonials, addressed to me, on or before WEDNESDAY, the 24th March, 1852.
By order,
LEWIS SLIGHT, Clerk.
Clerk's-office, Town-hall, Brighton, March 11, 1852.

TOWN TRAVELLER.—WANTED, a Person, who has a knowledge of the Building and Pottery Trades, and who can have an unexceptionable character for honesty and sobriety.—Apply to Mr. DAVIS, Falcon-wharf, 80, Bankside.

TO PAINTERS AND GRAINERS.
A CONSTANT SITUATION is open to a steady Man, competent to take the lead in a shop, and willing to make himself useful to his employer.—Apply, any morning before Nine o'clock, at 51, Broad-street, Golden-square.—There is also a vacancy for a Paperhanger and Painter.

WANTED, an experienced FOREMAN of JOINERS; also to take the charge of the yard. Salary, 32l. per annum.—Apply, by letters only, post-paid, inclosing copy of testimonials, to A. D. Post-office, Prescot, Lancashire.

WANTED, in an Architect's Office, a person of respectable address. He will be required to give his attendance from ten to five, and employ himself in tracing and copying, or squaring and abstracting.—Apply, by letter only, to R. G. Gresham Library, 105, Cheapside, before Saturday, at three o'clock.

TO JOURNEYMAN JOINERS AND CABINET MAKERS.
WANTED, a RESPECTABLE MAN, of good address, to undertake the Sale, on Commission, of a New Article of Ironmongery, in considerable demand. A good character from the last employer, and a moderate deposit required.—Apply, personally, at Mr. S. PHILLIPS'S, Stationer and Newsagent, 43, Score-street, Bedford-square, between the hours of three and four, on Monday, the 16th instant.

TO PLUMBERS AND BUILDERS.
WANTED, by a Young Man, who is now leaving a plumber, a SITUATION where he would have the opportunity of improving.—Address, C. B. No. 11, James-street, Covent-garden.

TO BRICKMAKERS.
WANTED, a SITUATION by an experienced FOREMAN, who understands accounts. Unexceptionable reference can be given. Address, O. Z. No. 3, King-street, Bath-street, St. Luke's.

TO ARCHITECTS, BUILDERS, AND OTHERS.
WANTED, a SITUATION as CLERK of WORKS, or to Superintend Building Works for Contractors. The advertiser is a middle-aged man of good experience. Can give good reference to his last and previous employers.—Address, T. M. P. at Mr. Watson's, 169, Piccadilly.

TO PLUMBERS AND BUILDERS.
WANTED, by a Steady Active Man, a permanent SITUATION as PLUMBER, PAINTER, and GLAZIER, one who thoroughly understands his business.—Address C. C. Office of "The Builder," York-street, Covent-garden.

TO ARCHITECTS, SURVEYORS, BUILDERS, AND OTHERS.
WANTED, by a Young Man, a fair Draughtsman, a good penman and French Scholar, a SITUATION in either of the above, or similar office, where his qualifications would be generally useful. Salary moderate.—Address D. C. 34, South Molton-street, Oxford-street.

WANTED, by the Advertiser, aged 24, an ENGAGEMENT in a SURVEYOR'S or BUILDER'S Office. Understands making out working drawings, taking out quantities, measuring up work, and the general routine of an office. Highly satisfactory references can be given.—Address to E. G. P. Messrs. Waterlow's, 66, London-wall.

WANTED, by a respectable Young Man, who is about leaving a large firm in the metropolis, a RE-ENGAGEMENT as CLERK. He has been accustomed to making out working and fair drawings, understands measuring, taking out quantities, bookkeeping, &c.—Salary moderate.—Address, A. B. Mr. Hogg's, Post-office, Gray's-inn-road.

WANTED, by a Good Practical CARPENTER and JOINER, who can make working and fair drawings, &c. a SITUATION as shop or general FOREMAN, CLERK of WORKS, &c. or to superintend the erection of buildings.—Address, ZETA, City Coffeehouse, Friday-street, City, London. No objection to a country town.

TO ARCHITECTS AND ENGINEERS.
A GENTLEMAN requires a SITUATION as CLERK who is perfectly versed in all the theoretical and practical delineations of machinery, ornament, &c. Unexceptionable examples and reference given. Terms moderate.—Address, ORELLA, at Buck and Wotton's, Post-office, Lambeth.

TO ARCHITECTS AND SURVEYORS.
A GENTLEMAN, having some months since completed his Articles with a well-known Architect in London, is desirous of obtaining a SITUATION or ASSISTANCE in the Office of a Gentleman of the above Profession. Highly satisfactory reference can be given.—Address A. B. 6, Gerrard-street, River-terrace, Islington.

TO ARCHITECTS AND SURVEYORS.
A FULLY qualified ASSISTANT is desirous of a RE-ENGAGEMENT in the office of either of the above. Unexceptionable references will be given. Terms moderate.—Address, A. E. F. Office of "The Builder," 1, York-street, Covent Garden.

TO CARPENTERS AND BUILDERS.
A YOUNG MAN is desirous of obtaining a SITUATION as an IMPROVER.—Address W. Y. at the Office of "The Builder," 1, York-street, Covent-garden.

A YOUNG MAN, having just completed an engagement in a Builder's office, and thoroughly acquainted with his duties, is desirous of a similar SITUATION. No objection to the country.—Address, T. W. P. care of Messrs. Sherriff and Co. 8, Stockwell-terrace, Stockwell.

TO SAW-MILL PROPRIETORS.
A YOUNG MAN, aged 30, who has had five years' experience as Clerk and Manager of a Veneer Mill, wishes an ENGAGEMENT in a similar capacity. He can produce testimonials of the highest order.—Address, K. V. No. 9, Mary-street, Regent's-park.

TO SURVEYORS OR BUILDERS.
A YOUNG MAN, who has been connected with the building business, and for the last ten years accustomed to make both finished and working drawings, and also in measuring work, is desirous of an ENGAGEMENT with an Architect or Surveyor. Is thoroughly acquainted with the accounts of a builder's office.—Address to A. B. Mr. Freeman's, 48, Fenchurch-street, City.

TO ARCHITECTS, CIVIL ENGINEERS, BUILDERS, SURVEYORS, TIMBER AGENTS, &c.
THE Advertiser, aged 32, would be glad to meet with EMPLOYMENT in the office of a gentleman in any of the above professions, and would make himself generally useful, having had some practice in plain drawing, perspective, geometrical projection, surveying and levelling, mapping, measuration of timber, &c. practical geometry and trigonometry, logarithms, in the use of theodolite, box sextant, levels, and clinometer. He has been for some years in the Earl of Leicester's estate office at Holkham.—Direct to A. L. 11, Manchester-terrace, Liverpool-road, London.

CONTRACTS.

LONDON and NORTH-WESTERN RAILWAY TO BUILDERS.—The Directors being about to ERECT a STATION at Rugby, parties desirous of TENDERING for the same may see the Drawings at the Engineer's Office, Euston Station, on MONDAY next, the 15th of March, at 7 twelve o'clock, when a Surveyor for making out the bills of quantities will be appointed. A charge will be made for each copy of the list of quantities to be paid at the time of voting for Surveyor. Sealed tenders, addressed to the Secretary of the Company, to be available, must be sent in on or before Wednesday, the 31st day of March, 1852. By order,
CHAS. E. STEWART.
Euston Station, March 10, 1852.

TO CONTRACTORS, ROAD MAKERS, &c.
TO BE LET, the DRAINAGE and ROAD MAKING of the several NEW STREETS upon the West Kent Park Estate, at Forest Hill, near Sydenham, the property of the Borough of Lambeth Freehold Land Society. Plans and specifications may be seen at the Offices of Mr. R. J. WOODCOCK, Surveyor, Forest Hill, of whom further particulars may be obtained. The Committee will require the party contracting to give security for the due performance of the contract, and do not bind themselves to accept the lowest tender. Sealed tenders to be forwarded to the Secretary, at the offices of the Society, Cooper's-road, Old Kent-road (marked outside, "Tender for Roads, &c.") on or before twelve o'clock, noon, of Wednesday, the 17th March inst.
By order of the Committee,
WM. BANKS, Secretary.
March 6, 1852.

PROVIDENT INSTITUTION of BUILDERS' FOREMEN. Established for the relief of its Decayed Members, Widows, and Orphans.
G. BAKER, Esq. Governor.

PATRONS.
The Right Hon. Earl of Carlisle.
The Right Hon. Earl of Ducie.
The Right Hon. Earl of Ellesmere.
H. T. Hope, esq. M.P.

S. Angell, esq.
G. Baker, esq.
Thos. Cubitt, esq.
William Cubitt, esq. Ald. M.P.
J. Chadwick, esq.
C. R. Cockerell, esq. R.A. F.R.S.
J. W. Doubleday, esq.
T. L. Donaldson, esq.
G. Godwin, esq. F.R.S.
S. Grimsdell, esq. F.S.A.
T. Grissell, esq. F.S.A.
W. Harrison, esq. [F.S.A.
P. Hardwick, esq. R.A. F.R.S.
Thos. Hutchins, esq.
H. E. Kendall, esq. F.S.A.
J. Kelk, esq.
J. Locke, esq. M.P. C.E. F.R.S.
H. Lee, jun. esq.
J. Moulem, esq.
W. Nixon, esq.
T. Piper, jun. esq.
W. Piper, esq.
S. M. Peto, esq. M.P.
G. Rennie, esq. C.E. F.R.S.
Baron De Rothschild, M.P.
W. Tite, esq. F.R.S. F.S.A.

The FIFTH ANNIVERSARY DINNER will take place at the London Tavern, on Wednesday, March 24, 1852.
T. PIPER, jun. Esq. in the Chair.

HONORARY STEWARDS.

A. N. Armanni, esq.
J. M. Blashfield, esq.
R. P. Browne, esq.
G. W. Baker, esq.
G. Briand, esq.
Y. Bellmay, esq.
R. L. Curtis, esq.
E. Carter, esq.
H. Christie, esq.
H. W. Cooper, esq.
J. Dale, esq.
W. W. Dennis, esq.
H. Dodd, esq.
G. H. Ellis, esq.
J. Glenn, esq.
F. C. Hardwick, esq.
H. C. Holland, esq.
J. Husler, esq.
T. Jackson, esq.
J. Jay, esq.
W. Jeakes, esq.
R. W. Kennard, esq.
G. Lock, esq.
S. Lee, esq.
J. Lee, esq.
W. Lee, esq.
G. Lucas, esq.
J. Lettic, esq.
G. McLennan, esq.
W. Mosley, esq.
A. Mason, esq.
T. Magnus, esq.
G. Myers, esq.
T. Nelham, esq.
W. Norris, esq.
T. Nye, esq.
T. Peake, esq.
M. Pass, esq.
C. Richardson, esq.
T. Sterling, esq.
R. Stevens, esq.
J. Taylor, esq.
J. Tillett, esq.
H. Treggon, esq.
S. Watkins, esq.
W. Webb, esq.
E. Wallis, esq.
T. Wallis, esq.
J. Walker, esq. C.E.
J. Wilson, esq.

ACTING STEWARDS.

Mr. T. Dwelley
" J. Ray
" A. Kimberley
Mr. W. Robertson
" J. Wilson.

Tickets, 21s. each, to be had at the London Tavern; also at the Bay Tree Tavern, City.
W. ALLARD, Secretary.
Bay Tree Tavern, St. Swithin's-lane, March 1, 1852.

BOGNOR FREEHOLD LAND INVESTMENT and PERMANENT BENEFIT BUILDING SOCIETY.—Established pursuant to Statute 6 & 7 Wm. 4, cap. 32. Office, 33, Nicholas-lane, Lombard-street, London.)
Mr. Dudley having now completed the purchase of a plot of freehold land possessing a large frontage to the sea, in this fashionable and salubrious watering-place Bognor, invite attention to the advantages afforded to shareholders of obtaining a marine residence or plot of land, conferring a vote for the county, at the same time securing a lucrative and safe investment. Builders who may be desirous of contracting with the Society for the erection of Residences are informed that plans may be seen at the Offices of the Society. Preference will be given to such builders as are members of the Society.
Prospectuses, Shares, and other information may be obtained on application personally, or by letter addressed to the Secretary, at the Society's office.
WILLIAM HUTT, Secretary.

TARPAULINS FOR COVERING ROOFS during Repairs, SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PUGGOTT, 115, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

TO BUILDERS AND PLUMBERS.
STRAPS for SINKS or CLOSETS made to any size or shape out of MILLED LEAD. Parties in Town supplied with them 10 per cent. cheaper than they can have them made up.—For particulars address to E. OLLIVE, Plumber, Hemel Hempstead, Herts.

JORDAN'S PATENT MACHINE-CARVING, and CHURCH-JOINERY WORKS, Belvedere-road, Lambeth.—The Proprietors of the above Works beg to return their best thanks to the Nobility, Architects, Builders, and the Public generally for the very liberal support they have received, and to assure them it will be their constant endeavour to deserve.
In addition to the general machinery and carving business, they undertake Contracts to execute and fix every description of joinery-work required in the fitting-up of Churches and Chapels, viz.: carved and moulded bench ends, screens, pulpits, reading-desks, lecterns, sedilia, altar-rails, doors, tracery-fronts, reredos, altar-tables, chairs, faldstools, organ-cases, moulded and carved cornices; together with tracery and moulded framings required in the manufacture of elaborate staircases, chimney-pieces, floors, &c.
The Proprietors respectfully call the attention of Architects and all persons engaged in buildings to their new application of machinery to the inlaying of waincot floors, doors, dados, hall and dining-room panelling, cornices, &c. specimens of which are being prepared for Dudley House, and can be seen at the works; as also every description of carved work and mouldings required in the building trade.—For prices and estimates apply to the manager upon the premises.
N.B. A richly-carved oak screen, which obtained the prize medal at the Great Exhibition, for sale.

THE GREAT EXHIBITION IN LONDON AWARDED A PRIZE MEDAL TO THESE MACHINES.
PATENT MACHINES, for Planing, Moulding, Mortising, Tenoning, Grooving, Sawing, and Boring, as used by joiners, builders, coachmakers, railway carriage and waggon builders, cabinet manufacturers, piano-forte makers, &c.—The principal Institutions for the Encouragement of Arts have awarded seventeen premiums to these machines; they have been found in every respect perfect in their operations, on either hard or soft wood, and will perform all the ordinary descriptions of work required in the above trades in a superior manner, at a greatly reduced cost. These machines are now used by the British, French, and American Governments, and by all the principal contractors, builders, and machinists in the United Kingdom.
Sold by WILLIAM FURNESS, Patentee, 20, Lawton-street, Liverpool.

ROYAL ACADEMY of ARTS, Trafalgar-square.—NOTICE TO ARTISTS.—All works of Painting, Sculpture, or Architecture intended for the ensuing EXHIBITION at the ROYAL ACADEMY must be sent in on MONDAY, the 5th, or TUESDAY, the 6th of April next, after which time no work can possibly be received, nor can any works be received which have already been publicly exhibited. The other regulations necessary to be observed may be obtained at the Royal Academy.
JOHN PRESCOTT KNIGHT, R.A. Secretary.
Every possible care will be taken of works sent for exhibition; but the Royal Academy will not hold itself accountable in any case of injury or loss; nor can it undertake to pay the carriage of any package which may be forwarded by carriers. The prices of works to be disposed of may be communicated to the Secretary.

THE ARCHITECTURAL EXHIBITION (with the collection of Materials, Patents, Processes, &c. connected with Architecture), IS NOW OPEN from Ten till Dusk, at the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission One Shilling, including Catalogue. Sets at Tickets, including a Catalogue, admitting the holder from the 19th of January to the 18th of March, Two Shillings. Free Tickets may be had for Workmen, on application at the Galleries.
JAS. EDMESTON, Jun.
JAS. FERGUSSON, F.R.A.S. } Hon. Secs.

WILL CLOSE on the 18th Instant.—The ARCHITECTURAL EXHIBITION (with the Collection of Materials, Patents, Processes, &c.) now open from Ten till Dusk, at the Portland Galleries, opposite the Polytechnic Institution, Regent-street. Admission, One Shilling, including a Catalogue. Season Tickets, including a Catalogue, Two Shillings. Free Tickets are granted to Workmen on application. N.B.—All Exhibitors must remove their Contributions on the 19th instant.
JAS. EDMESTON, Jun.
JAS. FERGUSSON, F.R.A.S. } Hon. Secs.

PATRON—H. R. H. PRINCE ALBERT.
ROYAL POLYTECHNIC INSTITUTION.—During Lent, a Lecture on Astronomy, illustrated by beautiful diagrams, will be delivered by Dr. Bachhoffner, on Wednesday and Friday Evenings, at Eight o'clock.—An Explanatory Description, by Mr Crispe, of the Prussian Musket, the Lancaster and Minie Rifles, the various Revolvers, and other Fire-arms, with the Improved Conical Bullet, daily at a Quarter to Three o'clock, and on Monday, Wednesday and Friday Evenings at Nine.—"A Musical Cento," being a Lecture on the Songs of Dublin and other eminent composers, by Mr. Thorpe Peed, esq. Professor of Singing at the Royal Academy of Music, on Monday, Tuesday, and Thursday Evenings, at Eight.—Lectures on Chemistry, by J. H. Pepper, esq.—Dissolving Views, &c. &c.—Admission, 1s.; Schools and Children under ten years of age, half-price. A new edition of the Catalogue.

TO DRAUGHTSMEN AND CIVIL ENGINEERS.
H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.
These Pencils are prepared in various degrees of hardness and shades.

HHHH for drawing on wood.	FF light and shading.
HHH for architectural use.	F for general use.
HH for engineering.	B black for shading.
H for sketching.	BB ditto. ditto.
HB hard and black for drawing.	BBB ditto. ditto.
M medium.	BBBB ditto. ditto.

Sold by all the principal Stationers in town or country.

TO CIVIL ENGINEERS, SURVEYORS, RAILWAY COMPANIES, AND OTHERS.
HENRY POPE, Wholesale Stationer, has on hand a well-seasoned Stock of the best DRAWING-PAPER, mounted on linen, at 4d. per square foot. Drawing Paper, Tracing ditto, Envelopes, and every description of Stationery.
32, Budge-row, Watling-street, City.

CHEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS, sent free by post, contains designs and prices of upwards of one hundred different Bedsteads, in Iron, Brass, japanned Wood, polished Birch, Mahogany, Rosewood, and Walnut tree Woods; also their priced List of Bedding, and their warerooms are usually open to keep one of each design fixed for inspection. They have also, in addition to their usual stock, a great variety of the best designs of PARISIAN BEDSTEADS, both in wood and iron, which they have just imported.—HEAL and SON, Bedstead and Bedding Manufacturers, 196 opposite the Chapel, Tottenham-court-road.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.
ILLUSTRATED PRICE LISTS, containing much information useful for reference; also numerous unsolicited testimonials respecting a MATERIAL which, when well wrought, is probably superior to every other for drains or conduits, for ridges, hips, wallers, and every part of roofs, for plain or chequered floors, for paving and erections, of a strong and durable nature, also many other purposes, supplied genuine by THOMAS PEAKE, (proprietor of Peake's "Terro-Metallic"), No. 3 WHARF, CITY-ROAD BASIN, LONDON, and at THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices by number, and approximate cost by measure. It is solicited that letters be prepaid, and state if Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 27, No. 123 (having been at first No. 111).

FRUIT TREES, SEED BEDS, &c.—NEW TWINE NETTING, to protect the Bloom of Peach, Nectarine, Apricot, and other Fruit Flower and Seed Beds from frost, blight, and birds; or as a fence against fowls, &c. at ONE HUNDRED PER CENT. CHEAPER THAN AT ANY OTHER MANUFACTORY! New twine netting, one yard wide, 1½d. per yard; two yards wide, 3d. per yard. Worsted netting, two yards wide, 4d. per yard; half-inch mesh ditto, two yards wide, 5d. per yard. Sheep-folding net, of superior quality, four feet high, 4d. per yard. The repaired tanned fishing nettings, one, two, or three yards wide, 1½d. per yard; four or six yards wide, 3d. per yard,—exactly the same as advertised by others at double the above prices. Nets made to order. Casting nets, 1s. per yard round complete. Purse nets for ponds, lakes, and rivers, with purse complete, twelve yards long, 3l.; twenty yards long, 5l.
The trade supplied at W. CULLINGFORD'S, 1, Strathmore-terrace, Shadwell. Orders by post punctually attended to.

THE PATENT GALVANIZED IRON.
TUPPER and CARR,
Owners of Cranford's Patents, and Successors to
THE GALVANIZED IRON COMPANY,
Supply patent Galvanized Sheets, plain or corrugated, for roofing, &c. Water or Gas Pipes, Castings, Wire of all gauges, Guttering, Hooping, &c. Wholesale, retail, and for export.
An allowance to the trade.
WORKS—MILLWALL and BIRMINGHAM.
LONDON OFFICE, 3, MANSION-HOUSE PLACE.

IRON BUILDING and ROOFING WORKS, BIRMINGHAM, late of Southwark.
JOHN H. PORTER,
Manufacturer of the Corrugated and other kinds of Iron Roofing for railway stations, carriage sheds, farm buildings, gas-works, warehouses, factories, &c. &c.
PATENTEE
Of the Corrugated Iron Beams, Girders, and Fire-proof Floors.
LONDON Office, 34, Cornhill.

THE CORRUGATED and GALVANIZED IRON ROOF,
PORTABLE BUILDING, AND
NASMYTH'S PATENT FLOORING, ROOFING, AND GIRDER WORKS.
Offices, 61, Gracechurch-street.
JOHN WALKER, son of the Patentee of Corrugated Iron, calls the attention of Architects, Engineers, &c. to his List of Prices, which consistently with good workmanship, are extremely low.
Models of the patent iron flooring, corrugated or not, and girders; also, drawings of roofs, on peculiar principles, may be had on application.
Drawings of the iron lighthouse spoken of in the *Times* and other papers see the *Expositor* for February 8th, may be seen by application.
References to firms of the highest class can be given.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.

CAPITAL £1,000,000.

This Company assures diseased as well as healthy lives for sums of from £1. to £5,000.

The annual income is nearly 4,000£.

Lives declined by other offices accepted at equitable rates.

Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.

M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING-CLASSES.

BRANCH OFFICE 2, EXETER 'CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo-bridge), STRAND,

Open every Evening from Six till Eight o'clock.

Subscription for securing payments of 5l. and up to 50l. payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—

Weekly Contributions for payment of 5l. at death.

Healthy persons whose age on becoming subscribers shall be—

From	10 to 35 years, to pay	One Penny	per Week.
„	35 to 45 „	Twopence	„
„	45 to 55 „	Threepence	„

Collectors call at the houses of Subscribers for the weekly subscriptions.

The rate of subscription will not increase as the contributor grows older, but the amount paid at the commencement will be continued throughout life.

Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.

N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to Mr. JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

PROVIDENT LIFE OFFICE, 50, REGENT-STREET; CITY BRANCH: 2, ROYAL EXCHANGE BUILDINGS. Established 1806

PRESENT INVESTED CAPITAL, £1,311,781.

Annual Income, £153,000. Bonuses Declared, £743,000.

Claims paid since the establishment of the Office, £3,367,736.

The Right Honourable EARL GREY.

DIRECTORS.

William Henry Stone, esq., Chairman.
Henry B. Alexander, esq., Deputy-Chairman.

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Nineteen-twentieths of the profits are divided among the assured.

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£. s. d.	£. s. d.
1806	2,500	79 10 0 extinguished.	1,222 2 0
1811	1,000	33 19 2 ditto	231 7 5
1816	1,000	34 16 10 ditto	114 13 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
831	1807	900	993 12 1	1,893 12 1
1174	1810	1,000	1,160 5 6	2,160 5 6
3392	1830	5,000	3,558 17 8	8,558 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

UNDER THE ESPECIAL PATRONAGE OF
HER MOST GRACIOUS MAJESTY THE QUEEN
AND
FIELD MARSHAL
HIS ROYAL HIGHNESS PRINCE ALBERT, K.G. K.T. K.P. G.C.B. and G.C.M.G.

THE ROYAL NAVAL, MILITARY, AND EAST INDIA
LIFE ASSURANCE SOCIETY,
Established A.D. 1837.
FOR GENERAL ASSURANCES ON LIVES,
13, Waterloo-place, London.

DIRECTORS.

Colonel Sir Frederick Smith, K.H., F.R.S., R.E., Chairman.
James Frederick Nugent Daniell, Esq., Deputy-Chairman.

Admiral of the Fleet the Right Hon. Sir G. Cockburn, G.C.B.
Major-Gen. Sir J. Cockburn, Bt. G.C.H.
General Sir Thomas Bradford, G.C.B. G.C.H.
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Capt. Sir Geo. Back, R.N. F.R.S.
Lieut.-Gen. Taylor, C.B. E.I.C.S.
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Lieut.-Gen. R. Pollock, G.C.B.
Captain William Cuppage, R.N.
Captain Michael Quin, R.N.

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PHYSICIAN.—Sir Charles Ferguson Forbes, M.D. K.C.H. F.L.S.

COUNSEL.—J. Measure, Esq., 4, Serle-street, Lincoln's-inn-fields.

SOLICITOR.—Stephen Garrard, esq. 13, Suffolk-street, Pall-Mall East.

ACTUARY.—John Finlaison, esq. President of the Institute of Actuaries.

Assurances are granted upon the lives of persons in every profession and station in life, and for every part of the world, with the exception of the Western Coast of Africa within the Tropics.

The Rates of Premiums are constructed upon Sound Principles with reference to every Colony, and, by payment of a moderate addition to the Home Premium, in case of increase of risk, persons assured in this office may change from one climate to another, without forfeiting their Policies.

Four-Fifths of the Profits are divided amongst the Assured.

The circumstances of the Society, on the occasion of the Second Septennial Division of Profits, in the present year (1851), have warranted the appointment of a very liberal Bonus.

The additions to various Policies are shown in the following examples:—

Age when Assured.	Policy effected in	Sum Assured	Total Additions in 1851.	
		£.	£. s. d.	
25	1838	1,000	164 12 2	Participators in Two Septennial Divisions of Profits.
35	1838	1,000	176 19 8	
45	1838	1,000	219 6 6	
53	1838	1,000	235 19 9	
64	1838	1,000	268 1 3	
26	1844	1,000	49 13 0	Participators in One Septennial Division of Profits.
36	1844	1,000	59 4 9	
46	1844	1,000	77 13 0	
55	1844	1,000	83 13 2	
66	1844	1,000	94 15 8	

JOSEPH CARTWRIGHT BRETTELL, Secretary.

LONDON and PROVINCIAL JOINT-STOCK LIFE ASSURANCE COMPANY.

Established, 1847.—Offices, 17, Gracechurch-street.

The Company offers every description of Life Insurance, both on the participating and non-participating scales.

They also lend money on the security of freehold and long leasehold property, reversionary absolute or contingent, life interests, and incomes legally assignable. And on personal security, accompanied by at least three unquestionable sureties, and a policy of insurance effected with the Company for not less than double the amount borrowed. In cases of personal security, the loan is made for periods of from one to five years, repayable by annual, half yearly, or quarterly instalments, with interest at 5 per cent.

C. INGALL, Actuary and Secretary.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are

POLICIES INDISPUTABLE, unless obtained by fraud.

All the MEDICAL FEES PAID by the Society.

Policies payable during the lifetime of the Assured.

Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a temporary loan of the amount on application to the Board.

LOANS granted on Personal and other Securities in connection with Life Assurance.

Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.

THOS. MUSGRAVE, Secretary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.

TRUSTEES.

Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robt. Swann, esq. York.

BANKERS.—Messrs. Swann, Clough, and Co. York.

ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100l.

Age next birthday.	A MALE. Whole Life Premiums.	A FEMALE. Whole Life Premiums.	Age next birthday	A MALE. Whole Life Premiums.	A FEMALE. Whole Life Premiums.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	46	3 11 6	3 3 3
13	1 9 3	1 7 0	50	4 1 9	3 14 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 14 8	59	6 6 0	5 12 6
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 4	2 17 2	80		15 13 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 25l. 10s.; and a lady of the same age can secure the same sum, for an annual payment of 19l. 17s. 6d.

Prospectuses, with the rate of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to

Mr. RICH. WOOD, Solicitor, 19, John street, Bedford-row, Agent for London.

THE ROYAL BRITISH BANK, incorporated by Charter, besides transacting all ordinary Banking business, Continues to ALLOW,

ON DEPOSITS for six months, 3 per cent. per annum; and on sums for shorter periods and at Call—interest varying with the amount and time in Bank;

And GRANTS

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The Builder.

No. CCCCLXXVI.

SATURDAY, MARCH 20, 1852.

KIT WREN, as Dr. Spratt familiarly calls our great Sir Christopher (and it is pleasant now and then to see a genius in his slippers), was one of a band of men, the founders and early fellows of the Royal Society, whose names are world-famous and memories imperishable. He lived, too, at a turning point in English history, and witnessed events of no ordinary magnitude and importance,—saw the Restoration (and its vice), the burning of the City, and its rebuilding. He was himself a "miracle of a youth," a "rare and early prodigy of universal science;" the possessor of the most varied knowledge and powers, the perfector of the barometer, a profound astronomer and mathematician, a profuse inventor, the architect of St. Paul's, and a good man. "Sir Christopher Wren and His Times," then, is a taking title for a book, and Mr. Elmes has adopted it for a volume which he has just now published.* The circumstances under which it has been executed disarm criticism, and would of themselves lead us to aid in extending the sale of the work. We may, however, with justice say that the author has produced a readable, interesting, and instructive book. Precise it is not, and there will be plenty of critics to point out that by the Revolution of 1668, the author means that of 1688; that Inigo Jones died in June, and not July 1652; that the Great Exhibition may be called a microcosm, but not a "macrocosm," with other matters of this sort; but this is not the tone we are disposed to assume on the present occasion. What, then, are the circumstances, our readers will say? About seventeen years ago Mr. Elmes, an old practitioner, the author of some works well known in the profession, lost one of his eyes whilst surveying the shoals in the port of London, and in 1844 he became totally blind. During this privation his son, the architect of one of the finest modern buildings in the world, St. George's Hall, Liverpool, sickened in the high road to fortune, and found a premature grave in Jamaica. About three years ago surgical aid enabled him, "by the aid of magnifying glasses of great power, to read the strongly-marked characters of our old English black letter, and its cousin, German, and the bold characters of Hebrew language, but the Roman type was illegible." He chronicles the affection of his youngest daughter, who devoted her whole time to him, "the kindest of attendants and guides," and at the same time his "sole reader and writer;" and though he can now read large print in a very small diameter, and write thickly upon lines which can be felt, instead of always dictating as formerly, yet "it is slow, and available only by intervals, and totally useless for professional occupations." The picture is a touching one, and commands our sympathy, though we have no personal knowledge of the sufferer.

Wren was a marvellous character: rightly to appreciate, analyse, and illustrate his powers would demand a Wren;—"*Pour chanter un Auguste, il faut être un Virgile.*" Always at work;—an inventor at fourteen, and a philosopher before that, he produced results with wonderful rapidity. A reflecting dial, an instrument to write with two pens at the same time, a weather clock, a machine wherewith to write in the dark, his appointment as demonstrating assistant at anatomical lectures in Surgeons' Hall, learned essays, and Latin metrical essays, may be pointed to before he was sixteen. At five-and-twenty he filled the astronomical chair in Gresham College. Newton said, that of that age of geometers, Wren, Wallis, and Huygens were "*facilè principes*;" and of his 150 important architectural works, what do we say ourselves? We find him a constant attendant at "the club" in Wadham College, from which emanated the Royal Society, with Boyle, Hooke, Evelyn, and others, and always ready to join in what was going on.

While Wren was pursuing his studies, Inigo Jones, oppressed by troubles, died, and left the field open to him. Mr. Elmes's opinion on the state of architecture in England previously to the change effected by Inigo Jones, will serve as a specimen of the style of the book.

"The mixed anomalous art that was brought into England after the decline and fall of the Tudor style by ornamental and scenic painters from Flanders and other parts of the Netherlands, obtained the patronage of the wealthy portion of the community, from mere caprice, and to be in the fashion. This bad taste prevailed at court, and spread into the provinces from the middle of the reign of Henry VIII. till the time of James I. and the artists Zucchero and Holbein were its parents in England, and their royal patron Elizabeth its sponsor. Henry obtained part of his taste from the gorgeous pomp of the field of gold, when he met his great-minded adversary, Francis I. During this period, more than three-fourths of a century, this wild vine revelled in capricious disorder, and produced nothing but rank misrepresentations of Roman and Palladian architecture, the fruit of classical correctness engrafted upon a wild Flemish stock. This bastard style consisted of orders built upon orders, bows of all shapes, niches of every form, grotesque shells and rampant foliage, heraldic animals, 'gorgons and hydras and chimeras dire,' tossed about with reckless redundancy and picturesque caprice. Half-timbered houses of divers colours, 'black spirits and white, blue spirits and gray,' grinning horrible defiance to good taste, infecting alike our language and our art. It terminated its career, to show to what height architectural absurdity could soar, in the portal entrance to the Schools in Oxford, wherein the five orders of Italian architecture, caricatured in the worst taste, are piled upon each other, the brawny Tuscan at the bottom, surmounted by the loftier Doric, and with the matronly Ionic, the feminine Corinthian, and the hectic Composite upon the top, *stratum super stratum*, crown the absurdity. Yet these are the monstrous wonders that the copyists, degenerates, and precedent-mongers are dragging from their cemeteries, to pervert into schools, colleges, workhouses, baths, and wash-houses, ale-houses, gin-shops, and hospitals, whatever be their character; penal or jovial, scholastic or bacchanalian, all must wear this motley garb, to the utter destruction of characteristic architecture, and the stifling of inventive genius, the surest test of the artist-architect.

This aberration of taste received a mortal blow on the return of Prince Charles and his gay companions from their continental tour, who rubbed off their Elizabethan pedantry by foreign travel, and brought home a better taste in art. Vandyke and Rubens superseded Holbein and Zucchero, substituting nature and truth for dry and tasteless affectation; and the genius of Inigo Jones superseded the nameless architects of the Elizabethan style, which every man of refined taste must lament to see drawn from those cerements in which they had been quietly inurned."

The drama was one of the recreations of the scientific men of "The Club" and of Gresham College; and the young gentlemen of the present "Vanburgh Club" will be proud at finding written in an old quarto play, that belonged to Isaac Reed, the editor of Shakspeare's works,—"This is the play in which Sir Christopher Wren, our great English architect, performed the character of Neanias, before the Elector Palatine, Dr. Seth Ward, and many others, probably in 1652. Isaac Reed, 1801. The title of the comedy in question is 'Hey for Honesty, down with Knavery.' 'Translated out of Aristophanes his Plutus, by Thomas Randolph: augmented and published by F. J., London; printed in the year 1651.'"

"Wren," says Mr. Elmes, "is not our only architect who has diverted himself with Thespian sports. Vanburgh was not only the architect to the original Haymarket Theatre, but was joint manager thereof with Congreve, and contributed many very witty, if not particularly decent comedies for the gratification of the licentious audiences of his period. John Nash, also, who built the present exterior and the recent interior, was both an actor and an architect, delighting country audiences at Wrexham, with his Lord Ogleby in his younger days, and disfiguring the British metropolis in his elder days, with many instances of unrefined taste, some of which scarcely survived their perpetrator, who has given his name to the *Nashional* style of the early part of the nineteenth century. Charles Matthews, the younger, was originally educated as an architect under the elder Pugin,* and held an office conjointly with the writer of these pages, of surveyors to a fire-insurance company. Mr. Jones, the admirable genteel comedian of Covent-Garden Theatre, and since professor and teacher of elocution [now dead], was also of the architectural profession."

It is somewhat curious that Wren succeeded one poet in the office of Surveyor-General of the King's Works, Sir John Denham, and was superseded by another, though of very small calibre, William Benson, to make way for whom he was turned out of his employment. We need not, however, speak now of the annoyances which clouded the latter part of his nobly-spent life, or speak of those who rose,—

"While Wren, with sorrow, to the grave descends."

But we will look for an instant at that grave, and invite those who have the power to give it a more worthy aspect than it now has. Not many days ago we wandered over Wren's great work from the crypt to the cross; pondered over the scientific trussing that forms the dome (it is to be hoped it will escape the plumber's fire); grieved over the miserable condition of the interior of this part of the structure, and the want of colour elsewhere; shook our heads over the mystery of the whispering gallery, and sought the grave of the originator below. The dirty condition of that part of the crypt where his remains rest with others of his family, struck us forcibly; and we would suggest to our esteemed friend, the present architect of the Dean and Chapter, that the fitting arrangement of the small nook in question as a Wren-chapel, would be an elegant memorial of his connection with the work of one whose abilities he reverences.

Looking from the Golden Gallery of the Cathedral, other works by Wren are seen on all sides: we might as correctly say here, as in the Cathedral, to those who seek his monument,—"Look around." "Let any one,"

* "Sir Christopher Wren and His Times," with Illustrative Sketches and Anecdotes of the most distinguished Personages in the Seventeenth Century. By James Elmes, late Surveyor of the Port of London. London: Chapman and Hall, 193, Piccadilly. 1852.

* Many of our readers will hear with regret that Mr. Welby Pugin is in a state of mind at this time which prevents any attention to professional pursuits.—ED.

says Mr. Elmes (and with this we take leave of his book, and ask for him the consideration of the public), "let any one who undervalues either the talents or the genius of Wren, and there are such, even in the profession he so raised, adorned, and honoured, mount the dragon's back, on Bow Church, descend through the varied courses of masonry, their curious and scientific junctions and bondings, the columns and arched buttresses, adorning and supporting at once, from finial to foundation: let them ascend the mystic windings, from the bottom to the top of St. Bride's steeple; the vaulted roofs, and geometrical intricacies between the two cupolas of St. Paul's, and discover the hidden mysteries of the *catenaria*, which pervades its section, and upholds the cupolas, cone, and lantern, as one self-supporting body, of that wondrous edifice, which contains less material than Westminster Bridge, as M. Labelye, the architect of that failing erection, boastingly asserts, in his published account of it: let them search into his earliest work, the before-mentioned roof of the Sheldonian Theatre: let them, in fact, examine any of his works: or, let them look at and admire Professor Cockerell's beautiful pictorial combination of our great master's works, arranged in harmony around the majestic St. Paul's, like the Muses around Apollo, and say—who is the man able to dim the unassuming genius of CHRISTOPHER WREN?"

ARCHITECTURUS TO HIS SON.*

THE LAMP OF MAKING A LIVING: CONCLUSION.

IN admitting into our question of making a living a special consideration of the present system of "architectural competitions," I am descending to particularity for, as I think, a weighty cause. There seems to me to be in the whole range of universal living-making no parallel to this system,—nothing so insidiously ruinous: and but for such a fact I should not have embraced in my scheme any allusion to it. I have heard men more than once thank God they were not architects, on account of it. I have myself, in the midst of success, experienced invariably its unmitigable mischievousness. I see an admirable and hitherto highly honoured profession going down to ignominy with this foolish fallacy in its right hand; and no consolation can I find but that when things are at the very worst they must speedily mend.

In the first place I perceive in this system an interruption of the balance of power in the contest of emulation in business. The three great powers, Genius, Plodding, and Quackery, as I have said, start pretty fair; and with all their various degrees of combination and all their various phases of activity, the world wags generally well enough between the three. Although the race is not always to the swift, neither the battle to the strong, yet it is pretty commonly so at all events; and if genius not unfrequently overleaps its strength, and plodding often dies before its turn comes round, depend upon it quackery quite as frequently is caught in its own sly snare—the worst discomfiture of all.

The deluded victims of this system of ours are often to be found arguing that its tendency is to give an advantage in the contest of life to that which deserves it best—genius. It brings talent into notice, say they; and their own talent being supposed to be quite indisputable, they hope against hope till their funds are gone and their walls covered with rejected efforts of their—*genius*. Whereas the fact is notorious, that no one can hope for any success in the system till he acquires experience in it—the knowledge, by experience, of its *trickery*, so as to bear up against the trickery of those who in merit are inferior or equal, and then to defeat the non-trickery of those who in merit are superior. The tricks of competing architects are legion. What mean those mighty packing-cases in some such trumpery affair as a workhouse school,—filled with great frames of plans and elevations and perspective views, mighty in size and still more mighty in red paint—as if painted by the sun himself in drink,—estimates of cost in ticket-writing on the corner,—gold frames, inflated descriptions, cunning mottoes,—what mean all these? Is this the encouragement of *genius?* To be sure, plodding, for one of the three, is most effectually discouraged; but that which is encouraged, as I see it, is the third contender, quackery, and no other at all. Genius has no chance, except he is up to the mark in quackery—in all its puffery, trickery, falsity, sycophancy, treachery, and often more, according as the case requires; be assured of it.

But it is no such motive as the encouragement of genius which prompts the worthy patron of architecture for the nonce in advertising a competition. It is the perfectly honest motive to have the most for his money—the best design he can get. I am satisfied that in the great majority of cases the idea that favouritism prevails is a fallacy. The honesty, on the contrary, is all on the side of the said patron, so far as that goes, and the dishonesty all on the other side, as a general rule. His object is to choose the best design; and, as far as his own utterly incompetent judgment can choose, he chooses fairly.

The architect has nothing to complain of on this score. There may be exceptions; no doubt there are; but from all I have been able to gather, I am satisfied that if there were never one, the system would be not one whit the less obnoxious in its working. That which is rooted in poisonous soil bears poisonous fruit; false at the beginning, you cannot find truth at the end; rotten at the core, any semblance of health that the face may bear is but delusion inevitably.

And therefore, I say, I should like to be informed of any case where a competition introduced an employer to satisfactory services, or an architect to satisfactory employment, except in cases which comprehended some correcting element, equivalent to an abandonment of the principle. For the relation of client and adviser, mark you, is here entirely reversed; and it is manifest if so, that either that recognised relation must be wrong or its reversal must. An architect is a confidential adviser and agent in an important and difficult matter, to whose judgment the employer must, of necessity, submit his own, its superiority to his in that matter being the fundamental idea of the agency. And can you not see that the principle of the employer constituting himself, as the first step, the arbitrary judge of this the architect's judgment, even if he were far better than he generally is, some such thing as a popular pork-butcher at a poor-law board, to whose eye a plan is about the same as a page of Sanscrit,—must be directly incompatible with the submissive confidence of client towards adviser? Left to himself the worthy pork-butcher would inquire of some authority for a respectable "artchitect," and in his hands he would cheerfully leave the whole affair. He who is his own lawyer, every pork-butcher knows, has a fool for his client, and so, he will acknowledge, he who is his own architect must have what may be called a donkey for his. But if it is suggested to him that for the expenditure of seven shillings and sixpence in an advertisement he can obtain fifty or more elaborate designs cheerfully, eagerly, thankfully, most humbly submitted for his choice, who can blame him if he accepts the offer? And who can charge him with more than the everyday infirmity of our nature if he feels proud when the "candidates" and their friends call upon him at his shop to make his acquaintance and show him their plans; or if he offs with his sky-blue wrapper, polishes up his honest face with it, ons with his quality-coat, and shrieks a parting war-cry—"what'll ye buy—buy—buy."—with something akin to magnificence, as the eventful hour arrives for the "board meeting on the plans;" or if he surveys the gaudy array of "drawrings" with the consciousness that great things are expected of him—care, discrimination, firmness, "hindependence," and the like; or if, when he has at last fixed upon the "drawring," which has the best and brightest "red and white," like his own meat, and the bluest sky, like his own wrapper, he intimates his decision that it is "stunning," in indefinite terms, and withal somewhat dogmatically—"what I see I see, and what I see I sticks to;" or if, when the owner of the successful "mottar" is brought in by the beadle with the same reverential awe with which he brings in a refractory pauper to hear his fate, he looks upon the owner of the "mottar" with a slight tincture of supremacy; or if, in his future communication with this "indiwidual," the good man is inclined to act with that authority which is due to the position so cheerfully, eagerly, thankfully, most humbly accorded to him; or, if, therefore, he deals stringently with this most humble servant, and expects that he doff his hat to him, and "blows him up" occasionally, and "sends for him" to his shop, and threatens "to report him," if he takes the fancy? O good shade of Vitruvius! "what is of the highest importance, the architect should not be occupied with the desire of grasping everything in the shape of gain, but by the gravity of his manners and a good character, he should be careful to preserve his dignity."

Exceptions, I fear, only prove the rule; the legitimate relation *in limine* reversed, the transaction which is begun in assumption on one side, and sycophancy on the other, proceeds in arrogance and degradation to the end, and concludes with mutual censure, resentment, and deserved shame. There are cases in which a competition for an important prize before competent judges, especially where national honour and championship are the stake, is no doubt to be made productive of benefit and success; but for our profession in the present manner to bow the neck to the ignoble foot of every common anonymous advertiser is alike unworthy of their humanity, and suicidal to their interest.

Much might be said on the subject in various aspects; but let me briefly show you, as a matter of profit and loss, how ludicrous it is arithmetically.

Suppose a body of men settle together on such a thing as an unoccupied field in Californian diggings. Suppose they spend no end of time and money in competing for allotments or the like. What is the commercial consequence? The profit they compete so much about would all have come into the body inevitably; and a great deal more,—for they have lost much time and wasted much money to no profit, in mere wrangling. All that results is a disturbance of the legitimate system of activity, and if one by chance obtains a seeming advantage, let him count the outlay before he congratulates himself, and consider whether the time and money spent, even by himself individually, might not have been after all spent more profitably. With us, all that is secured by competition falls to the body at any rate; much money is unproductively spent which might surely have produced profit somehow, if properly applied; and much energy is wasted which, if directed to the legitimate objects of originating new sources of profit and pushing forward the employment of the profession in unoccupied ground, would unquestionably have produced satisfactory results, as everyday business everywhere shows. And the man who at the end of the year can put his hand on the greatest number of successful results, I have no hesitation in saying, would have made more (by such talent as secured this) if it had been legitimately applied and "competition" had had no being: and *à fortiori*, therefore, of every other competitor, I say the same.

Fortunately for the efforts of men of this nineteenth century in living-making, it is scarcely possible to find any analogy in other departments of business whereby to illustrate the peculiar follies of this present system of ours. Were we not ourselves so accustomed to it, we should see in it, as all the world besides see in our own case, with amazement, a principle so extravagantly preposterous that analogy, otherwise so useful, can only weaken the fact. A wicked world is ours in many things, I grant; and so keenly doth it

* See page 149, *ante*.

drive its bargain with you at every turning, and so unscrupulously doth it leave the devil to take the hindmost every morning, noon, and night, that I will cheerfully allow it the discreditable merit of perfect will, if it had the power as circumstances go, to mete out to many others besides our unfortunate craft a measure as miserable as this. But I know of no companion that we have in any way. Close-shaving, nigger-driving, slop-work, and such like, are nothing to this. Fifty sugar-slaves in the field, or fifty slop-workers in the garret, would laugh you to scorn if you were to propose for their acceptance the case of fifty architects in a competition,—every one of the fifty to do his day's work for the chance of one day's wages for the whole of poor amount, or perhaps no wages at all, and the obtainment of another day's wages for another day's hard work! "Our trade," they would tell you, "has scarcely come to such a pass quite yet." But, after all, I think I may give human foresight sufficient credit to assume that accident is not the sole cause of our standing alone, but that instinctive will would in most cases refuse the simplest approach to such a system as that under which we bow the neck so wofully. Sculptors, for instance, have so far yielded as to model statuettes of Sir Robert Peel in considerable numbers, for the chance of employment to execute a statue,—which statuettes, all save the selected, are therefore worthless, and the time spent upon them wasted; but, suppose such an advertisement as the following to be issued:—

To Sculptors, Stonemasons, Image-men, and others.—Whereas, the guardians of the poor for the Union of Skilligolee propose to set up in some suitable position in the workhouse of the said union, a stone bust of their respected chairman; notice is hereby given, that they will meet at the said workhouse on the 20th proximo, to receive designs for such bust: the designs to be in plaster the size of life, and to represent faithfully the physiognomy of the said chairman; and particular attention to be devoted to the folds of his chin and the bumps of his crown; each design to be distinguished by a motto, and to be accompanied with an estimate of the cost, which must not exceed 10*l.*; the decision to rest with the guardians aforesaid: and the author of the successful design to receive the premium of 20*s.* and to be employed to carve the bust at a fair price; but none of the authors of unsuccessful designs to have any claim upon the said guardians in respect thereof.
By order, Such-a-One, Clerk.

How many careful busts of their chairman would the guardians receive in reply to this, to be all but one returned in utter worthlessness to their authors? Very few, I dare say. And I affirm, that the true case with architects is only tenfold worse in degree and rather more than less contemptible in kind.

If I were to enter into calculations which are not at all complicated, these results are soon too clearly shown. First, that architects spend, *in money out of pocket alone*, in every competition, on an average 200*l.* for the obtainment of 100*l.* which after all has to be worked hard for, and under circumstances (as I testify from experience) fundamentally disadvantageous. Secondly, that they add to this very bad investment, an amount of time which, at moderate calculation, might produce in the extension of the employment of the profession and such like ordinary exertion in business, 200*l.* more at least. Thirdly, that an architect will pay for, say, one-twentieth chance (at the most) of 100*l.* to be worked for, not 2*l.* which may be about the value of the chance, but 5*l.* on an average, at the least, in money, and 5*l.* more in value of time (as above reckoned). Fourthly, that the profession at large appear to spend in utter waste and mere conceited hope and pernicious excitement, at least, 5,000*l.* per annum, as I reckon, in money out of pocket (besides time), without one farthing's worth of benefit to the body. And I will further say, that in almost every case the hope of making friends is found by the successful competitor to be an utter fallacy; and that the hope of acquiring credit as a matter of business is almost always blighted by one or another of the treacherous results of so bad a system; in short, that a competition work generally ends in being considered "an unfortunate affair" both for the sake of the employer and for the sake of the architect,—a result quite in accordance with theory. It is surely much better that young men should begin at the beginning, and work their way legitimately into business; and that the elder and eminent practitioners should reap the legitimate fruits of the perseverance and exertion of a life, and secure by their experience for superior works the assurance of enduring merit; than that every prize that comes up should be thrown out for unscrupulous trickery and, at the best, superficial attractiveness to win, to the deprivation of the old and eminent of their fair due and the distraction of young minds, the waste of young money, and the destruction of young health, by a specious, treacherous, profitless fallacy—an *ignis fatuus* of the bog.

Unfortunately there is, besides the dearly beloved principle of lottery, an element of personal vanity mixed up in the operation of this system, which renders it extremely difficult to assail it, even by the trades-union principle itself, generally so potent in such cases. But something must be attempted, or much harm may be done before time, the universal restorer of equilibrium, restores it here. I am not opposed to the abstract principle of competition; I believe there are important virtues in the principle; but the present system of its operation throws the advantage all on one side, and gives only insidious mischief to the other: the elements of good, to be again led forth (for they once showed their faces somewhat kindly, but have now hid themselves away), demand a radical organic reform, a re-adjustment of system from the basis of it. Nothing less will do; and I believe no other than positive, active (and no longer passive) resistance will do it.

I am not prepared at present to propose a scheme of change; but I have a project, I confess, which I will think over. Matters can scarcely be worse than they now are, so we may look for a mending before long,—a purpose for which it would be well that the profession should gather itself at once into a vigorous executive, even if this were not eminently desirable on other important questions of the theory of making a living. But I must not enter upon this.

My son, I have now done. I have traced for you the range of your high landmarks, one by one impartially, and with such emphasis and attempt at comprehensiveness as the limits of such a manner of disquisition as this would allow. I love the architect's work; and I would have you love it; I have studied it, and I would have you study it all your life long. For it is true that "being founded upon and adorned with so many different sciences, those who have not from youth gradually climbed up to the summit cannot, without presumption, call themselves master of it." Art, Delineation, Science, Building, Business,—these are the five orders of your study. If my dissertation has only reached so far as to constitute, in some degree, a discrimination and hasty exposition of this,—I have attempted no more, and such can never be worthless. Keep your eye steadily on the dial of theory, and your practice will be well guided,—you will be spared many a profitless day, and many an anxious night. Farewell. Robert Kerr.

Lady Sculptors.—With reference to your notice of Miss Harriet Hosmer as the American female sculptor, you are quite right when you hint that she is not the first of her class. You speak of the Princess of Orleans being overlooked, and if you will take the trouble of referring to Allan Cunningham's "Lives of the British Sculptors," you will find an account of Miss Conway, afterwards Mrs. Damer, a lady of high accomplishments and a great enthusiast in the noble art of sculpture. Nelson sat for his bust to her, and the Emperor Napoleon promised her that honour. She was one of the three accomplished and high born ladies who canvassed in Westminster for the great Fox, the Duchess of Devonshire being another.—R. H. D.

ARE THE ROYAL TOMBS IN WESTMINSTER ABBEY TO BE RESTORED?

The gathering of architects and antiquaries on Monday last, for the inspection of these venerable remains, in accordance with the arrangement made at the last meeting of the Institute, was gratifying, and may be a memorable event. At twelve o'clock nearly 150 gentlemen assembled in Poets' Corner, and (the usual fee being, through the courtesy of the dean and chapter, dispensed with) they proceeded, under the guidance of Mr. Scott and Mr. Donaldson, to examine the remains which had led to the discussion already reported in our columns. We shall not attempt to notice all the many points of interest which attracted the attention of the visitors. The mosaic altar pavement was first inspected: the monument of King Sebert (with its curious paintings), that of Edmund Crouchback, so elaborate in its decorations, and others before the altar, were duly admired. Proceeding to the Confessor's chapel, the shrine of the saint was the grand object of attraction; and as its history was explained, and its original design and successive alterations in part elucidated, many were the speculations indulged in by the company upon the latter points. After the pavement of this chapel, the attention of the assembly was directed to the tomb of Henry III. The perfection of the mosaic decorations of this monument, in such parts as have not been subjected to wanton injury, excited general admiration. The decidedly English character of the effigy, and other metal work, was pointed out as distinguished from the lower portion. Each of the royal tombs was successively examined; and their dilapidated state excited general sympathy. Mr. Donaldson zealously urged the advantage of restoration; but it may at least be said that the feeling of the meeting was, on that point, far from unanimous: all agreed, however, that something should be done. The visitors were greatly interested by the inspection of the finest remaining fragment of mosaic, on the floor of this chapel, under the step of Henry the Fifth's monument; said to be in memory of one of the family of De Valence; and subsequently by similar mosaic work, in the south ambulatory, to the memory of the children and grandchildren of Henry III. The coronation chair, and the relics of Cressy, Poitiers, and Agincourt, were duly honoured; as were also the curious tomb and chantry chapel of Henry V. The headless wooden effigy of this monarch was aptly illustrated by Mr. Donaldson, in connection with the monument of Wm. De Valence, in one of the side chapels, showing the manner in which such wooden figures were coated with metal plates. Those on the figure of Henry V. are believed to have been of silver. Admitted within the screen surrounding the tomb of Henry VII. and his Queen, in the chapel bearing his name, the visitors unanimously acknowledged the artistic feeling of its great sculptor, Torregiano. Here the examination of the Royal Tombs concluded; but those who remained enjoyed a treat in the opportunity afforded them of visiting many other parts of the venerable fabric. First among these was the crypt beneath the chapter-house; next the cloisters; and a fine column and other remains of the Confessor's work, in an apartment near the entrance to the chapter-house. In examining the remains of the refectory, a discovery was made of a Norman wall, unknown even to the architect, forming its southern side. Thence the party proceeded to a remarkable chapel, opening from the south transept, partly filled with fragments of ancient iron-work from the royal tombs, and containing at the altar end a singularly perfect and curious wall-painting. The zealous investigators went into the noble triforium, and subsequently to the interior and exterior of the roof, and it was half-past five o'clock before they separated.

May I venture to offer a slight correction, or rather perhaps an explanation, of the few remarks I made at the last meeting of the Institute of British Architects, on the question of the Restoration or Non-restoration of the

Royal Tombs, as reported in THE BUILDER of Saturday last? I had intended to have fairly stated the case in a concise form for both sides, expressing an opinion on *neither*; but having become alarmed at tokens from the chair that I was occupying too much time, stopped without having done *equal* justice to both sides of the question. I did, however, say, beyond what is contained in your report, that it might fairly be asked on the *restoration* side, *whether it is reasonable that the duration of the monuments of kings, such as the sainted Edward and the heroes of Cressy and Agincourt, should depend solely on the durability of a very bad description of English marble and of perishable Reigate stone;* and I find in a memorandum I had made beforehand of my intended concise statement of the conflicting views, that I intended to have added (but in my hurry omitted to do so) the following also as a fair inquiry on the same side:—"Are we to lose for ever some of the finest works of these interesting periods, from a too romantic feeling which prefers the identity of a stone to the preservation of the art expended upon it, and the history it commemorates?" With this intended addition my statement might, though imperfect, have been pretty fairly balanced: as it stands it seems a statement of one view only, which was contrary to my intention. I may add, that though my own views on the subject are by no means matured, I believe the truth to lie somewhere between the two extreme views of the case. As a nation, I believe we are morally bound to perpetuate the royal monuments, while, as antiquaries, we instinctively shrink from touching them. The question before the Institute, a question as grave as it is perplexing, is whether this duty and these feelings can be reconciled. It is not a question to be answered by "yes" or "no," but one involving, as you so clearly show, the most careful and unprejudiced investigation. GEO. GILBERT SCOTT.

NOTES OF AN ARCHITECT IN SPAIN.*

THE Patios, or courtyards, in the south, are mostly arcaded, with a fountain in the centre, and, with an awning above, form the ordinary summer apartment. Paintings and little nick-nacks are placed around, whilst lovely flowers and creeping plants scent the air and wind round the columns. Here, too, of an evening, the family receives its friends; and the merry laugh of girlhood, the tinkling of the guitar, and the clack of castanets make it a favourable specimen of the truly idle life of these merry southerns. At Cordova we were well content at the Fonda de las Diligencias, kept by a very civil Italian: we always bargained for a duro a day, but less will often be taken. I mention the inns as they are *generally* wretched. From Seville we went direct to Aranjuez: on the road, Alcalà, an old Moorish castle; at Carmona, a tower like the Giralda, and very good; also some fine old Moorish sombre gateways. Town and castle situated on a rock, with a vast and grand view of Andalusia. In the foreground, great masses of wall-like rock and ruins of towers: this would be a good spot for a painter. About six miles from Cordova is a splendid bridge, one of the finest I ever saw. Ecija has a picturesque square, and some remarkable towers. Cordova, before described: between here and Aranjuez, nothing particular. In Spanish architecture sculpture usually takes the lead: one admires its fancy and execution more than the architecture. Herrera changed all that, however: he seldom even ornamented his mouldings: his works are thus bald, though massive: he was, in a way, the Sir Robert Smirke of Spain. These remarks apply to Italian art in Spain: the Gothic and Norman are often simple enough. After a long and most fatiguing journey, arrived at Aranjuez: from thence to Toledo: this city is magnificently placed on grand and lofty rocks, which in some streets form a rough pavement: it is girdled by the wild rushing Tagus, and is an old, noble, romantic city, full of strange and ancient buildings, and stranger legends. Imperial Toledo is cut out for an artist, for here is everything in the way of architecture and scenery that he can desire: the bridges, spanning from jagged rock to rock, are very picturesque.

The Moorish remains here are frequent,—principally gateways and towers: there are two old synagogues, S. M. la Blanca, built in the ninth century, the most picturesque; and El Transito, much more modern, the most finished. The roofs are simple, and truncated—the tie-beams here (as usual) double, and rest on stone brackets. In neither of these remarkable buildings is there much for study or ornament: the frieze of the first is, however, very bold and curious. The cathedral had nothing particular externally, with the exception of tower and spire. The doors are indifferent, being a series of niches and figures carried round an arch of little invention and coarse workmanship. The interior is strong-looking and perhaps a little heavy, being quite the reverse of Seville, in having large, well-defined mouldings and pillars, in place of wiry stripes. It is not, however, so large or so solemn as Seville, being more lighted, and the side aisles are very low: still it is good, the character well kept up, and of a Norman caste. The architecture, which is either of this simple and early nature or very florid, is never so good as to be worthy of study—effective as usual; but this effect is gained more by sculpture, sudden contrasts, and light and shade, than by architecture. The rich chapel of Alvaro de Luna has some good tombs, especially two in centre, with recumbent figures, niches at sides, and kneeling figures at angles.

The Sala Capitular deserves particular notice. The entrance has some good Moorish work, and richly carved wardrobes (cinque cento.) The Sala itself has undoubtedly the finest Italian ceiling I ever saw: it perhaps has *too* much gilding: in perspective it looks one mass of gold: it is flat on plan, with deeply sunk hexagon panels, bevelled off at juncture with wall, and continued beneath cornice, with paintings well suited to architecture, being carefully done and somewhat regularly grouped: without being so really good as the Siena room, it is much more rich and palatial-looking, and ranks with it as a model of internal decoration. The tombs here are numerous, but nothing very remarkable: the plateresque throughout is straggling, rough, and fantastic, very rich and spirited, but wanting in taste. The Coro is exceedingly richly worked, and the figures of upper part excellent, as are the finials and knob figures on seats below: these are grotesque and remarkably clever, in a sort of bastard Gothic. The architectural part is bad. The iron lettern is excellent; so are the plateresque ones, fair in design, and excellently carved figures. The reja or iron rail of this part and before the high altar is of very elaborate Renaissance design, but clumsy and coarse, with some good bits, however. The stalls, carved in 1495, are good and interesting, containing subjects of the times, such as the siege of Granada, &c. The pulpits are squat, and the figures on them lanky and fly-away. Taken altogether, the cathedral forms a rich and suggestive museum of art. The cloisters are cheerful and well proportioned. The construction of the cathedral took place between 1226 and 1492, which accounts for the mixture of simple and florid Gothic.

St. Juan de los Reyes.—This conventual church, built by Ferdinand and Isabella *circa* 1500, though of bad Gothic externally and internally, has some remarkable and excellent parts: it is most elaborately sculptured and finely situated. The cloisters are very beautiful; florid Gothic, with niches and statues against the piers throughout the corridors. This building, with too many others, has suffered much during the French invasion. The Porta Cambron is picturesque-looking, and somewhat copied from the Porta Visagra: these gateways are generally pretty good. The Hospital de la Cruz, now a military college, has a wonderfully rich plateresque staircase and portal: Gothic here contests with the Revival, and works into it. The whole of the building is most picturesque, but most earnestly to be shunned. In this building, as usual, the broken-backed elliptical arch ruins everything. The Hospital of San Juan, outside the town, has a good cinque-cento tomb, and a fine courtyard, two arcades high; architecture plain and pretty good. At the Hospital de la Cruz is a large room, square on plan, with piers springing from brackets at the angles, supporting semicircular arches, with groining and centre dome: a balustraded gallery runs round it, and it is a good model for a show-room: whether Renaissance or Gothic prevails it is difficult to say: the effect is excellent. The Alcazar is a large Bramante-like building, grand and impressive, square on plan, with square angle towers. The architecture (cinque cento) is less ornate than usual, and indeed rather petty, the projections being too slight: one side might be very good, but is spoilt with the fashionable depressed arch. The Moorish towers, of which there are many at Toledo, bear a striking resemblance to the Romanesque ones at Rome. The domestic architecture is massive and curious, the streets narrow, tortuous and hilly, and the whole character of the place sombre, strange, and solemn. The painted glass windows of cathedral are very good: three large circles, containing figure subjects, form a common design, and the mullions cut through them without injuring their effect: the most grotesque of the old Revival work may be used in designs of this character: the darkest colours should be beneath, growing lighter as they ascend: artificial effects may be gained by blocking up parts to render the rest more bright. The piers are very good, round on plan, with large circular mouldings throughout. Inn de los Caballeros, pretty good. As there is no direct road between here and Madrid, I was obliged to return *viâ* Aranjuez: arrived at Madrid, and, through the kindness of Mr. Donaldson, made the acquaintance of the architect Fuentes: he had nothing, however, beyond his own portfolios to show, for Madrid is devoid of interest. My attention was wholly engrossed by the magnificent gallery there, where alone Vandyke is to be judged of, and where the old Spanish painters stand out as truly great masters. From Madrid to Segovia, through a fine pine forest. Wild and rocky Segovia is a long-deserted old town, with antique curious houses, arches whose voussoirs are immense, and a number of Norman doorways.

The cathedral, though large and tolerable internally, deserves no especial notice: it is of the latest Gothic, very thin and bad. The general effect, however, from apsis end is picturesque. There is a curious Renaissance house opposite the chief entrance with a picturesque patio: columns and brackets supporting an arcade, many and fully relieved busts in the frieze, and gurgoyles in the cornice as at Seville Town Hall. The old street architecture is generally more interesting to the antiquarian than to the architect. There are many small Normanesque churches in the town, very good, the principal features being an open corridor of columns and arches, and a tower. The Parral convent is well worth visiting: it is in a dreadful state of decay, pigs being housed beneath rich vaultings and elaborate tracery. There are some good tombs inside: the cinque cento is coarse and straggling as usual: the Gothic is not bad, and very beautifully carved. The refectory has a rich pulpit, and truncated Moorish-looking ceiling: it is now a store-room for onions, &c. This convent, I am afraid, is irreparably ruined, used as barn, pigstye, store-house, &c. by an ignorant farmer: it is in such a broken battered condition as to be past hope. The Devil's Bridge, or Roman aqueduct, is a noble and imposing work, the finest I have ever seen: the greatest height of double arches must be I should say about 120 feet. A little way out of the town, are some half-dozen pointed arches, which appear to be of the same date as the rest, regular, clean, equilateral arches: they are curious, at least.

It may not be amiss to remark here, that the old Roman remains in Spain are very little known, and would well repay a good set of illustrations; for they are numerous, and by all accounts, very grand.* I. B. W.

* See p. 37, *ante*.

* To be continued.

STRENGTH OF CISTERNS AND TIE-RODS.

WEBB *v.* TOWNS—ARBITRATION.

The facts of this case are shortly these:—The plaintiff, Mr. Webb, is an extensive malt distiller, carrying on business at West Ham, Essex, and employed the defendant, Mr. Towns, a back-maker, to construct for him a number of wash-backs or cisterns of very large dimensions, constructed to contain the wort or wash similar to the fermenting tuns at breweries. The plaintiff undertook to provide the iron tie-rods ready for fixing: the defendant was to fix the rods so provided, and provide and fix the timber work. One of these wash-backs (No. 8) suddenly burst in March, 1851, on which occasion the wash, valued at about 300*l.* was lost, and damage to the amount of 341*l.* 15s. 8d. was alleged to be done to the premises and plant by the accident. The inside dimensions of the back were:—length, 30 feet; breadth, 20 feet; depth, 13 feet; contents, 48,000 gallons=1,323 barrels=216 tons weight of fluid; and constructed of Dantzic fir, 3-in. sides, 2-in. bottom, spiked to sides, braced horizontally with three tiers of 1¼-in. tie-rods, longitudinal and transverse, *hooked* together in the middle, with fir cleets and tie-planks; in addition to which were iron bolts passing vertically through the entire thickness of the sides, besides dog-bolts at angles.

The plaintiff's witnesses, consisting of Messrs. Curtis, the builders, and men in their employ, gave evidence that the ties were improperly placed in the back, as regards heights or distances from the bottom; that the rods, 1¼ common English iron, *hooked together in the manner as ordered by plaintiff, were tested by hydraulic pressure to the extent of* 25 *tons, without breaking.* Mr. Deely, engineer, gave evidence that the tie-rods were improperly placed, and on some other points of construction. Mr. John Braithwaite, civil engineer, gave evidence to the like effect, that the iron tie-rods were sufficient for the purpose; calculated the pressure that possibly could be on the bolts or tie-rods, and found it less than one-half what the bolts ought to stand; was convinced the cause was not the bursting of the bolts, but that this was the consequence; found the back slightly put together; the tie rods were too far from the bottom, throwing too much pressure on the woodwork of the bottom, the dog-bolts too slight. He concluded that the back gave way in the first instance at the bottom, giving motion to the fluid within, and, according to the degree in which it gave way, *would increase the pressure probably from* 10 *tons up to* 40 *or* 50 *tons, depending on the velocity of the fluid,* and in his opinion was the cause of the accident. The weight on the tie-bolts could not have broken them, even to 20 tons; the breaking strength of the iron was nearer 30 than 20 tons: *did not object to the tie-bolts being hooked.*

Calculated pressure on side upper tier of bolts—

	4 at 3½	tons each ..	13 tons.
Middle ..	4	6½	.. 26
Lower ..	4	9¾ ..	.. 39
Total tons	..	..	78

For the defendant.—His workmen and fellow-tradesmen gave evidence that the materials and workmanship were good, and the backs were constructed in the ordinary and common way—excepting as regarded the method of connecting the tie-rods together in the middle, which by the special direction and interference of plaintiff, were hooked together, instead of being connected by eye-bolts—and they likewise spoke to the bad quality of the iron (common English), which, in turning to form the hook, broke several times.

Mr. Charles Humphreys, surveyor, gave evidence.—The back was constructed in the customary way; that after the accident the side was bulged and convex on the outside, the cleets broken outwardly; that the point of the greatest convexity was in the lowest tier of tie-rods, and that the rupture of the side tore away the bottom, and that the cause of the accident was insufficiency of the tie-rods both as regards the quality of material and the method of connection, by means of hooks; that all iron loses 75 per cent. of its strength by being hooked (as shown in a series of experiments instituted especially for the purposes of this trial, by Mr. Heather, M.A. of the Royal Military Schools, with the proving machine, at the dockyard, Woolwich); that by calculation the pressure on the entire side of the vat was 70 tons; and, deducting for the duty done by the bottom and sides, there would be a pressure of 6 tons on each tie-rod, supposing it possible to insulate each rod, but the side being made rigid, it was not possible so to do; that the tie-rods were equal to a strain of 2 tons only, and broke with 6½, as shown by experiment; that after the bursting, the pressure of the fluid on the back would rapidly diminish, and would not increase.

Mr. Heather, M.A. of the Royal Military Academy, Woolwich, by a working model proved that, if any fluid issues from an aperture in the side of a vessel, the pressure on that side is diminished, being consumed in the motion of the fluid; that the principle of hooking ties together is essentially bad, in consequence of the cross strain on the fibres of the iron, to the amount of 75 per cent. on all iron; and that the accident occurred in consequence of the insufficiency of the iron tie-rods, as regards quality and construction.

Mr. Davidson, civil engineer, gave evidence in confirmation of the above.

The inquiry lasted nine days, and the arbitrator gave his award for the defendant.

The points of this case are especially interesting as regards the common method of hooking ties together, thereby causing a loss of strength, and the wide discrepancy between the experiments performed at *Woolwich Dockyard* and by the *ordinary testing machines at foundries.*

These experiments we will give hereafter.

WORDS TO WORKMEN.*

Chateaubriand, the eminent French writer, states, in his "Posthumous Memoirs," that when at the age of seventeen, his strength and youthful buoyancy were such, that on rising from bed on early mornings, he, only half-dressed, ran headlong across field and forest, as in extasy and surfeit of physical power. Goëthe and Klopstock were both great poets and skaters, and Christopher Wren and Titian lived to the age of ninety-two. If the phrase "a *great* man" is both materially and morally used in all ancient and modern languages, we may, for our present purpose, modulate it into "a *healthy* man—a *happy* man." Health and strength may appear, to many, things accidental and fortuitous; but in reality they are not. If we were to search into the life and behaviour of the healthy and strong, the sickly and the weak, we should find that the former has, in a thousand instances, acted judiciously and prudently, while the latter has done the contrary. A state of health and power always implies *self-government*, while the sickly and weak has been a slave to some or other tyrannical power, outward or inward. Medical statistics are deficient on that score, but the inspection of any work or poor house will convince every one that they are not the abode of corporeal beauty (!), strength, and health, but rather those of ugliness, weakness, and sickness. This gloomy calculation may be even extended to prisons, and thus one of the axioms of our modern times, that "ignorance, disease, poverty, and crime go hand in hand," becomes thoroughly evident and obvious.

The situation of working men in the northern parts of Europe is one especially unpropitious in that respect. Tired, in body and mind, by some more or less severe work, they think that they have to relax, amuse, and recreate themselves. But, strange to say, from any one occupation, employing only more or less of their muscular system, they pass to that which puts them into perfect quiet, and often exchange, to add bad to worse, the confined or even unwholesome existence in the workshop or factory, for that of the taproom or other localities of sedentation (*Sitz-Lokale*). In old Athens and Rome this never was the case: it could not be. The beauty and warmth of sun and nature drove the workmen out of the confines of thronged thoroughfares to the Piræus, the Forum, and the Seven Hills, where they found the palæstra, the quoit, &c. And thus, that truly great word of one of our greatest social writers (*Michel Chevalier*) is thoroughly confirmed, that "the social life for the working men of *modern* Europe is yet to be sought for and created."

The rail and steamboat will do a little that way, but not far enough, until Governments and the wealthy will be forced towards the enacting of a complete code of popular amusements and gymnastics. But it will finally be the *expenses* of the hospitals and burials which will arouse men into action! At Paris, for some years past, every *tenth* person of the whole population dies in the hospital; and in Vienna, the very largest building, with its 3,000 windows, also is an hospital. After tons of paper will have been written on the subject, we will begin to understand, that it is better to spend *two* francs on public recreation than *three* on hospitals and coffins!

But the conscientious writer has not to await the completion of such tardy events: he has to anticipate and suggest more or less immediate remedy. And if Goethe says, that "to be wise means to be wise before others," we have, in this instance, to impart this quality to our readers,—at least, in general; because who can direct, where ways and means and other circumstances are so different? If we lead the young towards even merely *knowing* the *value* of health and strength, we have done our part. If any healthy person consider himself unhappy, it is, surely, a blameable *self-delusion.* With our speedy communications all over the world, our world-enterprise, who of *such* requires now to pine or want? With the least amount of skill or schooling he may start life, begin the world anew in a hundred different places, in a hundred different ways. A pair of sturdy hands are, in some way or other, a *draught* at sight, negotiable throughout the world. Such, then, may in surety and contentment await those sanitary and senatory enactments, which, *albeit* of the utmost urgency, rulers will enact or not, as *chance* may ordain. The *strong*, being self-governed, depends on none but himself: to the strong belongs the world—on the throne, or in the workshop.

* Translated from the German.

TRACTION OF CARRIAGES UPON ROADS AND RAILWAYS.

It matters not whether on roads or railways, by horse or steam-power, carriages, as all other machines for parallel purposes, must work with the greatest steadiness. In road carriages this necessity is duly regarded in the provision of lateral restraint, which insures safety, speed, and economy in their working.

Railways present an admirable framework of parallel bearings exclusively for carriages working with lateral steadiness; but this theory is disregarded, and an adverse system of expediency is tolerated. I cannot presume on space necessary to go through all the details of this expediency system, and, therefore, beg leave to submit one weighty comparison between road and railway results in the present practice. A road carriage of about one ton weight is of sufficient strength to carry more than double its own weight over rough roads and street pavements, with lateral steadiness and safety at any rate of speed it is capable of. A railway passenger-carriage of the narrow gauge (which on the average may not carry a greater amount of loading) will weigh about four tons; and such ponderous weights are necessary, not on account of the loading, of course, but for keeping the carriages from bounding off the rails, which, having lateral liberty, they would do if they were only of the fair proportionate weight of road carriages. So that in a moderate train of ten or twelve carriages this superfluous ballasting weight might amount to upwards of thirty tons, to enable an adverse working system to keep upon the rails at any high rates of speed; and what would be fifty or sixty miles an hour to boast of with steam power if the mechanical arrangements could guarantee safety? And when the danger of a collision might require a train to be stopped in the shortest possible distance, such superfluous weight must be a great impediment, and has caused many a serious collision, which might have been avoided by more ready control over lighter carriages.

The subject might find more scientific means from the ingenuity of others, than the plain arrangements which I have provided and presume to think so well of; and as steady traction is theoretically so indispensable, there cannot be a more legitimate experiment to any party. Lateral restraint superseding lateral oscillation, would insure certain and very great advantages,

A train of carriages would mechanically be far more safe at 100 miles an hour with undeviating traction, than 50 miles an hour with lateral oscillation; and the amount of friction under the steady guidance of restraint would be trifling compared with the results from lateral action of the carriages, the strains from which are too severe to be reasonably borne by rails, wheels, or axletrees. G. M.

"MUDDLE."*

ANY real endeavour to defeat "muddle" (expressive and distressing dissyllable) has our heartiest good wishes. Against muddle,—the muddle of ignorance, the muddle of idleness, the muddle of want of order, the love-destroying and comfort-killing "muddle of inexorable cleanliness,"—against muddle in the drawing-room, the studio, or the workshop,—we wage war eternal and unsparing. Unhappy victims of muddle, who shall recount your miseries or obtain you redress? Muddle cannot get for five pounds what Order, Judgment, and Energy can get for one; muddle makes fortune of little avail, and takes the shine out of a life which might otherwise be all brightness.

"Lucky Jones has married a wife with 300*l.* a year, but then she is a sad muddle." Miserable Jones! do you know what you have done? Muddle would be dear at double the money. Muddle will provide for you no home to rest in, no sympathising comforter to advise. In the temple where muddle reigns there will be found no peace, no beauty, no good. Against muddle the dower weighs not. An observing eye, a calculating head, a ready hand, a gentle step, a loving heart, external neatness, internal purity, are more to be considered than hundreds a year, trashy accomplishments, lofty connections, and unhealthy apings of the class above. Mothers, be wise: make your daughters able women, real *help*-mates; not useless toys, joy-destroying muddles.

The book which has led us into this domestic outbreak, though it has some faults of style, and exposes the miserable results of muddle amongst the middle classes more forcibly than it teaches how these are to be avoided, is calculated to do much good, and cannot be too widely circulated.

ARCHITECTURAL ILLUSTRATION.

I KNOW not whether the same observation has ever been made before, but it is surely remarkable enough, and somewhat unaccountable also, that travelling architectural draughtsmen appear, one and all, to have actually shunned that Mecca of Palladianism, Vicenza. All the more strange is it, because there they might take possession of an unoccupied field, and find subjects for their pencils which are at once "celebrated and unknown,"—at any rate, *unshown*. That Palladio's works in that city are well known to architects by the published elevations, &c. of them, is indisputable; still we have nothing to give those who have not beheld the structures themselves an idea of their actual appearance, as modified not only by perspective, but by locality and combination with other objects, pictorial accidents of light and shade included. Whatever else in the matter may be doubtful, certain it is that our artists who travel, Syntax-like, "in search of the (architectural) picturesque," do *cut* Palladio; whence it may be presumed, they do not find in his structures anything like those superlative merits which are ascribed to him by architectural writers. Or are we to suppose, not that they cut Palladio and Vicenza, but that Vicenza itself is cut out of their maps? Their maps, however, seem to be equally defective with regard to many other places, which either they do not visit at all, or else find nothing in them worthy of being recorded by the pencil.

While such very stale and hackneyed subjects as the Pantheon, Coliseum, and St. Peter's at Rome, and the Doge's Palace at Venice, are served up to us again and again *ad nauseam*, no attempt is made to exhibit to us the untouched architectural treasures of Genoa, Milan, Florence, Bologna, Padua, and many other places which, although sufficiently noted in themselves, are not noted at all by those who might there find even a Californian harvest for their sketch-books. There are, indeed, several foreign publications (Gautier's "Gênes," Cassina's "Milano," Famin's "Architecture Toscane," &c. &c.) which make us acquainted with the principal monuments in some of the cities above mentioned; yet, admirably as they are executed, and interesting and instructive as they are to the *student*—be he either a professional or a non-professional one—they are, besides being expensive, of a nature which renders them anything but attractive for others. Giving elevations, &c. and those, too, merely in outline, owing to which it is difficult even for those who perfectly understand them, to judge adequately of their effect—they are the reverse of pictorial and consequently of popular also. Even were all the monumental architecture of the various Italian cities completely exhausted by "illustrators," their general street architecture and scenery would supply an ample second crop.

As to the recent architecture of Italy, it is so completely ignored by English travellers, artists, and critics, that the art itself might be supposed to be utterly extinct—at any rate, now wholly unproductive—in that country. That comparatively little has been done in it during the present century, must be admitted; still, quite enough has been done to supply the architectural delineator with no inconsiderable stock of entirely fresh subjects: at any rate, the Italy of the 19th century has had its Piermarinis and its Cagnolas.

Or if the Italy of to-day be such a desert as far as contemporary architecture is concerned, as to afford nothing worthy of being noted by either the pen of the critic or the pencil of the draughtsman, such is most assuredly not the case with the Germany of to-day. There is in Berlin, Munich, Dresden, or in any one of them singly, quite enough to furnish matter for volumes of architectural description and criticism, and to employ a hundred pencils. Nevertheless, it obtains no notice here whatever, either from pencil or from pen. Mortifying in itself, this contemptuous neglect of the contemporary productions of architecture forces upon us the still more mortifying conviction that merely as art, architecture has no hold whatever on the sympathies of the public,—a state of things for which architects have mainly to thank themselves, and in which they seem to acquiesce, since they make no exertion to obtain another and a better one. Q.

LAND DRAINAGE.

A LECTURE on Drainage was delivered last week, at Kirtling, near Newmarket, by Mr. Hewitt Davis. The lecturer, in introducing the subject, said he could not offer any information more deserving the attention of landowners and farmers than that which was to be gained in considering the advantages to be derived from the thorough drainage of wet land at first it might be supposed these two classes were the only gainers, but this was not so; for in drawing the water off the surface of land, by means of underground drains, much of the source of damp and fog is removed, and in this way the climate of the country may be greatly ameliorated, and the health and enjoyment of all classes be greatly improved. The lecturer entered into various plans that have been pursued to drain land. He showed by quotations from Columella and Cato, that the system of draining 2,000 years ago had been by drains of 3 and 4 feet deep, laid with stones and wood; and that up to the introduction of tiles, in the last fifty years, little or no improvement in draining had been made. He then referred to the insecurity of any other material than tiles, and the danger in using any form but the circle. He stated that the expansion and contraction of a clay soil by wet and drought was such, at 4 feet deep, as to crush any form but the circle, or to press up the bottom so as to fill up the vacuum; and he exhibited a tile choked with clay he had brought from the Regent's Park, where they were found in all directions, and where he was now draining 4 feet deep with pipes, after many attempts had been made without success at shallower depths and with other materials.

The Board of Health have recently published a body of evidence and statistics referring to this subject, to which we shall forthwith draw our readers' attention. The matter is one of great importance to the country.

OLD WHITE LEAD—PURE LINSEED OIL.*

IN the year 1838 I was engaged in testing a white paint made from the refuse of litharge, for the Society of Arts, of which society, as an old member, I was also present at the committee meetings, when specimens not only of manufactured white leads were produced, but also of linseed oils, and I then, for the first time, became acquainted with a process of clarifying and cleansing the oil by means of sulphuric acid, which method I then, and have ever since, considered as prejudicial to the oil, destroying, as it must, that coherence in the vegetable property, and preventing its forming that perfect pellicle which it invariably does on exposure to the atmosphere during the process of drying, and which alone forms the safeguard to the colours mixed with it. I have always endeavoured to have my white lead ground in linseed oil in its natural state, but this operation is now rendered more difficult in consequence of the general adulteration of that oil with oil of rosin and pine, which latter can be had for a shilling a gallon,—I believe, hardly one-third the price of genuine linseed oil; and this mixture, I apprehend, renders the use of the sulphuric acid more necessary.

The reason of its being so clarified is, that the white lead, when ground, may at once appear as white as possible, which many, in their ignorance, look upon as a test of its being genuine, whereas, if ground in pure linseed oil, which has had the refuse cast down by means of introducing ivory black or powdered litharge, it will always at first have a yellow tinge, which is only to be got rid of by time; and *hence arises the value of old ground white lead.*

It has also occurred to me that the blackness, which in winter so often fastens upon exterior paint work, arises from this cause, the outer skin of oil having been rendered porous by the sulphuric acid. During a dense atmosphere, the sulphuretted hydrogen, then so preponderant, fastens readily on the unprotected lead, for which it has a great affinity, and produces an effect similar to that which is seen in most closets. I would, therefore, request your assistance to get rid of this growing evil, which not only affects house painting, but may also cause great damage to the artistic world. DAVID G. LAING.

MEETINGS OF ARCHITECTURAL SOCIETIES.

Architectural Institute of Scotland.—On 11th inst. the eighth meeting of the Second Session of this Institute was held at Glasgow, Sir James Anderson in the chair. The evening was entirely taken up with the reading of a paper by Mr. James Brown, architect, entitled "Our Scottish Churches."

Birmingham Architectural Society.—The first annual meeting of the Birmingham Architectural Society was held at the Philosophical Institution, on the 12th inst. Mr. D. R. Hill in the chair. The report of the committee stated that their anticipations of success on the formation of the society had been realised, and they trusted the foundation for a superstructure of importance had been laid. The following gentlemen were elected officers for the ensuing year:—Mr. D. R. Hill, president; Mr. S. Hemming, vice-president; Mr. Charles Edge, treasurer; and Mr. J. R. Botham, hon. secretary.

Oxford Architectural Society.—A meeting of the society was held on March 3. The secretary read the report of the committee, stating that the president of the society and Mr. Parker had, during the past week, been on a visit of inspection to Warwick, for the purpose of inspecting St. Mary's Church, at

* "Home Truths for Home Peace;" or, "Muddle defeated." London: Effingham Wilson. Edinburgh: Black. 1852.

* Read at a meeting of the Institute of British Architects.

the desire of the vicar, who had come to Oxford for the purpose of consultation with the committee at its last meeting. They had made several suggestions, which the architects employed upon the restoration, Messrs. J. and H. Francis, were about to embody in their plans. Mr. Freeman then read a paper on Malmesbury Abbey Church. This church is generally supposed to have been commenced by the celebrated Roger, Bishop of Salisbury, about 1135; and if this date be correct, we may possibly set it down as the earliest English example of the systematic preference of the pointed arch in the main arcades of a large church. The Norman fabric still forms the main portion of the building, but was subjected to important changes during the Decorated and Perpendicular eras. The west front was originally of the same shape as that afterwards employed at Salisbury—an early instance of *sham*. The Rev. J. H. Pollen, of Merton College, read an account of the sculptures in the great doorway of the church, as described by Mr. Cockerell.

Architectural Society of Northampton.—A special committee was held on March 8, for the purpose of making arrangements for the proposed spring meeting at Northampton. It is proposed to hold a large Architectural Congress, to invite members of all societies in union. The Wednesday after Easter, April 14, has been fixed for the day of meeting, and it is intended to have a morning meeting, for strictly architectural papers, and to hear Mr. Scott's report on St. Sepulchre's, then to visit the church, and to have a general evening meeting at seven, when members and their friends will be admitted by tickets. Earl Spencer has been invited to preside; and it is hoped that Professor Willis will be present to deliver a lecture on the Holy Sepulchre at Jerusalem, and on the Round Churches built after that model.

SIGHTS AND SCENERY.

French Plays.—Mr. Mitchell produces variety with such rapidity that we have scarcely time to say, "Go and see such a star in such a position," before the star sets and a new one rises, or at all events it changes its position. In case this should not be so with M. Lemaitre, we will advise every lover of good acting to see him in *Paillasse*. A distinguished lady who sat near us said, with a charming tear in the corner of each eye, that it was very absurd to come to the theatre to be made unhappy. Such of our readers as think so must stop to the end, when they will find all come right, and that they are none the worse, perhaps something the better, for the gentle exercise of their best feelings which the able actor has called forth. He is well supported by Mdlles. Clarisse and Edith.

Pictures from Plays.—We understand that H. R. H. Prince Albert has commissioned Mr. Edward Corbould to paint two pictures, one from the play of "King John," and the other from "The Corsican Brothers," both as performed at the Princess's Theatre, and embracing portraits of all the principal performers. Mr. Kean doubtless appreciates the compliment. It will be remembered that Mr. Corbould painted for the Prince the great scene from "The Prophet," as played at the Royal Italian Opera House.

ENGLISH ARTISTS IN EARLY TIMES.

REVERTING to British workmen and mediæval art, as mentioned in the last number of the BUILDER, a very interesting fact occurs early in the 15th century, namely, King Henry IV. granting a passport to three English workmen, Thos. Colyn, Thos. Holliwell, and Thos. Poppehowe, to carry over and fix a very fine tomb and effigy they had made in alabaster of John IV. Duke of Bretagne, first husband of Joan of Navarre, queen of Henry IV.; wrought of Derby or Stafford alabaster, and no doubt worked by these men in London. The tomb is figured in Loubineau's "Hist. de Bretagne," p. 498. The tomb was by order of the Queen of England, and the passport is given in Rymer, viii. 510. Other instances I could quote. EDWARD RICHARDSON.

GAS LIGHTING.

THE town of Corsham has just been lighted for the first time with gas, amid the ringing of bells and the perambulation of musical bands. ——The Bicester Gas Company having considered themselves unfairly and too highly assessed to the poor-rates, the rateable value has been reduced from 60*l.* to 15*l.* The high assessment was alleged as the reason for keeping gas up to its present high price. It remains to be seen, therefore, to what extent the 45*l.* will enable and induce the company to moderate their charges.——At a late council meeting at Cowes, says a Hampshire contemporary, the report of the Gas Committee was entered upon, when Mr. Cotton presented some statistics, the result of inquiries made at seven neighbouring sea-ports, namely, Southampton, Fareham, Gosport, Portsea, Lymington, Poole, and Ryde, from which it appeared that the public lamps for Cowes were charged considerably higher than the average, or even any, of those places. The statement presented the following consumption:—Each lamp consuming 3,860 cubic feet of gas, would cost, at the former rate of 8*s.* 4*d.* per thousand, only 1*l.* 12*s.* 2*d.* per lamp per year, and at the present rate of 6*s.* 8*d.* to private consumers, 1*l.* 5*s.* 8¾*d.* per lamp, whereas the town was paying 3*l.* per lamp. It appeared from the average of the seven towns mentioned, that 3,227 hours was the time gas was burnt, at a consumption of 13,308 cubic feet,—the average cost, perhaps, 3*l.* 6*s.* 5*d.* whereas, according to the number of hours burnt at Cowes, it would only be 1*l.* 2*s.* 6*d.* It was ordered that the representation should be made to the Gas Company, and unless an alteration was made, it was stated that a proposition would be moved to burn the public lamps by metre.——M. Fontainemoreau, says the *Mechanics' Magazine*, has just patented some improvements in apparatus for the supply of air to the burner. The apparatus consists of a perforated metal or wire-cloth diaphragm, placed at the bottom of the chimney of the burner, and serves to produce a division of the up-current of air into minute streams, and a metal disc with a valve in the centre, which is sustained at a slight distance above the top of the chimney by means of projections, which rest on a ring of porcelain fitted to the top of the chimney-glass. The valve in the disc is operated by a thumb-screw, for the purpose of increasing at pleasure the area of opening.——In a recent lecture at the Royal Institution, Dr. Lyon Playfair exhibited some candles made of paraffine, or solid gas as it has been called, obtained from coal by slow distillation.

NOTES IN THE PROVINCES.

Ely.—Plans prepared by Mr. Burns for the sewerage and drainage of Ely, have been approved of by the engineering secretary of the General Board of Health, Mr. Austin, who recommends a reservoir in addition, near Barton. The local Board of Health, however, demur to the expense, and suggest that Mr. Burns and Mr. Austin consider whether the upper and lower towns should not be separately drained. The public works by the estimate would cost 9,385*l.*; private, 4914*l.*; and this exclusive of compensation for back drainage. The river water is recommended for town supply.

Fisherton.—The ancient church of Fisherton, according to the *Wilts Mirror*, is forthwith to be dismantled, the contractor for the new edifice having allowed 400*l.* for the old materials. The chancel will be rescued.

Winchester.—The east window of the cathedral is about to be restored as nearly as possible to the original design by Messrs. Baillie. St. Cross Hospital is about to undergo an extensive repair.

Wilton.—At a model lodging-house, or boarding-house rather, established by Mr. Sidney Herbert, at Wilton, the boarders are provided with food at a common table, and under the superintendence of one of the parochial clergy, who resides there as a sort of abbot to this improved monastery of single men, chiefly farm labourers, who are charged at the rate of only four shillings a week for board and lodging, a rate, we fear, much more eleemosynary than self-supporting. There is a library, with a piano and other musical instruments in the establishment. A contemporary ridicules the idea of a piano for farm labourers, but he is not perhaps aware that in Germany even the poorest family has its piano, which is made of common fir and other cheap woods, and is purchasable at a very small cost. The attempts made here by Messrs. Chambers, the journalists, and others, to introduce this cheering instrument amongst the poorer classes, merit countenance and commendation rather than ridicule. And we are glad to observe that a taste for it does appear to be spreading among the humbler classes. In passing through a rural part of Brompton, we have felt not a little pleased to hear the jingle of a very well played, though not very fine, piano in a milkman's hut.

Leamington.—The new cemetery at Leamington was consecrated on Thursday week. It comprises between three and four acres of ground, and is situated at the extremity of the parish. By the liberality of Mr. M. Wise, the churchwardens have been enabled to erect a chapel and a lodge. The chapel consists of nave, north aisle, apse, and tower, with spire. The roof is of open wood-work, and the edifice is in the Second Pointed style. Mr. D. G. Squirhill was the architect, and the works were executed by Mr. Ballard, builder.

Darwen.—Coal mining here appears to be playing mischief among the buildings. A dwelling-house fell suddenly a few days ago. The inmates, forwarned by some premonitory crackings, escaped. Several more houses are expected to fall every day.

Lytham.—The new schools (St. John's) lately opened are described by the *Preston Guardian* as containing three apartments,—one 41 feet by 18 feet, to be used as a girls' school; another 36 feet by 18 feet, to be used as a boys' school; the two so arranged as to be thrown into one, with a class-room to be used by either. The third apartment, 33 feet by 19 feet 6 inches, is to be used as an infant school. Each school is 26 feet high. Cottage ranges, with ovens, enable those children who come from a distance to warm their dinners; whilst a large copper admits of tea-making on an extensive scale, on occasion of public meeting. Externally, they are built of cobble stones, with Longridge stone dressings to doors and windows, and bands of ornamental brickwork. The design consists of a centre, flanked by gabled wings, with a porch in the middle. The architect is Mr. C. Verelst (better known by his late name of Charles Reed), of Liverpool. The contractors are Messrs. Catterall, of Kirkham, and Miller, of Lytham.——A parsonage has just been added to the new church of Lytham, which, otherwise conspicuous for its villas, regular streets, and other buildings, has of late been further improved by the erection of lodges at the west end by the lord of the manor, as an entrance to the park.

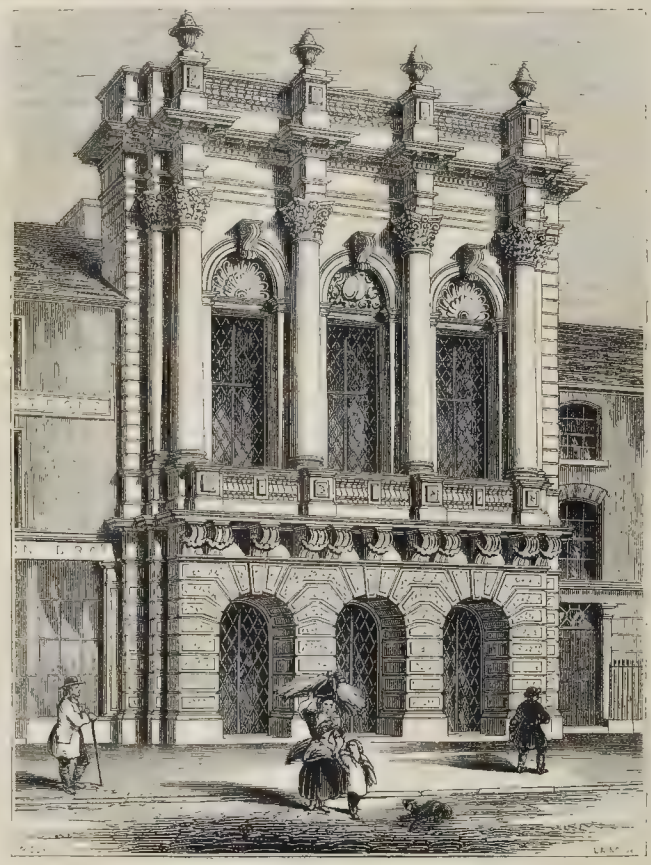
Selby.—The old abbey church of Selby is being restored and improved. One of the unsightly galleries has been removed, leaving the columns bare, and exposing to view much that was previously unseen. It is intended to take down the whole of the galleries, and remove the pews in the body of the church, substituting stalls, similar to those in the parish church of Doncaster.

Chesterfield.—A new survey of this town has been authorized by the central Poor Law Board. The scale is to be three chains to the inch. The local board is to appoint a surveyor to make the survey, with plan and valuation.

Darlington.—The local board of health here are providing a public park for recreation to the working classes. The trustees of the estate (20 acres) so to be appropriated are about to lay out 100*l.* in walks, and build an ornamental cottage at a cost of 250*l.* They have already formed roads of access to it, including a bridge across the Skerne, and also drained the land.

Kirkwall (*Orkney*).—The old church of St. Magnus, renowned in Scottish story, has of late been inspected by order of the local Pres-

NEW MARKET-HALL, STOCKPORT.—MESSRS. STEVENS AND PARK, ARCHITECTS.



bytery, and found to be in good repair, so far as regards the shell of the building, except the south transept wall. The pillars, however, were found to be merely faced with Ashlar, and to be mostly rubbish and incapable of supporting galleries' which were intended to be erected, for necessary additional accommodation. The Presbytery, on the whole, have found the building incapable of being made a safe and serviceable church; and have therefore "decerned and ordained a new church to be built, adapted to the wants of the parish, in a central and convenient site, and appointed the magistrates, town council, and heritors to procure and lay before the Presbytery on 27th April next the necessary plans, specifications, and estimates for erection of such a church, with certification."

St. Peter's Port (*Guernsey*).—A reredos for the church of St. Pierre, is described by the Taunton Courier as having been executed by Mr. H. Davis, of Taunton, and illuminated and coloured by Stansell, from designs by Mr. C. E. Giles, of Taunton. It is said to adhere to the simplest outlines of our English decorated architecture, with details of the Flamboyant of Normandy—the parent source of the architecture of the Channel Islands. The whole work is of Caen stone, carved, and divided vertically into three principal compartments.

Cardiff.—It has been proposed by Lieutenant Crewe Read, to establish a Sailors' Home in South Wales, and, through his exertions, there seems no doubt of its being carried into effect. At the last committee meeting (being the second) held at the Dock-office, most of the influential men of the place attended, and a list of subscriptions has been published, amounting, already to 216*l*. 8s. as donations: 31*l*. 2s. 6d. as annual subscribers. It is proposed from the present position of trade in Cardiff, to provide for seventy sailors. The trade of this port has increased most rapidly, as may be inferred from the following fact. In 1840, 492 vessels entered, whose aggregate tonnage amounted to 41,592; in 1851, the number increased to 5,823, and the tonnage, to 575,092, proving the great necessity for an institution of this sort. 2,000*l*. is the sum that the committee estimate this building might cost to accommodate seventy sailors. After much discussion the Cardiff Board of Health, has agreed upon Mr. Rammell's plan for the drainage of this town, and have resolved that Mr. Rammel "be instructed to take the steps necessary for proceeding with the works forthwith: and to advertise for tenders for the same to be sent in to this board."

Pontypridd.—It is stated that several large stone quarries are about to be opened in this neighbourhood for the construction of the Cardiff docks.

NOBLE LECTURERS.—Lord Belfast is delivering a series of lectures at Belfast to the working classes on the poets of the nineteenth century.

NEW MARKET HALL, STOCKPORT.

A NEW Market Hall has been erected in the Market-place, at Stockport, under the direction of Messrs. J. Stevens and G. Park, architects; and here we give a view of the façade. It is executed in Yorkshire stone, and is 36 feet wide. The balcony (there is another inside at the same level, of iron) is intended for electioneering purposes. It may be objected that this front is merely a screen, irrespective of the hall, to which it belongs, for that is in one height, and is covered by a simicircular iron roof, 21 feet from the pavement to the springing, with lights in the crown.

INTERIOR OF THE GLYPTOTHEK, MUNICH.

THE accompanying engraving represents one of the principal galleries in the Glyptothek, at Munich, erected from the designs of M. Leo von Klenze: next week we will give a few particulars to accompany it.

PROPOSED RESTORATION OF ST. PETER'S, WOLVERHAMPTON.—The committee for effecting this restoration have published a very nicely and fully illustrated report, by Mr. Ewan Christian, on the condition of the church and the measures required. St. Peter's is one of the largest churches in the county of Stafford, dating from the fourteenth century, and has been allowed to fall into a miserable condition. The amount required is 6,000*l*.



INTERIOR OF THE GLYPTOTHEK, MUNICH.—M. Leo Von Klenze, Architect.

RATEABILITY OF NURSERYMEN'S GREENHOUSES, &c.

AT Berkhampstead, on the 2nd inst. Messrs. Lane, nurserymen, holding land in that parish partly covered with glass or greenhouses, appealed against a rate.

The parish officers, in making the last rate, affixed an additional value to these premises of 50*l.* alleged to be for the assessment of "tenants' rights" or "lights," against which charge Messrs. Lane instituted this appeal. Apart from the trade question of the assessment of a nurseryman's stock to the relief of the poor, in no other instance throughout the parish, it was stated, had the fixtures and fittings of trade—boilers, vats, tallow melters, coppers, steam engines, nor plant of any description—been made amenable to the rate; therefore, on this ground, Messrs. Lane felt themselves aggrieved, and gave notice of their appeal against the rate, not so much as an invidious attack upon themselves, as that in this respect the rate was "unfair, unjust, and unequal."

From their surveyor's report, it appeared that heretofore Messrs. Lane had been assessed to the parish in the rateable value of 61*l.* per annum, exclusive of the now additional charge of 50*l.* for "tenants' rights," or "lights," sought to be charged. The surveyor's opinion was, that [the rateable value of Messrs. Lane's occupation as the integral holding was only 40*l.* per annum.

It was contended on their part, that, even if greenhouses were declared to be rateable, they could only be assessed for the nominal value which they conferred upon the soil, and ought in law never to be separately assessed, since such an occupation could not properly be divided from the land itself; or, even if so, possession could never be enjoyed without trespass on the land adjacent. The *vexata quæstio* was whether greenhouses or stock in trade could be brought into assessment? and, if assessable, not being separate but combined holding, alleged to confer value upon land, can they be assessed otherwise than as land improved thereby? in which latter case these deductions allowed by 6 & 7 Wm. 4, c. 96, from the annual value, being the cost of maintenance, repair, and reinstatement necessary to be performed to command such value, such would nearly consume the sum of the actual value from year to year, and leave the rateable value of hot or greenhouses a merely nominal impost.

The Court ultimately decided that the 50*l.* charge for "tenants' rights" or "lights" could not be sustained; that the respondent parish should bear the costs of the appeal; and that the premises should be referred to two surveyors to determine the future value of Messrs. Lane's occupation, exclusive of "tenants' rights," and the expenses of such survey were to be borne by the parish.

Notices of Books.

The Cause, Cure, and Prevention of Smoky Chimneys. By C. W. HARTNETT. London: James Willshire, 53, Grosvenor-row, Pimlico, pp. 34.

THIS is a pamphlet by one who himself undertakes the conversion of inveterate smokers; and who has reined in his thoughts, and given his attention to the more proximate causes, rather than wander away, at the risk of losing himself, amongst those more out of reach; probably shrewdly judging that even these would still end in smoke. Some suggestions will be found in it, to servants and others, as to the influence of a well-made or an ill-made fire on the draught in a chimney; how to give the first start at lighting, &c. In the following extracts, we allow the writer to speak for himself:—

"Every attempt to cure an inveterate smoky chimney must be fruitless if care has not been taken to remove thence, at the outset, all the *old damp soot*, which may be easily distinguished as such from the soot of a non-smoky chimney, by the power which any person can have of *grasping* a handful of the former, while it is utterly impossible to shut the hand upon a single thimbleful of the latter, supposing one of each to have been recently swept, and this experiment tried just then. The inefficacy of the chimney sweepers' machines as at present made, the use of which is enforced by Act of Parliament, has caused more smoky chimneys than all other casualties put together; a fact which must have rendered itself evident to everybody who may have taken the trouble of observing the increase, yearly, by thousands, of tallboys, malthouse cowls, &c. to the tops of chimneys of houses which, though built for many years, had never required them before."

* * * *

"As heat is artificially obtained for common purposes by the combustion of coals, it is desirable, for the remedying of smoky chimneys, that the sort of coal which ignites most readily, and yields least smoke, should be selected as fuel; and of this sort is the Cannel coal; because the ease and celerity with which it gives off its combustible matter speedily admits of flame, which immediately removes the confined, incumbent atmosphere, and opens, as it were, a channel, into and through which the smoke finds its course, and passes outwards, unobstructed, from the chimney.

But fuel generally may be usefully considered with regard to its compactness or weight, its quantity of combustible matter, and its quantity of water: in regard to the first of these considerations, the more compact and heavy fuel is, the more difficult it is to kindle, but the more permanent the fire when once ignited; and as to the second consideration, the less ashes the less smoke, and *vice versâ*, the greater the proof of the superior combustible qualities of coals; and as to the third, the less water there is in coals the better for domestic uses,—for two reasons, one of which being the vapour or *damp* repulsed by the heat, and *driven into the room*, and the other, the damp mixing with the smoke, and causing it, in greater quantity, to deposit in the chimney and become soot. It therefore follows, that a mixture, consisting of two parts of Newcastle coals and one of the Cannel, is the best adapted for general use, as well as being peculiarly well suited for chimneys disposed to be puffy."

So the writer makes out the Anti-climbing-Boys Act to have given a great impulse to the cowl trade: certainly at the present day the *chevaux-de-frises* with which the sky-line of our metropolitan buildings is serrated speaks volumes for the indefatigability of the zinc workers: take Wilton-crescent for an example, and it would really appear as if taste must have had more to do in the matter than necessity. The deficiencies of the sweeping machine he makes up for by attaching to it a bundle of chair-caner's stiffest inside cane-cuttings, folded up uncut, and about 2 feet square, which rakes out the soot that is otherwise left undisturbed by the machine. Of the difficulties of the subject he relates some "modern instances,"—one, that of a mansion erected by a London builder ten or twelve years ago in Richmond-park, the flues of which proved so incorrigible that it had to be razed to the ground and rebuilt on another foundation! Truly a "smoky chimney" is a great evil, and enough to create the "scolding wife" coupled with it in the adage. Those who would prevent it must go farther than the pamphlet before us.

Kelly's Practical Builder's Price Book. Thomas Kelly, Paternoster-row.

KELLY'S Price Book, besides being "a Guide to the Valuation of all Kinds of Artificers' Work," is founded on a principle which renders it almost perpetual: the price of labour having for a lengthened period remained unchanged, is looked on as a *fixed charge;* the variation is in the *cost of the material;* and on the rise or fall of this in the market the lists are formed, rules being given to enable the surveyor to make such alterations as may from time to time be necessary. It contains a very useful and lucid treatise on the measurement of builders' work generally, an abstract of the Metropolitan Buildings Act, and much information valuable as well to the Trade as their employer; the whole of which is rendered more intelligible by the addition of some engraved illustrations. In six words, it is a very useful book.

The Book of the Garden. By CHARLES MCINTOSH. Blackwood and Sons, Edinburgh and London. Part I.

THE author proposes to exhibit in this work all that is known on the subject of gardening, and to give as well plans for conservatories, green-houses, &c. as instructions for the formation and arrangement of gardens. The first division of the work will be architectural and ornamental; the second practical. If carried out well, and the execution of the first part justifies the belief that this will be the case, it will supply a great desideratum. The laying out of flower-gardens, with reference both to form and *colour* (the harmony and contrast of plants), should have attention. Mr. McIntosh has had charge, during the last twenty-eight years, first of the gardens at Claremont, and latterly of those of the Duke of Buccleuch, which gives assurance of his practical knowledge. In writing on his own art he is not likely to utter such nonsense as he does when (speaking of the Great Exhibition Building) he says the design of it will hand down the name of its architect, Sir Joseph Paxton, to the latest posterity, *in association* "with those of Inigo Jones and Sir Christopher Wren."

The questions of wide or narrow copings for fruit walls, aspect, best colour, and construction of such walls, briefly treated of in the part before us, are matters which ought not to be overlooked by architects. The work will be fully illustrated by engravings.

On the Amendment of the Law and Practice of Letters Patent for Inventions. By THOMAS WEBSTER, Esq. M.A. F.R.S. Barrister-at-Law. Second edition. Chapman and Hall, Piccadilly. 1852.

THE author of "The Law and Practice of Patents," and of "Reports of Cases" on them, is admittedly one of the best-informed writers on this important subject with a view to its essential reform; and although differing with him on some points, we can freely recommend his ideas as well worthy the attention of our legislators, especially at this present moment.

Nearly 700 inventors, many, or indeed most of them very poor inventors, revealed their cherished secrets to the public at large, in the Great Exhibition, under the temporary protection of the Act passed for that special purpose, and with the assured hope of permanent succour, at less impracticable cost than before, under the general Act so auspiciously launched in the Lords, but mangled (by mere haste and mistake we do believe, though instigated by other motives) in the Commons, at a period of the session too late for re-amendment. Even then, and till very lately, the hope of these poor inventors was sustained by the general assurance that the proposed Act must pass—that it would be the law of the land before their brief twelvemonth of grace expired. Recent political events, however, have rendered the risk of a speedy dissolution of Parliament but too imminent. It is most earnestly to be hoped, therefore, that amongst those pressing measures which must be passed before that dissolution take place, the proposed reform of the patent law will hold a prominent and an early place. We agree with Sir William Cubitt in believing that no one Act will perfectly reform that law, but as for the Act in question, it has already been discussed, and most of it already agreed to by both Houses; and, if again brought in, the attention of the Commons might be limited almost altogether to the main "amendment," which they were hastily induced to make on it as it stood when passed by the Lords.

The working of the Exhibition Act, if we may so call it, has, it appears, been most instructive, and has led to the belief that provisional protection, as a permanent preliminary to the issue of patents, would be a great good, and would form the basis of "a Museum of Inventions," and an "Inventors' Mart," where the subjects of patents in embryo might be exhibited, tested, scrutinized, rejected or accepted, and purchased or promoted, by the free intercourse of capitalist and inventor, all the while that their merits were *sub judice*, till patented, or not, as the case might be, the patent covering the period of scrutiny and exhibition.

The opinion of the little treatise under notice is in favour of the establishment of such a provisional institution.

METROPOLITAN COMMISSION OF SEWERS.—At a meeting on Wednesday it was agreed to borrow 10,000*l.* to pay the contractors in part. It appears that the court has liabilities to the extent of 20,674*l.* odd unprovided for. They are allowed by the amended Act to collect but one rate, and that only a 3d. one, in the year. This Act will expire within six months.

Miscellanea.

THE IRON TRADE.—It appears that at Glasgow the Scotch iron-masters met lately and agreed to correspond with the Welsh iron-masters about a reduction in the make; and we observe that (in consequence we presume of this correspondence) at a meeting of the iron-masters of South Wales, held on Tuesday week, the following decision was come to unanimously:—"That a general reduction of the make of iron, although in itself desirable, does not appear to this meeting, under existing circumstances, to be capable of being carried out by arrangement at the present time." So much the worse for the trade itself. A local impulse on the contrary will, in the meantime, be given to the South Wales manufacture by the Russian contract for 140,000 tons of rail for the Moscow and Warsaw railway.——The Blair Iron Works were, on Wednesday week, exposed to public sale in the Glasgow Exchange Sale-rooms, and bought by Messrs. Baird, of Gartsherrie Iron Works, at the reduced upset price of 33,000*l*. They also take the stock of the ironstone, calcined, at 9s. per ton for 60,000 tons, besides about 2s. 6d. of royalty. ——A valuable iron mine, it is said, has recently been discovered in a field in the New-road, Brixham. The ore was found very near the surface, and a shaft has been sunk which has yielded abundance of mineral. The field was not long since offered for sale, but no purchaser could be found. Some houses were about to be built on it.——An increase of duties on imported iron and steel has been decreed by the Spanish Government, which gives as its reason, the great importance to which the Spanish iron trade has reached, and the propriety of protecting it.——Mr. T. Kenrick, iron-founder, of Edgbaston, has patented some improvements in the manufacture of wrought-iron tubes, which consist in enamelling and glazing the interior surfaces of wrought-iron tubes. For this purpose the patentee employs two compositions—one to form the body, and the other the glazed surface. The body glaze is composed of 100 lbs. of calcined flints, reduced to a fine powder; 75 lbs. borax, also in powder. The surface glaze is composed of 100 lbs. Cornish stone, 117 lbs. borax, 35 lbs. soda ash, 35 lbs. saltpetre, 35 lbs. sifted slack-lime, 13 lbs. white sand, and 50 lbs. white glass in powder. The patentee observes that the surfaces of cast-iron tubes have heretofore been enamelled and glazed, and that, therefore, he claims the enamelling and glazing, in the manner described, the interior surfaces of wrought-iron tubes only.

ACTION FOR WORK AND LABOUR.—At Derby, on the 12th inst. a case was tried before Chief Justice Jervis and a jury, in which the plaintiff, Mr. Colquhoun, a gasfitter, sought payment of a balance due on 1,100*l*. per contract, with defendant, Mr. Silvester, the engineer, for fitting up gas-works, pipes, and burners, at the Derby County Lunatic Asylum, at Mickleover, besides payment also for extra work. A sum of 800*l*. had been paid to account. The claim was resisted on the ground that the apparatus would not make gas, and that the defendant had been obliged to make great alterations in the flues and other parts to render it serviceable. Plaintiff attributed the failure of his apparatus to the want of a proper draught for the flues, occasioned by defendant insisting on having one large central shaft to carry off all the smoke from the building, instead of having a separate and independent chimney for the flues of the gas-making apparatus. The items of extra work were also disputed. The jury found a verdict for plaintiff—damages 281*l*.

"TAKE CARE OF YOUR CEILINGS."—Warnings given in THE BUILDER often seem prophecies: we draw attention to the dangerous way in which buildings are being erected one day, and within a week two or three fatal accidents attest the necessity for the remark. We point out that the ceilings of houses should occasionally be looked to, and forthwith one descends with a great crash and destroys everything beneath. This happened last week at the Foreign Office, in Downing-street: fortunately no person was in the room at the time.

ROUGH PLATE GLASS.—IMPORTANT DECISION.—In the Court of Exchequer, on the 13th ult. a case was decided in regard to the patent of Mr. Hartley, of Sunderland, which appears to settle the question of originality of invention in favour of Mr. Hartley, although the sole secret appears to have consisted in ladling rough glass directly on to a hot table near the melting pot, in place of carrying it as usual out of the refining pot to a cold table at some distance from the furnace. One firm it appears expended 25,000*l*. in the vain endeavour to use the ladle and to draw the table close to the rough melting pot! The most important discoveries are often so simple that every one afterwards is only astonished how they could be so long in being made. The consequence of this simple invention or discovery is, that rough plate glass, not transparent, but perfectly well adapted for extensive use in railway stations, in horticulture, and in workshops and otherwise, can now be made in minutes instead of hours or days, and in patterns stamped by the table, which becomes so hot as to be capable of keeping the glass molten till stamped, and till one ladleful is added to another and perfectly united with it in imperceptible junction or welding, so that plates of any size of glass can now be made at comparatively small cost. The defendant in the case under notice is Mr. Hadland, of the Eccleston Glass Works in Lancashire, who seems to have been experimenting, as did many others, in search of cheap processes at the time when the duty was taken off glass, and who contrived to do so, and at length, *after* employing a nephew of Mr. Hartley in his works, succeeded in making and selling an article identical with that of Mr. Hartley's patent, but only after the date of that patent. He claimed the use of the ladle, however, previous to the date of the patent, but a verdict was given in favour of the plaintiff, after a long trial reported in the *Sunderland Herald*.

THE ANTI-CORN-LAW LEAGUE PICTURE.—A trial took place at the Manchester County Court on Wednesday week, when Mr. Agnew, of Manchester, print publisher, sued Mr. Joseph Simpson, a member of the League, for the price of a ten guinea proof of the picture of the "Meeting of the Council of the League," painted by Mr. Herbert, R.A. It transpired that Mr. Agnew paid Mr. Herbert 1,000*l*. for the picture, and Mr. S. Bellew 1,000 guineas for engraving it. There were various grounds of defence, but the main were, that Mr. Agnew had inserted the heads of three gentlemen, not one of them being members of the council; and next, that the print was a very mediocre one; these two acts conjointly forming a breach of contract on the part of Mr. Agnew. Dr. Massie's head (one of the three), it was rather contradictorily said, had been designedly thrown into the background from ill feeling on the part of Mr. Herbert, who is a Roman Catholic, while the chaplain to the League is a stanch Protestant. The engraver proved that the artist had refused to touch up the plate as usual, on pretence of a vow requiring dispensation from his spiritual adviser. Mr. Herbert explained that he had resolved to have nothing to do with Mr. Agnew again, and therefore could not conscientiously correct the plates. As to Dr. Massie, his head interfered with the balance or beauty of the composition, and required to be thrown into shade. The judge, Mr. R. Brandt, gave judgment for the plaintiff, conceiving that the introduction of the three heads complained of was not a vitiating circumstance: they were in the habit of attending the meetings of the council, though not of it, and therefore their presence did not detract from the accuracy of a picture which purported to be one of a meeting of the council.

VENTILATION OF HOUSE OF COMMONS.—In reply to a question put by Lord Grosvenor, Lord John Manners assured the House the other night that every facility will be given to the carrying out of the changes pointed out as desirable. Mr. Gurney, his lordship added, had been appointed to report on the matter. Dr. Reid's report is now in the hands of the members. He names 2,800*l*. as the probable additional cost of the works to be yet done. We may have something to say about it.

ELECTRO-TELEGRAPHIC PROGRESS.—Efforts are being made by the local authorities of have the telegraph extended to Aberdeen. At before noted, it has already reached the Tay, where we suppose a short submarine section will be requisite to cross the frith or estuary. ——The *Rotterdam Courant* announces that an English engineer is in Holland for the establishment of a telegraph between Harwich and Helvoetsluys.——The receipts of the submarine telegraph between France and England, according to *Herapath*, were, for the first month of its working, 398*l*.; for the second month, 517*l*.; and for the third month, 519*l*.; the annual expenses being estimated not to exceed 2,000*l*. Some surprising experiments are reported to have been made on this line by Mr. Reid, of University-street, London, telegraph-engineer. He is said to have not only proved, in the presence of various public men, on the 1st and 2nd inst. the possibility of efficiently working a line of 68 miles circuit, such as this, with a battery 4 inches long by 1½ inch deep, and weighing in all 1 lb. 5 oz. instead of 64 lbs. which the 36-inch long battery in use weighs, but that messages can be quite intelligibly conducted by means of a battery, consisting merely of a single piece of zinc, and a single piece of silver, stuck into the clerk's mouth, with the two wires attached to the poles of this primitive battery! We seem to be on the eve of another grand revolution in telegraphic science. Not even the nervous powers of animal life can boast of a more spiritual independence of gross matter than this.

GENERAL DRAINAGE OF LONDON AND ITS ENVIRONS.—From a paragraph in your paper it would appear "the present Commissioners of Sewers will not appoint a new engineer" or inspector of works as proposed by an honourable commissioner on the 11th ultimo. That such an omission will be of long duration cannot be supposed, and without doubting the just intentions of the commissioners, it is to be hoped that when an appointment is made, the selection will be from those who have supplied the most useful suggestions on "forming the general plan for the drainage of London." Those only who have gone below the surface, and dipped deeply into the great question of sewage, are capable of appreciating the great devotion and labour required to originate a plan capable of meeting the requirements in a question of such vast complicity as the general drainage of the metropolis; and those only, I presume, may consider themselves as entitled to some consideration from the commissioners.—ONE WHO HAS SCHEMED.

WORKING-MEN'S APPRECIATION OF LECTURES AT THE GEOLOGICAL MUSEUM.—A spontaneous record of thanks was presented at the conclusion of the course of lectures, on Monday evening last, at the Museum of Geology, Jermyn-street, signed by nearly 200 of the audience, whose signatures were obtained in some of the factories and workshops in which they are employed (had it been permitted to take the signatures in the lecture room every one would have readily added his name).

WIDE ESTIMATING.—Pray insert the following tenders delivered for erecting four houses at Harrow-on-the-Hill, under Messrs. Habershon:—

	M.
Hey	£6,459
Howard	6,398
Lawrence	6,100
Winsland and Holland	6,000
Smith and Appleford	5,185
Piper	4,876
Locke and Nesham	4,845
Chapman	4,545

TENDERS FOR SEWERAGE.—I cannot resist the temptation to give you a list of the tenders for sewerage, &c. sent to the commissioners of Malvern, Worcestershire.

Walford and Hayes	£9,351	16	2½
Joseph Wood	4,800	0	0
Thomas Darke	4,491	10	0
Messrs. J. and C. Rigby	3,700	0	0
J. H. Taunton	3,150	0	0
Richard Jones	2,551	0	0
Edward Smith	2,500	0	0

AN OLD SUBSCRIBER.

THE "GLOBE" EXHIBITION.—Mr. Wyld has added to his geographical emporium in Leicester-square a model of the Arctic Regions, to which both here and in America public attention is now directed in a super-eminent degree. The model shows very clearly all that is known on the subject, and *more;* and at this moment, when the expedition in search of Sir John Franklin is about to start under the command of Sir Edward Belcher, will doubtless attract attention. The model of the Globe has been much improved since our first visit, by references to the various places, and a lecture is delivered at different times in the day by Mr. Malcolm, who was at the Western Literary Institution. We followed Mr. Malcolm through his address the other day, and can justly say we found both pleasure and instruction in it.

PERILOUS STATE OF ANOTHER RESERVOIR AT HOLMFIRTH.—A public meeting has been held at Holmfirth as to the danger to be dreaded from the access of rain to the Holme Styes Reservoir, which commands a deep and narrow valley, or gorge, thickly inhabited and built on like that in which the recent catastrophe took place. The inhabitants are now tremblingly alive to the risk they run while this reservoir remains under such totally irresponsible control as that which recklessly led to the late destruction of life and property. They have resolved to petition parliament to take immediate steps to avert future danger and to make the commissioners responsible in law as they are in fact. Those connected with the reservoir which burst, we are now told, blame themselves as much as the public blame them, —an acknowledgment of guilt, indeed, which well merits something more than official *suspension*, but a poor consolation either to the surviving relatives of the sufferers or to those thrown out of employment or deprived of their property by this official and personal misconduct.

ART-MANUFACTURERS' INSTITUTE.—A meeting for the promotion of the object of the Art-Manufacturers' Institute was lately held at Bradford. Although upwards of 200 circulars had been issued, and a copy forwarded to every manufacturer in the town, the meeting was very thinly attended. The opinion of those present appeared to incline in favour of co-operating with the mechanics' institute for the purpose of increasing the efficiency of the existing school. It appeared that at Halifax, where the movement commenced later than at Bradford, a school of design was already established, and in active operation. It was decided that Mr. Cole should be written to.

KILKENNY ARCHÆOLOGICAL SOCIETY.—*The Kilkenny Moderator*, which often devotes a liberal share of its columns to archæological subjects, gives, on 10th inst. an interesting report of the March meeting of the very active local Archæological Society; Major-General M'Donald, C.B. in the chair. Lord Clermont, the Hon. F. Ponsonby, and a long list of other gentlemen, were elected members; some donations made to the museum and the library; antiquities exhibited; and papers read,—on the Ogham inscription at Tullowhern, on Kilkenny Castle at the period of the late alterations, on a Pagan cemetery at Rathmoyle, on Finian traditions connected with Lough Cuillien, on preserving ancient monumental inscriptions, and contributing some under the title of "Churchyard Gleanings," and on the tomb of Sir Daniel Byrne, in the church of Timogue, Queen's County. The meeting then adjourned to the first Saturday in May.

SLATE DRESSING.—Mr. T. B. Jordan, of Belvedere-road, engineer, has patented some improvements in machinery for cutting, dressing, planing, and otherwise working slate, and also for framing and setting the same. The inventor makes seven separate claims—for parting, cutting, shaping, dressing, and framing slates.

METROPOLITAN WATER SUPPLY.—It appears from a reply by Mr. Walpole, the Home Secretary, made to a question by Mr. T. Duncombe in the Commons, that there is little hope of anything being done towards the better supply of the metropolis with water during the present session of Parliament.

GREAT EXHIBITION BUILDING.—An announcement, for which our readers must have been long prepared, has been made by Lord John Manners in the Commons, to the effect that the arrangement that necessitates the removal of the building on 1st May will not be interfered with.

THE DIGNITY AND CLAIMS OF LABOUR. A series of lectures on this important subject is in course of delivery by the Rev. J. Spence, at Preston. The local *Guardian* of 13th inst. has a full report of the second lecture of the series on "The Difficulties and Temptations of the Working Classes."

TENDERS

For the erection of a banking-house for Messrs. Johnston and Co. in New Cannon-street, London. Mr. Geo. Legg, Architect. Quantities were supplied.

Messrs. Piper	£2,991
Curtis	2,983
Cubitt	2,980
Haward and Nixon	2,977
Lawrence	2,922
Myers (accepted)	2,888

TO CORRESPONDENTS.

"Mr. L.," "M. and Co.," "W. W." (not our practice), "M. O." (ditto), "P." (ditto), "J. B.," Albany-road (complains of the conduct of one who advertised in our columns for assistance. We may regret it, but cannot interfere), "R. R. B.," "S. H.," "G. H. D." (we will endeavour to see it), "G. W.," "G. T.," "C. and Co.," "Subscriber to THE BUILDER," "C. C. N.," "B. and B.," "G. J.," "J. F. W.," "Dr. R.," "J. P.," "R. A.," "M. L.," (the medals at the Royal Academy are confined to students), "H. M.," "C. H.," "W. A.," "J. T.," "I. C.," "T. B. L.," "An Unfortunate" (inquire at Artizans' School, Camden Town), "J. S.," "A Subscriber" (effect of time on the stone would not account for regularity of deviations), "T. T." (how long have the courts been finished?), "C. H."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

ARCHITECTURAL ASSOCIATION.—A Record List of Draughtsmen in want of Employment (not confined to members of the Association), is kept at Lion's-inn Hall, Strand. Architects may obtain assistance, and Draughtsmen may be enrolled on the list free of charge, on application to

ARTHUR BILLING, } Secretaries to the
ALFRED BAILEY, } Association.

ROYAL ACADEMY of ARTS, Trafalgar-square.—NOTICE TO ARTISTS.—All works of Painting, Sculpture, or Architecture intended for the ensuing EXHIBITION at the ROYAL ACADEMY must be sent in on MONDAY, the 5th, or TUESDAY, the 6th of April next, after which time no work can possibly be received, nor can any works be received which have already been publicly exhibited. The other regulations necessary to be observed may be obtained at the Royal Academy.

JOHN PRESCOTT KNIGHT, R.A. Secretary.

Every possible care will be taken of works sent for exhibition; but the Royal Academy will not hold itself accountable in any case of injury or loss; nor can it undertake to pay the carriage of any package which may be forwarded by carriers. The prices of works to be disposed of may be communicated to the Secretary.

ARCHITECTURE, CIVIL ENGINEERING, SURVEYING, &c.—Offices, No. 68, Chancery-lane, Holborn. Established above forty years. Mr. GRAYSON begs to inform those gentlemen who are interested in the above sciences, that he continues to GIVE INSTRUCTION to morning and evening classes, where, besides architecture, &c. ornamental, perspective, and landscape drawing, with access to an extensive and valuable collection of models and works on the fine arts.—Mr. GRAYSON is in attendance from 9 a.m. to 8 p.m. and from 6 to 9 p.m.

EVENING ARCHITECTURAL, ORNAMENTAL, and PERSPECTIVE DRAWING CLASSES, conducted by THOMAS J. HILL, Offices, 12, Helmet-row, Old-street. Hours, Seven till Ten, Saturdays excepted. The whole of the valuable and rare collection of Models and Drawings of the late C. Davy, Esq. of Furnival's-inn, are at the use of the Students. Terms, moderate.

TO TRAVELLERS.

A LIBERAL COMMISSION will be given to a Gentleman going the South and West District on an article of general consumption amongst Builders.—Address, R. G. Office of "The Builder," 1, York-street, Covent-garden

WANTED, to take Orders on Commission, in London and the vicinity, for Ironfounders', Smiths', Millwrights' and Engineers' Work, a person who has some knowledge of the above trades, and whose position would enable him to command orders. Address, with references and particulars of qualification, T. and Co. Post-office, Ipswich.

PARTNERSHIP or otherwise.—A Civil Engineer, having established a business in a particular branch of the profession, in which there is no competition, REQUIRES, immediately, a GENTLEMAN with capital to co-operate with him. A premium commensurate with the share apportioned expected.—Apply by letter to CIVIL ENGINEER, Reynedy's Library, 35, Portman-place, Maida-hill.

TOWN of BRIGHTON.—TO ENGINEERS and SURVEYORS. The commissioners acting under the Brighton Town Act give notice that they are about to appoint a SURVEYOR at a salary of £200 per annum, with an allowance for an assistant clerk. Particulars to be obtained on personal or written application at my office. Candidates are requested to forward written applications and testimonials, addressed to me, on or before WEDNESDAY, the 24th March, 1852.

By order, LEWIS SLIGHT, Clerk.

Clerk's-office, Town-hall, Brighton, March 11, 1852.

ARCHITECTURE.—WANTED, in an Architect's Office, in the City, an ARTICLED PUPIL, or, if preferred, an APPRENTICE, in which latter case his Freedom in one of the City Companies would be obtained. A Premium required.—Address, in first instance, by letter, to J. F. W. Office of "The Builder," 1, York-street, Covent-Garden.

A PUPIL.—An Architect and Surveyor of good Practice in the City, has a VACANCY in his Office for a PUPIL, where he will have every advantage of gaining a thorough practical knowledge of the profession. Premium moderate.—Address A B 1, Winchester-buildings, Broad-street, City.

N.B.—Also an Improver wanted.

WANTED, an OUT-DOOR APPRENTICE to the BELL-HANGING and GAS-FITTING. A small premium required. Address, T. F. 10, West street, Golden-square.

WANTED, a Youth about 15 or 16 years of age. One who has some knowledge of the Carpentry Business, and who can write a good hand, as he will be required to keep accounts. Apply at 32, Bryd ges-street, Covent-garden.

WANTED, in an Architect's Office, a good GOTHIC DRAUGHTSMAN.—Address, by letter only, prepaid, stating salary, to A. B. at Mrs. Harper's, Bonnet-maker, 24, Tottenham-street, Tottenham-court-road.

WANTED, a FOREMAN, in a Painter's, Decorator's, and Paperhanger's Establishment. None need apply who cannot give the strictest references as to character, &c. Salary, 60l per annum.—Address, pre-paid, M. and J. at 96, Deansgate, Manchester.

TO GLASS-CUTTERS.

WANTED, an experienced person as GLASS-CUTTER, in a lead and glass warehouse.—Apply, by letter only, to Mr. JOSEPH POULSON, Lead and Glass Merchant, 9, Portman-place, Edgeware-road, stating previous employ. No personal application will be entertained.

WANTED, a thoroughly experienced PAINTER and DECORATOR, as WORKING FOREMAN. None need apply but those fully competent to undertake the situation, as it will be for a permanency. The strictest inquiry will be made as to ability and character.—Apply at No. 8, Wormwood-street, Bishopsgate, between six and eight in the evening.

TO ARCHITECTS, SURVEYORS, &c

WANTED, an ENGAGEMENT in either of the above offices. The advertiser, who is a good draughtsman and designer, is disengaged, on account of the death of his late employer.—Address, A. Z. Hudson's Library, 2, Moreton-place, Kentish Town-road.

WANTED, an ENGAGEMENT as BUILDER'S CLERK, by a person who has had some years' practical experience. He can measure, estimate, and take out quantities; has been used to the usual office duties, and can make drawings. References given.—Address, H. H. at Mr. Dimond's, No. 3, Cheniesstreet, Gower-street.

TO ARCHITECTS AND BUILDERS.

WANTED, by a Young Man, of respectable connections, a SITUATION, as CLERK of WORKS. Unexceptionable references for character and ability can be had from his last employer.—Address, A. B. C. Mr. Whiteside, Printer, &c. Retford, Notts.

WANTED, by a Young Man, aged 21, a SITUATION as IMPROVER to a Carpenter and Joiner, or to make himself generally useful. Wages not so much an object as a comfortable situation, town or country.—Address, post-paid, to W. P. Post office, Bishop Stortford, Herts.

WANTED, a SITUATION as CLERK or ASSISTANT to a Builder, by a person who has had considerable experience, and is proficient in measuring, drawing, bookkeeping, estimating, taking out quantities and all the duties of a builder's or surveyor's office. Address to A. B. at Freeman's newspaper office, No. 36, Cross-street, Islington

WANTED, a SITUATION as WORKING or GENERAL FOREMAN in or out of shop: a steady, active man, by trade a carpenter, who has had the management of from fifty to eighty men for the last eight years. Satisfactory reference as to sobriety, industry, and ability. No objection to the country. Address, stating salary and nature of employment, to A. M. 12a, Princes-road, Norland square. Notting-hill.

TO BUILDERS, PLUMBERS, AND OTHERS.

WANTED, a SITUATION, by a Young Man, who has had first-rate experience in fixing all descriptions of brass and iron pumps, bath in deep and shallow wells, and can make himself useful in the plumbing branch, pipe-laying, or other works connected with waterworks, or could undertake to keep the accounts, and superintend any of the above works. Good references can be given.—Address W. W. 43, Surrey-street, Brighton.

PARTIAL EMPLOY WANTED by a respectable middle-aged man, Carpenter, Joiner, Cabinet Maker by trade. Has been Clerk to a Builder, Timber Merchant, House Steward, &c. The localities of London preferred. Charge moderate. No charge for advance.—Address, free, OMEGA, 36, Paddington-street, Marylebone.

TO JOINERS AND BUILDERS.

THE Son of a respectable Tradesman, age 19, having been three years in the business in the country, wishes to BIND himself to a good firm for two years in London to a suitable situation. A small premium would be paid.—Address, A B Mr. Bowsett's, carpenter, Epping, Essex.

THE Advertiser, aged 21, who has just completed his articles, is desirous of a SITUATION, in an architect's office, in Town. Is acquainted with perspective, and the general routine of an architect's office Salary moderate. Address J. G. B. 14, Havil street, Camberwell.

TO GENTLEMEN AND BUILDERS.

THE Advertiser, a Bricklayer by trade, wishes to obtain a SITUATION as FOREMAN or to take the work of his employer by the rod; thoroughly understands the general building; no objection to the country or constant employment in a gas or other factory where a confidential man is required.—Address H. M. Mechanic Coffee-house, Green-street, Bethnal-green.

TO ARCHITECTS AND SURVEYORS.

THE Advertiser, who is a good Draughtsman, understands Perspective, and has been accustomed to the usual routine of an architect and surveyor's office, is open to an ENGAGEMENT. He is also willing to undertake any work (such as copying drawings, tracings, &c.) which he might do at home, and for which his charges would be extremely moderate. Address J. H. B. care of Mr. Starie, stationer, Tichborne-street, Coventry-street.

TO ARCHITECTS, BUILDERS, PROPRIETORS OF BUILDING GROUNDS, &c.

A THOROUGHLY QUALIFIED ARCHITECT and SURVEYOR, having an engagement during the day, OFFERS his ASSISTANCE in preparing Designs, Specifications, Estimates, &c.—Address, DELTA, 2, Ryder-terrace, Shepherd's-walk, City-road.

A DRAUGHTSMAN and GENERAL CLERK, who has had three years' experience in the office of a civil engineer, and who can produce unexceptionable testimonials, earnestly wishes for EMPLOYMENT in the office of a gentleman, or occasional assistance, to make fair drawings, tracings, &c. or to be useful in out-door work; the advertiser would be found most willing. The country not objected to, and salary moderate.—Address, Y. Z. (post-paid) Office of "The Builder," 1, York-street, Covent Garden.

TO ARCHITECTS, BUILDERS, &c.

A YOUNG MAN, aged 23, about leaving his present employer, wishes an ENGAGEMENT; country preferred. He is a good Gothic, perspective, and geometrical draughtsman, competent to take out quantities, keep builders' books, make out detail or finished drawings either in colour or sepia, and knows land surveying. Good references. Small salary only required.—Address, A. B. C. Harewood, Paddington.

BUILDER'S CLERK.—Wanted, by the Advertiser, a SITUATION: has been regularly brought up to the business, and has been in that capacity many years in an eminent builder's office, and accustomed to measure the various artificers' works, and in whom the utmost confidence can be placed; or as Clerk of Works having been engaged in several extensive works. Respectable references can be had.—Address (postpaid) to W. H. No. 1, Alfred-place, Long-lane, Southwark.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Country-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Taranne, Paris. Incorporated under 7 & 8 Vict. c. 110.

CAPITAL 200,000l.

This Company assures deceased as well as healthy lives for sums of from 5l to 500l.

The annual income is nearly 4,000l.

Lives declined by other offices accepted at equitable rates.

Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.

M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING-CLASSES,

BRANCH OFFICE—2, EXETER 'CHANGE, WELLINGTON-STREET NORTH, opposite Waterloo bridge, STRAND.

Open every Evening from Six till Eight o'clock

Subscription for ensuring payments of 3l. and up to 30l. payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—

Weekly Contributions for payment of 3l. at death

Healthy persons whose age on becoming subscribers shall be—

From 15 to 35 years, to pay One Penny per Week.

" 35 to 45 " " Twopence "

" 45 to 55 " " Threepence "

Collectors call at the houses of Subscribers for these weekly subscriptions.

The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.

Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.

N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to Mr JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 3, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—

POLICIES INDISPUTABLE, unless obtained by fraud.

All the MEDICAL FEES PAID by the Society.

Policies payable during the lifetime of the Assured

Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a temporary loan of the amount on application to the Board.

LOANS granted on Personal and other Securities in connection with Life Assurance.

Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.

THOS. MUSGRAVE, Secretary.

THE ROYAL BRITISH BANK, incorporated by Charter, besides transacting all ordinary Banking business, Continues to ALLOW

ON DEPOSITS for six months, 3 per cent. per annum; and on Deposits for shorter periods and at Call—interest varying with the amount and time in Bank;

And GRANTS

CASH CREDITS for indefinite periods, on sufficient securities, at 1 per cent. commission half-yearly on the amount of the credit, and 6 per cent per annum interest on the balance only at Debit; and

LOANS for short periods on marketable securities, at rates varying with the circumstances.

Every additional information and forms for opening account, &c. will be supplied at the Bank and its Branches, or sent by post on application.—By Order of the Court of Directors,

HUGH INNES CAMERON,

16, Tokenhouse yard, Lothbury, London. General Manager.

PHŒNIX FIRE ASSURANCE COMPANY, Lombard-street, and Charing-cross, London, Established in 1782.

TRUSTEES AND DIRECTORS.

SIR ROBERT HARRY INGLIS, Bart. M.P.

Decimus Burton, esq.	James Horne, esq.
Octavius Edward Coope, esq.	John Drewett Nagens, esq.
William Cotton, esq.	J. Masterman, esq. M.P.
William Harris, esq.	John Hetty Muspratt, esq.
George Arthur Fuller, esq.	Richard Price, esq.
Emanuel Goodhart, esq.	George Stacey Repton, esq.
James A. Gordon, esq.	Benjamin Shaw, esq.
Henry Grissell, esq.	Charles Hampden Turner, esq.
Joseph Owen Harris, esq.	Matthew Whitby, esq.
Kirkman Daniel Hodgson, esq.	Thomas Wilson, esq.
Thomas Hodgson, esq.	

ASSISTANT DIRECTOR—Thomas Richter, esq.

AUDITORS.

John Davis, esq.	John Hodgson, esq.
William Hammond, esq.	

SECRETARIES.

Wilmer Harris, esq.	George William Lovell, esq.

ARCHITECT AND SURVEYOR—John Shaw, Esq.

SOLICITORS, Messrs. Dawes and sons, Angel court.

Insurances against Loss by Fire are effected by the PHŒNIX COMPANY upon every description of Property, in every part of the World, on the most favourable Terms.

Persons insuring with the PHŒNIX COMPANY are not liable to make good the losses of others, as is the case in some offices.

Insurances with this Company expiring at Lady-Day must be renewed within Fifteen days thereafter, or they will become void.

Receipts are now ready at the principal Offices, Lombard-street and Charing cross, and with the respective Agents throughout the United Kingdom

GUARDIAN FIRE and LIFE ASSURANCE COMPANY, No. 11, Lombard street, London.

DIRECTORS.

Thomas Hankey, jun. esq. Chairman.
Sir Walter R. Farquhar, bart Deputy Chairman.

Henry Hulse Berens, esq.	Stewart Marjoribanks, esq.
John Dixon, esq.	John Martin, esq. M.P.
Francis Hart Dyke, esq.	Rowland Mitchell, esq.
John Harvey, esq.	James Morris, esq.
John G. Hubbard, esq.	Henry Norman, esq.
George Johnstone, esq.	Henry R. Reynolds, jun. esq.
John La'ouchere, esq.	John Thornton, esq.
John Loch, esq.	James Tulloch, esq.
George Lyall, esq.	Henry Vigne, esq.

AUDITORS.

A. W. Robarts, esq.	Henry Sykes Thornton, esq.
Lewis Loyd, Jun esq.	John Henry Smith, esq.

George Keys, esq. Secretary.
Griffith Davies, esq. F.R.S. Actuary.

LIFE DEPARTMENT. Under the provisions of an Act of Parliament, the Company now offers to future Insurers Four-fifths of the Profits, with Quinquennial Division, or a Low Rate of Premium without participation of Profits.

The next division of Profits will be declared in June 1855 when all Participating Policies which shall have subsisted at least one year from Christmas 1854 will be allowed to share in the Profits.

At the several past divisions of Profits made by this Company, the Reversionary Bonus so added to the Policies from One-Half the Profits amounted, on an average of the different ages, to about One Per Cent. per Annum on the sums insured, and the total Bonuses added at the four past divisions exceed 77,000l.

FOREIGN RISKS.—The Extra Premiums required for the East and West Indies the British Colonies, and the more hern parts of the United States of America, have been greatly reduced.

INVALID LIVES.—Persons who are not in such sound health as would enable them to insure their Lives at the Tabular Premiums, may have their Lives insured at Extra Premiums.

LOANS granted on Life Policies to the extent of their values, provided such Lives shall have been effected a sufficient time to have attained in each case a value not under 50l.

ASSIGNMENTS of POLICIES.—Written Notices of, received and registered.

Notice is hereby given, that Assurances which expire at Lady-day must be renewed within fifteen days at this Office, or with day must be renewed within fifteen days at this Office, or with Mr SAMS No. 1, St. James-street, corner of Pall-mall, or with the Company's agents throughout the Kingdom, otherwise they become void.

LONDON ASSURANCE CORPORATION, established by Royal Charter in 1720.

FOR LIFE, FIRE, AND MARINE INSURANCES.

Head Office, 7, Royal Exchange, Cornhill.

Branch Office, 10, Pall-mall, East.

Actuary, Peter Hardy, esq. F.R.S.

This Corporation is also prepared to grant Leases during One Hundred and Thirty Years, on the most favourable Terms.

JOHN LAPRENCE, Secretary.

IMPERIAL LIFE INSURANCE COMPANY, 1, Old Broad-street, London.

Thomas Newman Hunt, esq. Chairman.

John Hendriks Pelham, esq. Deputy-Chairman.

A NEW SCALE OF PREMIUMS on Insurances for the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 50 years.

FOUR-FIFTHS, or 80 per cent. of the Profits, are assigned to Policies every fifth year, and may be applied to increase the sum insured, to an immediate payment in Cash, or to the reduction and ultimate extinction of future premiums.

ONE-THIRD of the Premium on Insurances of 500l. and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at convenience, by which means 1,500l. may be insured for the present outlay otherwise required for 1,000l.

LOANS.—The Directors will lend sums of 50l. and upwards on the security of Policies effected with this Company for the whole term of life, when they have acquired an adequate value.

SECURITY.—Those who effect Insurances with this Company are protected by its large Subscribed Capital from the risk incurred by Members of Mutual Societies.

INSURANCES without participation in Profits may be effected at reduced rates.

SAMUEL INGALL, Actuary.

PROVINCIAL and CONTINENTAL GAS COMPANY. Capital, 50,000l. in Shares of 1l. each, to be paid at the time of subscribing.

This Company has been formed for the efficient working of a patent for an improved and economical method of manufacturing gas; the merits and value of which have been tested in works erected by the patentee, at the town of Newport, in the Isle of Wight.

The Committee of Management are prepared, through the patentee, to enter into contracts to construct new, and to alter and improve existing works, as likewise to undertake leases to light cities and towns in the provinces of the United Kingdom, and on the continent of Europe; and invite applications from places where an improved method of lighting by gas is required, as also where alterations are necessary in works already constructed; as likewise where leases are intended to be granted of existing works, all of which will have the immediate attention of the patentee, who will be ready to propose new and reduced tariffs regulated by the present prices charged, and other local circumstances.

Communications to be addressed to the Committee, who have made a reservation of shares for distribution in the provinces, and by whom advances will be made in aid of new works to such places as shall become interested in the capital stock of the Company, at No. 34, Great George-street, Westminster.

CARPETS.—BRIGHT'S SPLENDID VELVET TAPESTRIES. These goods being woven by steam power, are at least one fourth cheaper than handwoven goods of patterns more elaborate, and the quality equal to any Brussels carpets of old patterns, at a great reduction. French, silk, and worsted damask, warranted 54 inches wide, from 6s. 6d. per yard. Turkey carpets, floorcloths &c.—LEWIS and CUMMING, 4, Regent-street, Waterloo place (opposite Howell and James's).

TO PAPERMAKERS, WHOLESALE STATIONERS TEA DEALERS AND TOBACCO MANUFACTURERS.

MR. REMOND, 37, Great Charles-street, Birmingham, begs to call the attention of Papermakers and Wholesale Stationers to his PATENT EMBOSSING MACHINE, for the manufacture of Bags of an improved description, either in Paper or Tinfoil, which may be seen in operation upon his Premises. The Machine is simple in construction, but very effective in its operation; and each machine can produce bags of different sizes, not only in height, but in breadth, and the names of the party using the bag may be imprinted upon it by the same operation. Licenses for its use may be obtained as above.

Birmingham, Feb 28, 1852.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEAL to imitate OAK, MAHOGANY, or SATINWOOD on the principle of the GRAINING MACHINE, for the manufacture of Bags of an improved description, either in Paper or Tinfoil, which may be seen in operation upon his Premises. The Machine is simple in construction, but very effective in its operation; and each machine can produce bags of different sizes, not only in height, but in breadth, and the names of the party using the bag may be imprinted upon it by the same operation. Licenses for its use may be obtained as above.

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Birmingham, Feb 28, 1852.

MASONS' PROVIDENT INSTITUTION.—The Sixth Annual Meeting of the Donors and Subscribers to the above Institution will be held on Wednesday Evening, March 24th, 1852, in the Large Room, Hawkstone Hall, Waterloo-road, adjacent to the South Western Railway Terminus, for the purpose of receiving the Report of the Managing Committee and Auditors, the Election of Officers, and the adoption of a very important addition to the Rules of the Institution. The Chair to be taken at Eight o'clock precisely.

JOSEPH T. WHITEHEAD, Secretary.

PROVIDENT INSTITUTION of BUILDERS' FOREMEN. Established for the relief of its Decayed Members, Widows, and Orphans.

G. BAKER, Esq. Governor.

PATRONS.

The Right Hon. Earl of Carlisle.
The Right Hon. Earl of Bute.
The Right Hon. Earl of Ellesmere.
H. T. Hope, esq. M.P.

S. Angell, esq.	H. E. Kendall, esq. F.S.A.
G. Baker, esq.	J. Kirk, esq.
Thos. Cubitt, esq.	J. Locke, esq. M.P. C.E. F.R.S.
William Cubitt, esq. Ald. M.P.	H. Lee, esq.
J. Chadwick, esq.	H. Lee, jun. esq.
C. R. Cockerell, esq. R.A. F.R.S.	J. Mowlem, esq.
J. W. Donthorn, esq.	W. Nixon, esq.
T. L. Donaldson, esq.	T. Piper, jun. esq.
G. Godwin, esq. F.R.S.	W. Piper, esq.
S. Grimsdell, esq. F.S.A.	S. M. Peto, esq. M.P.
T. Grissell, esq. F.S.A.	G. Rennie, esq. C.E. F.R.S.
W. Harrison, esq.	Baron De Rothschild, M.P.
Thos. Hutchins, esq. [F.S.A.	W. Tite, esq. F.R.S. F.S.A.
P. Hardwick, esq. R.A. F.R.S.	J. Walker, esq. C.E.

The FIFTH ANNIVERSARY DINNER will take place at the London Tavern, on Wednesday, March 24, 1852.

T. PIPER, jun. Esq. in the Chair.

HONORARY STEWARDS.

A. N. Armani, esq.	H. C. Holland, esq.	G. Myers, esq.
J. M. Blashfield, esq.	J. Hunter, esq.	T. Nesbitt, esq.
R. P. Browne, esq.	T. Jackson, esq.	W. Norris, esq.
G. W. Baker, esq.	J. Jay, esq.	T. Nye, esq.
G. Brian, esq.	W. Jones, esq.	W. Penke, esq.
G. H. Ellis, esq.	K. W. Kennard, esq.	M. Pass, esq.
J. Clarke, esq.	G. Locke, esq.	C. Richardson, esq.
R. L. Curtis, esq.	S. Lee, esq.	T. Sterling, esq.
E. Carter, esq.	J. Lee, esq.	B. Stevens, esq
H. Christie, esq.	W. Lee, esq.	J. Taylor, esq.
H. W. Cooper, esq.	D. Lucas, esq.	J. Tillett, esq.
J. Dale, esq.	J. Little, esq.	H. Treggon, esq.
W. W. Dennis, esq.	G. M'clennan, esq.	S. Watkins, esq.
H. Dodd, esq.	W. Makes, esq.	W. Webb, esq.
G. H. Ellis, esq.	A. Mason, esq.	E. Wallis, esq.
J. Glenn, esq.	T. Magnus, esq.	T. Wallis, esq.
P. C. Hardwick, esq.		

ACTING STEWARDS.

Mr. T. Dwelley	Mr. W. Robertson
" J. Kay	" J. Wilson.
" A. Kimberley	

Tickets, One Guinea each, to be had at the London Tavern; also at the Bay Tree Tavern, City. WILLARD, Secretary.

Bay Tree Tavern, St. Swithin's-lane, March 1, 1852.

DAMP WALLS.—NEW PATENT PAINT, as applied on the THAMES TUNNEL, guaranteed effective and permanent inside or out, in quantities to finish 2½ square yards for 10s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and on wood, stretching the seed of Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. BELL and CO., Steam Mills, 2, Wellington street, Goswell-street.

HUBBUCK'S PATENT WHITE ZINC PAINT.—THE PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead paint.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These have for the most part recently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.

In justice to the proprietors these should not be confounded with the original, even though sold under the pretence, that it is all the same.

HUBBUCK'S Paint is entirely free from any injurious properties whatever, it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT;"

and if the cask has not been so marked, the reason is obvious.

A Circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

THE TWO GREATEST IMPROVEMENTS IN BUILDINGS.

THE SHEET ZINC from the VIEILLE MONTAGNE COMPANY is already so well appreciated in Gt at Britain for its superior quality, cheapness, and great durability for roofing purposes, &c. that we need only mention, that during last year nine-tenths of the sheet zinc used in London was for COVERING BUILDINGS, SHEATHING SHIPS, and other manufacturing purposes.

THE PATENT WHITE ZINC PAINT was first brought under public notice in England a few years ago by the patentees, the Vieille Montagne Zinc Mining Company. The superiority of this paint over white lead is now so incontestably established, that it will suffice to state that the Admiralty, and the most eminent professional men have adopted it ever since its introduction in the market. When used in an unadulterated state, its chief advantages are, cheapness, brilliancy of colour, hardness, durability, instantaneously-local air or gas, and paint injurious to health.—For further particulars apply to Mr. H. F. SCHMOLL, General Agent to the Vieille Montagne Company, 12, Manchester-buildings, Westminster.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being now prepared to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will meet the general approval it deserves because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent or thereabouts of Carbonic Acid, constitutive what is called in chemical language, Carbonate of Lead. There is no reason to suppose that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly discovered Oxichloride in most, if not in all respects is far superior; its colour is brilliantly white, and in a number of cases it has been tried beside the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface will at all times be understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time, the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead; and they now state the proportions to be as 80 to 100, that is, 80 lbs. of Oxichloride paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than Paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. Painters, Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly discovered substance to the notice of the public, both on account of its economy, and its intrinsic good qualities as a paint.

OFFICE IN LONDON.—Mr. R. CROSSLEY, No. 7, Size-lane. Office of the Washington Chemical Company, 73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

EVANS'S MINERAL OXIDE PAINTS. Office, 8, Philpot-lane, London.

Green	28s. per Cwt.
Lead Colour	20s. "
Stone or Drab	25s. "
Black	20s. "
Dark Brown	20s. "
Yellow for Tarpaulings!	22s. "

Packages of 1 Cwt. and upwards are not charged.

These preparations of the Mineral Oxide Paints will be found more durable, and at the same time more economical than any other paint.

They are proof against atmospheric action, gases, and salt water, of which the following testimonials are sufficient evidence.

"8, Bolister square,

15, April, 1851.

"GENTLEMEN,

"The result of the trial of your Mineral Oxide Paints on the Buoy manufactured by us for the service of the Honourable Commission of the Trinity House, has been very satisfactory, both as it respects its quality and the durability of the Paints, and the economy of cost.

"You are at liberty to make use of this testimonial in their favour. "We are, Gentlemen, your obedient Servants.

(Signed) "BROWN, LENNOX, and CO."

"4, Wharf Canal-road, Kingsland-road,

London, April 29, 1851.

"SIR,

"We have used your paint on the various works which we have constructed during the last seven years and have no hesitation in stating it to be the best and most durable covering for iron.

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(Signed) "WESTWOOD and WRIGHTS."

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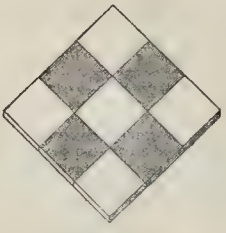
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PRIZE MEDAL OF THE EXHIBITION 1851

TO THE EDITOR OF "THE BUILDER."

SIR,—It is not because mutual advantage may have resulted, both to myself and your publication, in a business point of view, by a connection which has subsisted between us rather frequently from the origin of your journal, that I solicit you to publish the following remarks and correspondence,—intended to promote truth, as well as justice, as far as they may reach, on the subject to which they have reference; but I ask it on the ground of my willingness to pay for the whole as an advertisement.

Premising that three parties appear to stand in need of some such course as the present being taken, viz. first, myself; second, the several authors of such publications as had six months previously contained statements differing from the one now complained of; and third, the public, in all countries and in all future time. Premising further, that in the "Manchester Guardian" of the 17th January last, "Vitruvius, jun." (whose letter verbatim appears below), in addition to a question, or so as to whether the fact from which it is clear that the appendage to the reply as to the *tiles* was equally *gratuitous* as its purport is unfair, nor can its nature be improved by the equally unsought information as to the Honorary Architect that accompanies it. Premising lastly that the tiles in (as one approaches the houses) the *left*-hand ground-floor rooms were the only ones exhibited at KNIGHTSBRIDGE, with rare exceptions, to the public, owing to the occupation by a policeman and his family of the other tiled-floor rooms there; and that evidently, and from first to last, with exceedingly few exceptions, the tiles seen by visitors were *not* manufactured by the firm alluded to, but by myself, and were supplied as an item of sale and delivery in due course of trade—not as my IMPROVED quality, but according to the usual price paid for similar purposes.

mode of construction had been adopted elsewhere, asked merely where the "glazed hollow bricks" might be had, but made no inquiry as to the other "materials and fittings"—

With the above observations, I beg to enclose copies of four letters for publication at length, and to subscribe myself,

Sir, your most obedient servant,

THOS. PEAKE, Proprietor of Peake's Terro-Metallic.

4, Wharf, City-road-basin, London; and The Tileries, Tunstall, March, 1852.

(No. I.—Copy.)

"Vitruvius, jun." to the "Manchester Guardian."

"TO THE EDITOR OF THE 'MANCHESTER GUARDIAN.'

"SIR,—Presuming that you and many of your readers here had opportunities of inspecting the Model Cottages erected near the Crystal Palace, at Knightsbridge, I shall be glad to know if you or they are aware of the plan having been adopted in London or elsewhere, and what has been the result of the experiment, especially in an economical point of view, comparing the cost of building with the rent produced.

"Also, if you know where the glazed hollow bricks may be procured, and at what price per 1,000, to be delivered at Manchester and at Preston respectively.

"I am, Sir, your obedient servant,

"VITRUVIUS, JUN.

"January, 1852."

(No. II.—Copy.)

Messrs. John Ridgway and Co. to the "Manchester Guardian."

"TO THE EDITOR OF THE 'MANCHESTER GUARDIAN.'

"SIR,—We beg to reply to the inquiry of your correspondent 'Vitruvius, jun.' that we are the manufacturers of the patent glazed hollow bricks which are used in the interior of Prince Albert's model cottages, Knightsbridge. We have subsequently prepared others, and much better, for the exterior of the Waterworks Tower, at Rugby. We have not, as yet, been in a condition to supply the article for the erection of other cottages. Having perfected the enrolment of our patent, we are now preparing our works, and shall shortly be ready to execute orders. In the meantime, we are ready to receive application, and to give every requisite information.

"Respectfully yours,

"JNO. RIDGWAY and CO.

"Cauldon-place, Staffordshire Potteries, Jan. 22, 1852.

"The Prince's Cottages were planned and executed by H. Roberts, esq. of London: the tiles were manufactured by Messrs. Haywood, Brownhills, in the Staffordshire Potteries."

(No. III.—Copy.)

Mr. Peake to H. Roberts, esq.

"4 Wharf, City-road Basin, London, 4th February, 1852.

"SIR,—It is not without hesitation that I have ventured to trouble you with a subject calculated to do me *injury*, in a way which I have not been able to reconcile with either justice or truth.

"In order to enable you to comprehend my meaning, without much trespass on your time, I beg to enclose from the 'Manchester Guardian' of the 24th ultimo, the subject referred to, appended to a letter by 'Jno. Ridgway and Co.' in these words:—'*The tiles were manufactured by Messrs. Haywood, Brownhills, in the Staffordshire Potteries.*'

"When I reflect that Mr. Ridgway is doubtless the writer of these words, and that his professions of friendship towards me have been so marked; considering also what has appeared in respect of the tiles in 'The Builder,' 17th May, 1851; 'The Labourers' Friend,' June ditto; as well as in the large number of handbills distributed at the Model Cottages in the Crystal Palace; considering the interest which Mr. Ridgway had as an inducement to peruse carefully all that was issued relative to the subject, I am unable to refrain from the apprehension that because I have not adopted his *Patent Kilns*, although so long and sedulously urged to do so, nor had so much confidence as to adopt his *advice* in another negotiation as to real property, is this persecution launched against me, in a locality so distant from The Tileries, as well as from this Depôt, that it might have worked without my knowledge to my damage, but for the kindness of a friend.

"Pardon the liberty taken by,

"Sir, your obedient and faithful servant,

"To H. Roberts, esq. 10, Connaught-square." "THOS. PEAKE.

(No. IV.)

Copy of a Letter from H. Roberts, esq. to Mr. Peake.

"SIR,—I do not let one hour pass without replying to your note of to-day's date, and expressing my astonishment, that any one should have done you the injustice of publishing the exclusive statement made in the postscript to the letter in the 'Manchester Guardian,' signed Jno. Ridgway and Co. which you have sent me.

"Your tiles were used to the same extent in H. R. H. Prince Albert's Model Houses as those of Messrs. Haywood, and I consider them *fully* equal in quality, otherwise I should not have subsequently ordered roofing tiles from you to be sent into Scotland for the Earl of Galloway.

"Two compartments of the model structure, placed in the Exhibition, by the Society for Improving the Condition of the Labouring Classes, were laid with your tiles, and although trodden on, probably by some millions of persons, they appeared to wear remarkably well.

"I wish that you, or some other enterprising manufacturer, would direct attention to the glazing of hollow bricks, which may be easily done by the same process as is adopted at Sunderland, in the lining of common brown earthenware pans; the effect, I believe, would be very similar to that of the glazed bricks used in the Prince's Model Houses, the cost of which preclude their general use.

"I am, Sir, your obedient servant,

"HENRY ROBERTS,

"Hon. Architect to H. R. H. Prince Albert's Model Houses, and to the Society for Improving the Condition of the Labouring Classes.

"Mr. Thos. Peake.

"The glazed bricks used in the Prince's Model Houses are not 'Patent Glazed Hollow Bricks,' as designated by Messrs. Ridgway and Co. but the larger portion of them are glazed 'Patent Bonded Hollow Bricks,' the patent being for the form of brick, and not for the glazing; at least, I am not aware of Messrs. R. and Co. having any patent for the process of glazing such bricks."

The Builder.

No. CCCCLXXVII.

SATURDAY, MARCH 27, 1852.

IN the present number of our journal, we give a view of the addition about to be made on the west side of Somerset House, in completion of the original design.*

Somerset House, as we now see it, the work of Sir William Chambers, was commenced in 1776, and was in progress more than fourteen years, since, it appears by a report laid before Parliament in 1790, that 334,703*l.* had been then expended, and that an additional sum of 33,500*l.* was still wanting to complete the building. According to Mr. Brayley, in "Britton's Public Buildings of London," which contains a plan and five views of the structure, full half a million of money was ultimately expended upon it, and it was then left unfinished. The whole of the accounts, we may mention, have recently turned up, and will probably afford matter for publication.

That Chambers was not more correct in his judgment as to the probable cost of the work than some architects of modern days, is proved by the circumstance that, in a report presented by him to the House of Commons, he said he thought, though there were difficulties which prevented accurate computation, that the cost certainly would not exceed 250,000*l.* What do we now care whether it cost a quarter of a million or half a million; and how much does the question affect the opinion we form of the building and its designer? Nothing. Nor will any ask a century hence, when contemplating some of the buildings "run up" in our time (if they last so long), what *these* cost, or find in the small outlay, if they *should* ask, any reason for withholding condemnation. Prudence and circumstances must, of course, regulate expenditure. If we must have a building for a particular purpose, and have only a certain sum of money, the building must necessarily be just what we can get for that money. But those who build for the approbation of posterity must care nothing about the outlay: they must do their *best* so far as they go, and leave those who come after to finish it. Posterity will not ask, What did it cost?

The first Somerset House had its name from its founder, Edward Seymour, Duke of Somerset, known as the Protector. It was commenced about 1548, and was not finished in 1553, when he lost his head, partly because he had built sumptuous houses, "leaving the King's poore souldiers unpaid of their wages." The design of the building has been attributed to John of Padua, described in the time of Henry VIII. as "Devizer of His Majesty's Buildings." In a folio of designs by John Thorpe, now in the Soane Museum, the first drawing is a ground plan of old Somerset House; but in what way Thorpe was connected with the building (if at all) does not appear.

After the attainder of the Protector, Somerset House devolved to the Crown, and was made the residence of some of our queens. Anne of Denmark and her ladies appear to have had much fun there, appearing "like so many sea nymphs or nereides." The queen of Charles I. made it the head quarters of Roman Catholicism, and established there a convent of Capuchin friars. In 1642 the Parliament ordered "the images and monuments of idolatry in the chapel there to be demolished," and the friars to be sent into France. Here died Inigo Jones; and during the occupation of the building by the wife of Charles II. it became the reputed scene of the mysterious murder of Sir Edmund-Bury Godfrey. In 1775 "Buckingham House" was settled on Queen Charlotte in lieu of Somerset House; and under an Act of Parliament the latter structure was taken down, and the present building erected to contain certain public offices.

When we say that Somerset House is one of the finest structures of which the metropolis can boast, we scarcely give it the precedence it deserves. The admirable proportions and excellent details of the Strand front, the elegance of the open vestibule leading into the noble court-yard around which the offices are placed, the internal distribution, the river front, though not without objectionable points, and the decoration of the interior, have obtained for the architect the praise of those best qualified to judge. As a piece of masonry, it is unrivalled: the masks of river deities on the key-stones of the arches, by Carlini and Wilton, are admirably executed.

Of course it was abused at the time. One Williams, under the name of Anthony Pasquin, published a clever but wholly disingenuous attack on the building, which is partly reprinted in Mr. Joseph Gwilt's admirable edition of Chambers's "Treatise on Civil Architecture," known to all our professional readers; at all events it ought to be. The soundness of the charges may be judged of by two or three paragraphs. He says:—

"This surprising, stupendous, and extraordinary heap of stones was called into order by the magic voice of that pine-apple of knighthood, Sir William Chambers, at the command of the great and sapient council of this realm in 1774. It occupies a space of 500 feet in depth and 800 feet in width, and is altogether a most astonishing assemblage of contradictory objects. The entrance, or atrium, is so unappropriate that it looks like the narrow mouth of economy, through which we grope our passage to the vast stomach of national ruin. The arcade is borrowed from the *strada della dora grossa*, at Turin."

"There is an unfortunate allusion to royalty. The entablatures of this vestibule are covered with cyphers, emblematic and appertaining to the King, Queen, and Prince of Wales. Surely no true subject can approve of annexing the characters of cyphers to such august personages! If there is any novelty or genius evident in this sportiveness of fancy, it is so thoroughly republican and indecent, that it should immediately be effaced."

And again—

"The names of the sculptors who were employed in the decoration of the exterior, are Carlini, Wilton, Geracci, Nollekens, and Bacon. I have chronicled them as sculptors, not statuaries, as neither appears *to have cut a figure* in this business!"

The smartness of the *jeu d'esprit* has saved it from the oblivion it deserved.

The east wing of Somerset House was left incomplete by Chambers; but in 1829 the vacant space was filled up from the designs of Sir Robert Smirke with the buildings for King's College. The west side, or that next Wellington-street, has remained unfinished till now, flanked by some ungainly brick dwelling-houses, springing out of a deep pit. In consequence of the consolidation of the Boards of Excise, Stamps and Taxes, &c. into one Board (the Inland Revenue), it became necessary to abandon the Excise Office, in Broad-street, City, and bring all the establishment under one roof at Somerset House; and Mr. James Pennethorne, the architect to the Board of Works, was directed to make designs for the completion. By the alteration proposed, a large annual saving will be effected, and the cost of the new buildings will be met by the sale of the old Excise Office, so that no expense, we understand, will be incurred by the public for the completion of this side of Somerset House.

The whole extent of the new front is 300 feet. At the south end the new building is kept about 25 feet behind the river front, so that the uniformity of that front may not be interfered with. All the details are to be copied *exactly* from existing parts of Somerset House; but the centre portion of the new front (which will not be seen from any point of view at the same time with the river front) has an attic, and the chamber-windows are heightened, to meet internal requirements.

The sculptures, we are informed, will be placed in the hands of a first-rate man.

The north wing projects about 55 feet; the south wing about 48 feet; and there is a want of squareness in the arrangement of them produced by an adherence to the line of street (if the plan now before us be correct), the probable ill effect of which may be usefully reconsidered by the able architect engaged. It has been stated in some of the newspapers that in consequence of certain arrangements made by the present administration, the proposed addition will not be proceeded with. We cannot learn, however, that there is any reason to suppose that this is correct. Tenders for the execution of the south wing will be received this week, and others for the remainder of the building will speedily follow.

OF THE MAINTENANCE AND RESTORATION OF ANCIENT MONUMENTS,

MORE PARTICULARLY IN REFERENCE TO THE ROYAL TOMBS IN WESTMINSTER ABBEY.

THE reparation of public monuments is a question mixed up with a variety of feelings of the highest importance, and influenced by deep-rooted prejudices, which, however, are entitled to our respect and consideration. It therefore becomes a subject deserving to be fully and dispassionately analysed, in order that we may be able to appreciate its bearings under every point of view.

There is a class of the lovers of antiquity,—earnest, deep, and true—who think that as there is a pedantry in literature, so there may be also a pedantry in archæology and picturesqueness; and to whom it appears that, in all this strife of antiquarian and artistic opinion, one great leading, it might be said, conclusive, consideration, is entirely lost sight of, namely, the intention of the royal founders of these tombs. They would ask, what was the original aim and object of the erectors of these memorials of departed worth? Was it not to hand down the memory of the virtues and other qualities of the deceased; to bring vividly before the people of each successive age the remembrance of former glory? A lesson to posterity, a testimony of pious duty? Was it for perpetuity or for a century or two? If the latter, why were they so liberally and munificently endowed for their maintenance and religious observances? We must all admit the object of the royal founders to have been this, *that the monuments should be maintained.* Have we a right by neglect to permit this intention to lapse? We have not inherited these memo-

* See page 201.

rials to allow them to perish. What if, during times of strife and revolution, the hand of violence has defaced and injured them,—ought we not to repair the wanton destruction, and to efface the memory of an act dishonouring to humanity?

Let us fancy the shade of the mighty conqueror of Agincourt, regarding with wonder the mere fragment of his monument, once raised with so much cost and magnificence, and imagine his indignant reply, when addressed in the following terms. "Sire, you have, by your noble character and deeds, acquired a place in the affections and respect of Englishmen. Behold your tomb! The stone is decayed,—yet could be easily and authentically restored: the niches are without the groups with which they were once adorned, and rendered full of meaning; but we have artists of learning, who could, from the subjects still existing around the canopy, restore the sculptures with faithfulness and truth, although not the precise ones which once existed, for of them there is no fragment left. From authentic memorials we could restore the head and hands, and invest the wood block with its metal covering. We could restore the couchant dogs at your feet, and the angels under your pillow. And once again, instead of the crumbling stone and the shapeless headless block, your tomb might be worthy England's mighty sovereign, and the conqueror of Agincourt. But the scrupulous antiquarian, distrustful of an exact transcript of what was once there, forbids the stone to be restored, the statue to resume its parts, and the tomb of their mighty monarch to be a decent memorial of thy noble worth!"

Are we not, then, called upon to respect the intention of the erectors of these noble memorials? Most of the work that is required to be done to the royal tombs in Westminster Abbey demands only a thorough knowledge of the subject, and no novelty of invention. The operation would to a degree be merely mechanical in the well-informed artisan, who, under the direction of the judicious architect of the Abbey would have only to copy with truthfulness and spirit the remains still spared.

Is the genius of a Torrell better understood without the restoration of the sceptre and tabernacle work, and other accompaniments of the exquisite figure of Eleanor of Castile? Can the beauty of the design of the mosaic work of Peter of Rome be more easily appreciated by a few scanty fragments inlaid by his artisans—for he himself had possibly never laid a tessera—than when identically completed by English workmen? Queen Philippa has lost her fingers: does this add to her antiquarian identity?

But there is this very important consideration connected with the restoration of these monuments, that, exclusive of the headless block of Henry V. not one of the effigies requires touching, excepting the hands of Philippa, already noticed. The main proof of identity as regards these monuments, is in the statue, not in the subordinate architectural accompaniments. Henry III. is perfect; so is Eleanor of Castile; so is Edward III.; Richard II. and his queen, Anne of Bohemia. Were all these statues disfigured, and their features mutilated, then might the propriety of restoration assume a more questionable shape. But when the mere mechanical portions, as it were, of the structure only require to be renewed on sufficiently well preserved remains, under the present architect of the dean and chapter, to whom the task would doubtless be entrusted, there need be no great fear of losing the impress of fidelity and truth, upon which depends, I freely admit, so much of the value and respect we willingly accord to these precious monuments of England's past worth. Surely the crumbling material is not to be more honoured than the glory of art-thought with which it was once invested.

We would ask the most impassioned admirer of the sculptures of antiquity, whether the arms restored by Bernini to the Venus de Medici have destroyed the beauty of the queen of love? Would the Laocoon's *agony* appear more touching, and the sculptor's conception be better indicated, if this splendid group had been left to our days without the arms which Bandinelli replaced, and one of the sons unrestored at his side? Would the Apollo Belvedere acquire more authenticity, and give more satisfaction to the mind of the beholder, were it without the left hand and part of the drapery, and the right hand sadly mutilated?

But, it may be asked, would you have the Theseus or the Ilissus of the Parthenon restored? Certainly not! In the one case, the question is as to the renewal of a hand, a foot, or an arm; and the mere mechanical restoration of these puts us at once in possession of the whole design. But in the other, the state of dilapidation is unhappily so complete, that the appreciation of their value is almost confined to the artist, and to those whose familiarity with the works of the ancients, and whose mature studies of antique art enable them to fill up the vast hiatus which time and wanton destruction have caused in these unapproachable remains of the highest efforts of human genius.

Architecture, on the contrary, is essentially, as Quatremere de Quincy justly observes, a work consisting of similar parts, which can by exact observation be identically copied and reproduced. Thus the angular column of the portico of the Pantheon of Rome, and the entablature above, have been restored; the ordonnance of the proportions preserved, and the mind enabled to value all the harmony of its eurithmy. Previously this was lost. The ruin was an abstraction. The parts were admirable,—the whole unappreciable. Where is the most zealous antiquary who would wish the return to the state of ruin? In fact, to restore is to preserve. Without this Henry the Seventh's Chapel might be a ruin, and its magic interior at this moment strewed with masses of its former grandeur, lying amidst grass and weeds, like the majestic piles of S. Bavon at S. Omer, the Chapel of Holyrood at Edinburgh, or the many abbey churches in England illustrated in the admirable work of Mr. E. Sharpe, of Lancaster.

Vain would be the hope to revive all the splendour and the original state and dignity of these royal tombs. Decent preservation and repair, however, may help us to realise less imperfectly, less unsubstantially, the beautiful and perhaps matchless productions of a period still imperfectly known, little estimated, often misunderstood, and too many of whose admirable creations are unhappily irretrievably lost. Surely it is our duty to redeem from their present state of degradation, and save from absolute decay, these incomparable memorials? Shall it be said that their value consists in their mutilations, and the absence of all their original harmony, proportion, and completeness, or in that perfect relation, that exquisite combination of all the parts, and that glorious integrity of the whole design which embodied the noble conception of the designer, and once rendered them fit receptacles for the ashes of the glorious dead whom it was their destiny to enshrine?

But there is another collateral point of view in addition to their historical and religious claims, which renders the due repair of these tombs a matter of national importance. I would appeal on the ground of the educational influences which a decent restoration of the tombs would have upon the public mind. The process of reintegration would create a school of skilled artists in glass mosaics, metal work, and enamel. We are now satisfied with confining enamelling to the smallest trinkets, as a brooch or a ring, while, four or five hundred years ago, it was profusely lavished on the reliquaries and tombs, and appears on the coronets once set with jewels, on the ensigns of dignity, on the coats of arms, and even once existed on the incised brass slabs let into the pavement. And should we not gain another source of brilliant decoration by the revival of the glass mosaic in all its varied contour and sparkling tones of colour? The visitors would then be able to enter into the spirit of the original design. There would be a magnificence of conception and brilliancy of effect, that would instruct and elevate the mind of the observer. Our nobles and our gentry would entertain a higher respect for the arts of past times, and seek to apply them in the execution of other monuments in the like manner. A richer fancy might arise—a greater love for the more elaborately finished detail. By the restoration of the paintings on the canopies—no impossible work with the authentic materials we have now at command to guide us—we should understand more of the pictorial art of those times, and learn to love their simplicity, dignity, and grace, enriched by glowing tints and varied costume.

There is one striking fact connected with the state of decay and dilapidation in most of the monuments in Westminster Abbey well worthy remark. The disfigurement in the greater number, whether from fracture of the parts or disintegration of the material, does not date beyond a century and a half. When the tomb of Philippa was recently cleared of some rough construction, in which it was inclosed about 150 years since, a portion of the Purbeck marble was there found entire, which, where exposed, had perished. Careful and trustworthy chroniclers of the Abbey of the time of Charles II. describe tombs which do not now exist. An old print shows the monument of John of Eltham in S. Edmund's Chapel, as it then remained, with its lofty stone canopy, gables, and finials complete. All these parts of the superstructure were, according to Brayley, removed only fifty years since by Dean Pearce. By the advice, as I am informed, of the late Sir Francis Chantrey, the ornamental iron-work, coeval with the tombs, was removed, under the idea that it afforded facility of reaching and destroying the carved work. Within the memory of many, the canopy of the superb memorial of Aymer de Valance was in pieces, lying in the Islip Chapel; and in Neale's view it is represented much dilapidated, and has been since restored. According to all accounts, the coronation of George IV.—not to mention more recent like ceremonials (and on such occasion the architect of the Abbey is superseded by the officials of the Board of Works)—was the cause of frightful devastations, never since made good. Mischief and robbery, then, have done their worst, in modern time, to the valuable, and historical, and royal mementoes, but the needful works which, at the present propitious period, might restore them to a decent state of preservation, and call back their historic worth to the student and visitor of the present day, is denied by the timid, not the enlightened antiquarian, and by the musings and ruinous tendencies of the visionary lover of the picturesque.

I would then venture to suggest, that, in order to afford every safeguard to a matter connected with the Crown, a royal commission should issue, addressed to a member of the royal family, to the proper ecclesiastical authorities, and to men well versed in the arts of the mediæval times, learned in the antique, sober-minded, intelligent as artists, skilful in the mechanical workings and processes of those periods.

Could we call in question the ultimate decision of such a tribunal, appointed for the maintenance and due reparation of the royal tombs, with proper regard for the authenticity of each detail, the period of the style of art, and the authority of contemporaneous memorials?

To carry this into effect properly it would be requisite that drawings should be taken of every tomb and casts of the parts. But not of all at once, for this would occupy so long a time, that the impression of the subject upon the public might be evaporated, and the cost might be considerable, without one substantial step taken in the work of repair—without one tomb having been rescued from its crumbling state to show in it the efficiency of the operations proposed.

Let us then resume the principles, which we have just considered, in the following summary or canons of repair and restoration:—

That a commission do issue from the Crown for the maintenance and due reparation of the royal tombs, presided over by one of the Royal Family, and composed of the Archbishop of Canterbury, the Bishop of London, the Dean of Westminster, one

of the Secretaries of State, the Chief Commissioner of the Woods and Forest, of the Presidents of the Royal Academy, of the Royal Institute of British Architects, and Society of Antiquaries, together with such other intelligent and experienced architects, painters, sculptors, and antiquaries as the Sovereign may consider well versed and learned in the history, arts, and antiquities of the country.

That no restoration of any monument be commenced until drawings have been made of its actual state, casts taken of the portions connected with those parts intended to be restored, and detailed illustrations have been prepared of the monument, as proposed to be repaired or renewed.

That no work be proceeded with until all the drawings for the restoration have been approved by the commissioners, and have received the assent of the Crown by the sign manual.

That no departure be hazarded from the authentic and historic authority of the precious original.

That as regards the effigies of the Royal deceased, no feature be renewed from fancy, but only restored on the authority of the most unquestionable existing likeness of the individual personage.

That limbs or the extremities or minor parts may be restored, due regard being had to the character of the rest of the statue.

That architectural details may be restored from existing remains on the same monument, or from like parts, or other similar works of the same period.

That no entire renovation of a feature of the countenance of the effigy or part of the architecture should take place, for which there is no authority in the same monument, unless there be an authentic description or other memorial of the ancient times relating thereto.

That no restoration should vary from the parts still extant, either for the sake of greater (presumed) correctness of arrangement, or more (supposed) purity of design or detail.

That none of the work should be designed, directed, or executed, except by those who are men of established reputation, who have already done like works, and are thoroughly acquainted with the character and period of the monument to be restored.

With such safeguards, we surely guarantee the identity of these Royal and National monuments with their original conception. I would not, I dare not, ask for perfect renovation. I claim only decent repair; and that we may cast from ourselves the reproach to which we have too long been liable, from the wanton and wilful neglect—I may say destruction—of this sacred inheritance, whose actual state is dishonouring to the nation and to the times in which we live. T. L. DONALDSON.

At a meeting of the Institute of Architects, on the 22nd inst. the consideration of this subject was renewed, and it was ultimately resolved unanimously, "That the Council be requested to draw up a humble address, to be presented to the Queen, praying that her Majesty will be pleased to appoint a commission, for the purpose of taking into consideration the dilapidated condition of the Royal tombs in Westminster Abbey, with a view to the adoption of such measures as may be proper for the preservation and perpetuation of these important national monuments; and that the seal of the Institute be fixed thereto."

THE NEW DOCKS AT GREAT GRIMSBY, LINCOLNSHIRE.

GRIMSBY, situated near the mouth of the Humber, on its south bank, was from a very early date a port of great consideration, being even in the time of Edward III. of sufficient importance to be called upon to furnish that monarch with eleven vessels and 170 mariners for his armament against Calais. The gradual blocking up of the harbour by the accumulation of mud and sand led to the decay of the port until it was renovated by the exertions of some of the neighbouring landed proprietors about the beginning of the present century, who, impressed with its applicability from its sheltered position, being protected from the storms of the German Ocean by the Spurn Point promontory, and having a fine roadstead, affording a safe and convenient anchorage for ships at all times, besides its good natural harbour, desired to restore it to its former consequence, and establish there an emporium for a large export and import trade with the Baltic and other parts of Northern Europe. A dock was constructed, extending inland about a mile southward from the sea, a canal being cut through the foreshore to the entrance; but this, from the local peculiarities of the Humber, and the deposit brought down by its waters, was liable to be silted up, so that at certain times of the tide access to this dock was almost impossible, and at all times it was found to be very inconvenient, especially for larger vessels. This was the state of things previous to the commencement of the present works, and for a long time the trade of Grimsby had been on the decline, partly from the causes before mentioned, but principally from the fact, that it had not, at so early a period as other places, the advantages of improved means of inland transit. When, however, railway communication began to be extended into Lincolnshire, when Grimsby was put in connection with London, and the southern and south-eastern counties generally, by means of the Great Northern and East Lincolnshire Railways, when it was linked with the vast manufacturing districts of Lancashire and Yorkshire by means of the Manchester, Sheffield, and Lincolnshire Railway, no wonder that the directors of the latter company should have had their attention drawn to, and have perceived the great natural facilities and opportunities for making Grimsby a large "water terminus," as it has been aptly termed, to these railways. They purchased the old docks and works, but feeling the total inadequacy of these to carry on the trade they hoped to re-establish here, it having been temporarily drawn away by the artificial appliance offered elsewhere, they determined on carrying out the extensive works now nearly completed, which, beginning where the old works left off, at high water mark, extend for a distance of about five-eighths of a mile seaward, and inclose a space of nearly 140 acres, reclaimed from the foreshore, and over which the water of the ocean lately swept: one-third of this is reserved for the Crown. The artificial defences surrounding this enclosure consist of a wall of chalk-stone rubble, backed by a puddle bank, and faced with piles on the west side; and on the east, of an embankment of chalk stone, and a wall of the same material, separated by a puddle bank. Between these and opposite to the entrance locks, a coffer-dam, 1,500 feet in length, forming the arc of a circle, the versed sine of which is 200 feet, composed of three rows of whole timber piling, was constructed. This required to be entirely self-supporting, and as it was situate in a very exposed position, subject to a daily rise of tide of 25 feet, and frequently to violent and severe storms, it is satisfactory to record that it has most efficiently answered its purpose, and fully justified the encomiums which Sir William Cubitt once passed upon it, that "it was the longest, the strongest, the deepest, and the soundest work of the kind he had ever seen." It took in its erection above 60,000 piles, averaging from 75 to 45 feet long: it was taken too by the present contractors at the sum of 40,000*l.* It was originally intended to have had but one entrance to these docks, but Government, before giving their sanction to the scheme, acting under the advice of the Admiralty, required an undertaking that the entrance should be of sufficient size to admit of the passage of the largest steamer in the Royal Navy. The company's engineer thereupon recommended that there should be two locks, one 300 feet long by 70 feet wide, and the other 200 feet long by 45 feet wide, for ships of ordinary burthen; by which means the loss of water which would have ensued from using the larger one on all occasions was provided against. When it is considered that the basin is not tidal, but supplied by the fresh water which is gathered from the hills, &c. in the neighbourhood, to prevent that deposit of silt to which all tidal harbours are liable, the judiciousness of this recommendation will be readily admitted: this obligation on the part of the Admiralty entailed an extra outlay of about 50,000*l.* on the company.

The basin, or float, to which these locks give access, for twelve hours out of the twenty-four, to the largest war steamer, and for twenty to ships of lesser dimensions, is rather more than 25 acres in extent, bounded by three quarters of a mile of quay, built on arches, on which eventually extensive warehouses will be constructed, a beginning having been already made by the company. On these quays railways are to be laid, so that it will be possible to load and unload from the shipping to the rail without intermediate carriage or labour. In front of the locks there will be a tidal basin of about 20 acres in extent, surrounded and protected by timber jetties within which vessels may ride in safety when they cannot enter the dock, or at which they may land passengers when they do not require to do so; the east horn being already nearly finished. All the timber intended for permanent purposes has been submitted to a preservative operation,—the injection of hot oil of tar under atmospheric exhaustion.

A very conspicuous object on the works is a lofty and graceful tower of red brick, raised to a height of 230 feet, about 30 feet square at its base: this is for the purpose of accumulating a store of water for giving motion to one of Mr. W. G. Armstrong's beautiful water-pressure machines for opening and shutting the lock gates, and to be otherwise employed in the relief of a vast amount of labour. It is the intention to raise this tower above the tank another 70 feet, to serve either as a landmark or lighthouse.

To give an idea of the amount of material consumed in this large undertaking in the docks alone, we may mention that there were used from 400,000 to 500,000 cubic feet of Ashlar, mostly from the Anston quarry, as used at the new Parliament Houses; 250,000 cubic yards of rubble; 380,000 cubic yards of chalk; 40,000 tons of blue lias from Lyme Regis, and that there were 1,000,000 cubic yards of excavation. All this was said to be *in sight*, but what was *out* it was utterly impossible to say: the only thing kept any registry of was the timber, and under the quay walls, lock bottoms, &c. the piles, if placed end to end, would measure 75 miles, and the timber laid on the pile heads, 40 miles, in all, 115 miles of timber, 12 inches square. The total cost of the docks will be about 750,000*l.* The works were designed by Mr. James M. Rendel, president of the Institute of Civil Engineers, and have been carried out under his direction, as engineer-in-chief, by the resident, Mr. Adam Smith: they were commenced in the spring of 1846, and in the month of April, 1849, H.R.H. Prince Albert laid the first stone, a large block of "Bramley fall," weighing 11 tons, with great ceremony.

To commemorate the proximate completion of this undertaking, which it is expected will be partially opened by the middle of May for traffic, the contractors, Messrs. Hutchings, Brown, and Wright, who have been engaged upon them for the last three years, and by whom the work has been done in a very satisfactory manner, entertained the chairman and directors of the company, and a very large party of scientific—and unscientific—gentlemen, numbering about 350, under a tent, erected in the bottom of the large dock, with profuse liberality, special trains being engaged for the conveyance of their guests from London and Manchester. The visitors from London left about eight o'clock in the morning, travelled some 156 miles, spent seven hours at Great Grimsby, returned the same distance, and found themselves again at London, an hour later than they should have been but for some trifling mishap, about twelve, thanks to the Great Northern and East Lincolnshire Railways; a striking contrast to the state of things at no earlier a date than 1816, when some personal luggage sent from Grimsby by smack, the then only means of conveyance, was *en route* for the metropolis *eight days!*

We cordially wish success to Great Grimsby.

BRADSHAW'S RAILWAY GUIDE.—An improvement has been made in "Bradshaw's Sixpenny Railway Guide" for the current month. The figures in red ink on the map, annexed to the various lines, refer to the pages of the book, thus affording the traveller the means of obtaining the information requisite for his journey, and furnishing him at a single glance with the shortest route he can take.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

SINCE you assure me that I did not say a word too much about the Great Pyramid in my last communication, and repudiate the necessity of "putting a trimming" to such subjects to render them agreeable to you (in fact, you seem almost disposed to give me one for the supposition), I shall add to those particulars a sketch of the entrance to the Pyramid (fig. 11), which is formed on the north face, and is on the level of the 15th step from the foundation, about 47 feet from the ground. I do this merely to draw your attention to the shape of the arch, if it may be called so, by which the weight above is thrown off the opening. It consists simply of inclined stones leaning one against the other, forming a triangle,—an arch of straight sides,—and if you turn back to the small section in my last letter (fig. 7) you will see that the "King's Chamber" is covered in a similar way. I am desirous to show you the coincidences in the architecture of various nations,—the connection and progress, in fact, which are traceable in architecture from the first to the last,—and we shall see by-and-by the recurrence of this triangular arch in the early works of other peoples.

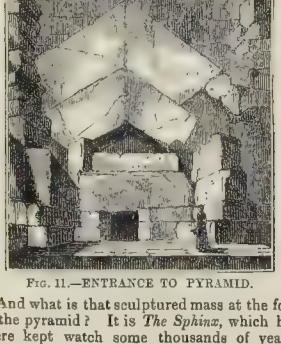


FIG. 11.—ENTRANCE TO PYRAMID.

And what is that sculptured mass at the foot of the pyramid? It is *The Sphinx*, which has there kept watch some thousands of years. This extraordinary monument was 125 feet long: the legs extended 50 feet. There was a temple between the legs, and another in the paw, the whole sculptured out of the living rock. The history of it is lost in obscurity. Some have attributed it to Cheops, and expect that his tomb might be found beneath it; others to Thotmes III. at the date of the Exodus. A subterranean communication between the sphinx and the pyramid has been talked of, but the whole is matter of speculation. The sand has been cleared away from a portion of the figure, but much of it is still buried.

I may remind you here, that the sand has played a preservative part in Egypt, and has saved for future investigators much that would otherwise have disappeared,—like the whitewash in mediæval works, as we shall see hereafter,—if your patience last long enough. Miss Martineau says, in her "Eastern Life,"—"If I were to have the choice of a fairy gift, it should be like none of the many things I fixed upon in my childhood, in readiness for such occasions. It would be for a great winnowing fan, such as would, without injury to human eyes and lungs, blow away the sand which buries the monuments of Egypt. What a scene would be laid open to them! One statue and sarcophagus, brought from Memphis, was buried 130 feet below the mound surface. Who knows but that the greater part of old Memphis, and of other glorious cities, lies almost unharmed under the sand! Who can say what armies of sphinxes, what sentinels of colossi might start up on the banks of the river, or come forth from the hill sides of the interior, when the cloud of sand has been wafted away!"

All will be discovered in good time: we are not yet ready for it: it is desirable we should be farther advanced in our power of interpretation before the sand be wholly blown away. But, in truth, it will need a high wind to do it, begin when it may.

Amongst the colossal works executed by the Egyptians, the Labyrinth seems to have been one of the most extraordinary. Herodotus says the pyramids were inferior to it, and that it surpassed both in workmanship and expense all the works of Greece. It contained 1,500 apartments above-ground, and as many below. (Euterpe.) Those above-ground he saw; and pronounced them among the greatest efforts of industry and art. "The ceilings and walls," he says, "were all of marble, the latter richly adorned with the finest sculpture; and around each court were numerous pillars of the same material, highly polished." It is supposed to have been a sepulchre. Strabo describes winding passages in it so artfully contrived that it was impossible to enter any one of the palaces, or to leave it when entered, without a guide: and recent discoveries tend to prove the general correctness of the accounts. As Byron says,—

> "So much for monuments that have forgotten
> Their very records."

It is in Thebes, the hundred-gated,—the city of giants, as it has been termed,—that we find the most striking and genuine specimens of Egyptian art. All travellers concur in stating, that the appearance of the extraordinary assemblage of ruins here found exceeds the power of description; and though it may not be literally the fact (as stated by Denon), that the French army, on first getting sight of the mysterious piles, halted of their own accord, and with one spontaneous movement clapped their hands,—the story only gives a feeble notion of the effect produced on all who approach the spot.

Amongst the principal ruins must be mentioned Luxor and Carnak, of which you have seen numerous views. The entrance to the temple of Luxor is through a propylon or gateway (which is a distinguishing feature in Egyptian architecture) 200 feet wide, and even at this time nearly 60 feet high above the present level. Before it stood two fine obelisks of red granite covered with hieroglyphics, one of which is now, as you know, in the beautiful *Place de la Concorde*, in Paris. At the northern end it was connected with one of the temples at Carnak by an avenue more than *a mile in length*, lined with sphinxes, which may serve to give some idea of the scale of magnificence which prevailed.

The great temple at Carnak is of enormous size: the gateway is 360 feet long and 148 feet high. It has a hall with 130 pillars 11 feet in diameter, which occupies an area of 57,629 square feet! It requires consideration and comparison to enable us to comprehend the vastness of these structures: it may assist you if I say that this is nearly four times the area of Westminster Hall: one of the stones in the temple is 41 feet long. The propylon in front of an Egyptian temple consists of two distinct pyramidal moles connected by a doorway formed between them. The term "hundred-gated" probably referred to these propylea rather than to gates in the city-wall.

The propyleum of the temple at Edfou is altogether 226 feet wide, and 114 feet high, covered with boldly sculptured figures. Its mass and strength are so enormous, so disproportioned to its purpose, that we can hardly avoid considering it an abuse of solidity. Still as this error, if it be one, has been the means of preserving it for our study, it would be ungrateful to condemn it.

The temple is now the site of an Arab settlement (like many other of the ruined buildings there), and is plastered over with huts, which appear as swallows' nests against a rock, or, as Hope remarks, "beasts of prey on the carcase of a giant."

> "For time hath not rebuilt them, but upreared
> Barbaric dwellings on their shattered site,
> Which only make more mourned and more endear'd
> The few last rays of their far-scatter'd light,
> And the crush'd relics of their vanish'd might."

One of the peculiarities of Egyptian architecture which I would have you notice is the large concave cornice which crowns the temples and gateways. Its effect in a bright light is very striking. The bold reed-like member at the angles of all their buildings is another characteristic, and would seem to have its type in the early hut, where perpendicular and horizontal canes, bound together, formed the framework. Diodorus Siculus, indeed, says that some of the earliest dwellings of the Egyptians were formed of reeds and canes. In the view of the Temple of Dendera which accompanied my last communication, both these features will be seen. You may notice them, too, in the front of the Egyptian Hall, Piccadilly, one of the few attempts, fortunately, to put up imitations of Egyptian architecture in London.

At the end of the Egyptian gallery, in the British Museum, we have an example of a common form of columns in Egypt, and which would seem to have had its origin in the representation in stone of the shape taken by a bundle of reeds tied together at a short distance from the top, and acted on by a superincumbent weight. Fig. 12, is a sketch of it. I have also introduced a sketch of the often-quoted grotto or tomb at Beni-Hassan (Fig. 13), supposed to be as old as the reign of Sesostris. I shall not point out now its likeness to the Doric of the Greeks, not perfected by them till many centuries after this grotto was excavated, as this will be more

* No. IV. see pp. 100, 133, and 160.

usefully referred to when speaking of Greek art.

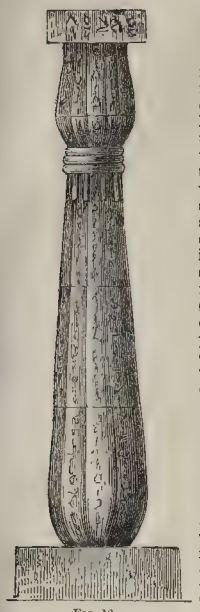


FIG. 12.

Some of the earliest retreats in Egypt (independently of huts of reeds, just now referred to), were excavated in the living rock; and the influence of this type is to be traced in their other works, though, strange to say, some of their excavations are in imitation of constructed buildings. Lower Nubia (which may be considered for our purpose as part of Egypt) contains two very extraordinary examples of rock-cut temples at Ipsambul. The front of the smaller of the two is 91 feet long. There are six colossal figures on each side of the doorway, which are 30 feet high. The depth of the excavation is 76 feet. The front is profusely covered with hieroglyphics, containing, amongst others, the name and title of Rhamses the Great, the Sesostris of Herodotus. The oldest buildings remaining in Thebes are ascribed to his reign. It is quite possible that the temple in question may simply have been *completed* by him, as it has the characteristics of an earlier period of time than those believed to have been erected by him.



FIG. 13.—TOMB OF BENI-HASSAN.

In the sculptured front of this excavated temple we may observe the general character of the propylea. The larger temple contains some of the most gigantic specimens of ancient sculpture. It is excavated 154 feet in depth, and consists of fourteen chambers. The Pronaos, or hall, is divided into three aisles by two rows of pillars, with statues sculptured on the face of them, which support the roof. These figures are 30 feet high. Outside there are four colossi no less than 70 feet high. It is difficult to clear away the sand from ruins in Egypt; and this temple is seldom accessible: it is nearly the only one which has suffered from damp.

To transport and elevate the enormous stones (obelisks and other monoliths) raised in Egppt, required no ordinary skill. A proof of this is found in the *éclât* which attended M. Lebas, the French engineer, in 1836, when he removed the obelisk from Luxor to Paris, and elevated it on the *Place de la Concorde*. This was deemed an achievement, and, indeed, was so: it demanded great care, skill, and forethought. The operations were commenced in 1831, by the destruction of a village to make way for it. Eight hundred men were occupied for three months in bringing it down to the Nile. It was conveyed across the Mediterranean, and deposited in Paris December, 1833. A pedestal was formed for it; an inclined plane built; 300 artillerymen with five capstans pulled it up the incline by a clever arrangement of ten masts, 70 feet high. It was pulled upright in two hours and a half, in October, 1836, and the king and all the people went to see it done. M. Lebas was "decorated," and received various appointments. He had the honour also of being caricatured as a rope-dancer, with the obelisk under his arm!

Now Egypt was actually covered, from one end to the other, with similarly gigantic monuments, so that efforts such as I have alluded to must have been of constant occurrence. Pliny speaks of raising one, when Rhamses caused his own son to be bound on the top of it to make the workmen careful. The colossal figure of Rhamses at the Memnonium weighed 886 tons!! And this was conveyed 120 miles overland. The Luxor obelisk weighs only 250 tons. To detach these enormous masses of stone from the bed, heat (amongst other agents) was resorted to. Often they drove wedges of wood, where they wished separation to be made, and then saturated them with water: the wood in swelling split the rock. In attempting to cut a block of Egyptian granite, our best steel tools are turned; thus the greatest difficulty was found in cutting into the Luxor obelisk when in Paris.

The temples and other buildings in Egypt were profusely adorned with paintings externally and internally. The columns and entablatures were painted, and the colours remain, in many instances, fresh as when first executed.

The amazing number of Egyptian works which still exist cannot fail to astonish every inquirer. Enormous remains are to be found on their original site; more lie buried in the sand; much has been used for modern constructions; and yet every large repository of antiquities, in England, Germany, Italy, France, contains numerous relics from this extraordinary land,—this country of mystery. In the British Museum the collection is of great interest, as you well know.

The chief characteristics of Egyptian architecture—massiveness, simplicity, and grandeur—may be ascribed conjointly to the influence exerted by their excavated structures, the materials at hand, the nature of the country which, from its scale, required corresponding size in any monument which was intended to command attention, and perhaps I should add the policy of their religious rulers, who sought by mysterious grandeur to overawe and influence their votaries.

The abiding influence of the first forms used by a people may be traced in all countries in their succeeding works; and in none more so than in Egypt, where so many of them were conventional,—religiously symbolical,—and remained stationary, not so much, says Quatremere de Quincy, because the people were unequal to greater perfection, but because the first efforts of imitation became objects of veneration, to be re-imitated, not surpassed. In their sculpture this is especially evident. It was the first mode of writing, and became the representative of certain religious facts and opinions. No alteration was permitted therefore, lest the signification should be lost. Plato introduces in a dialogue in 2nd book of Laws (quoted by Wilkinson) a remark which establishes this point. He says,—"The plan we have been laying down for the education of youth was known long ago to the Egyptians, that nothing but beautiful forms and fine music should be permitted to enter into the assemblies of young people. Having settled what those forms and what that music should be, they exhibited them in their temples; nor was it allowable for painters, or other imitative artists, to innovate or invent any forms different from what were established; nor lawful either in painting statuary, or any branches of music, to make any alteration: upon examination, therefore, you will find that the pictures and statues made ten thousand years (?) ago, are in no one particular better or worse than what they now make."

Moreover, we learn that common or illiterate people were not allowed to exercise the profession of artist, lest they should attempt anything contrary to the laws regarding figures of the deities.

This enforced repetition accounts for the *monotony* which prevails in their monuments. When their skill had improved, they did not venture to go back to the original type, and copy nature, but continued to repeat their own first rude attempts. And this, by the way, in many cases is what we do at this time.

I will not endeavour to put before you any idea of the appearance which Thebes presented in her palmy days: where her isolated columns and statues, now above 3,000 years old, stand half buried, and wait to be overwhelmed,—enormous halls and temples, decorated profusely outside and in with colours and sculpture, upreared themselves amongst groves of sphinxes and obelisks; when her streets were filled with people, and the Nile was covered with vessels of all descriptions.

When we speak of a building above 3,000 years old, the mind is at first unable to appreciate so great a length of time, or to see the proportion it bears to the supposed age of the world: it cannot take itself immediately so far back into the past, but needs to reconsider and judge of it by some familiar standard. When this is done, no one can contemplate the amazing changes which have occurred since the erection of these buildings without the strongest emotions of interest. Countries now highest in civilization were then not known, while many which now hardly afford a resting-place for the birds, were flourishing and populous cities. Troy had not fallen; Homer was not born; and Solomon's Temple was not built. Rome, the leviathan of ancient nations, arose, conquered the world, and passed away into a mere record of her former self, within the period during which these monuments have braved Time, Man, and the Elements.

I am getting serious, so will close my letter.

Believe me always yours,

Reggeo.

NOTES OF AN ARCHITECT IN SPAIN.*

THE Alcazar at Segovia is finely situated and picturesque, but with its sharp, pointed turrets, looks rather Frenchy. The state-room is magnificent, and the ceilings and friezes of others rich and remarkable. The principal or throne-room, is square on plan, with an octagon roof, which is canted off dome-wise. This dome is elaborately ornamented with a pseudo Arabic pattern, with gold flowers on a blue ground, the interspaces formed by the band of pattern being filled in with foliage. There are a series of broad friezes beneath the junction of wall, carrying the ornament gradually off on to the wall, which is papered with a dark, crimson colour: the whole effect is of an almost extravagantly rich description, the gilding being so profuse. The date of these rooms is about A.D. 1480, under Don Enrique; the style Gothic, adapted to Moorish sentiment; and the various examples, though *too* prodigal of gilding and ornament, are yet on an excellent system, and well deserving of imitation. One room has a kind of large frieze round it, with statues of the kings and queens: the costumes are very interesting. Another has a beautiful ceiling, consisting of a number of pendants in sunk panels: there are about 12 inches, I should say, between each pendant: this renders it confused, and the pattern becomes lost: they should be more charily used; still the effect is very excellent. The officers here, as at Toledo, were very polite (it is now a military college). Soldiers in Spain and priests in Italy are *the* great people: it is well therefore to propitiate them. From Segovia we were obliged to hire a sort of covered cart (*tartana*) to reach the highroad; arrived in the evening at a small village of some 300 labourers, and forced to remain there two days. This village, in the

* See page 190, *ante*.

direct road of the invader, is a specimen of misery difficult, I expect, to be matched: the street, or rough track rather, is deserted; half the houses have been gutted in some war, or never finished; and the wind on this wild unsheltered plain howls and moans through the broken mud walls and wood-barred windows: nothing could exceed its wretchedness, desertion, and solitude. Whoso loveth melancholy let him spend a few days here. At last got places for Valladolid, rain all the way (October). Saw San Pablo and San Gregorio, or rather the convents of these names, both miracles of carving and decidedly of much merit, more pictorial though than architectural. La Antigua has a small remarkable Norman tower. The cathedral nothing, plain in every way. The Campo Grande is a large stupid place, and the Madrid gate not worth looking at, though locally admired. San Salvador has a good brick tower, with small gurgoyles in cornice (Renaissance). San Benito, too, has a fine tower. The entrance and the cloisters of S. Gregorio are certainly superior to S. Pablo: the whole façade is formed by trees, osiers, and straw, the columns being twisted branches with knobs on them, the cusps formed by single or twisted branches and leaves. Statues of wild men and women are plentiful, and extraordinary demons, beasts, and figures stud the foliage. The court-yard is very fine and curious. The whole forms a mass of elaborate work more fitted for a royal palace than a convicts' prison, which it now is. The court is in a transition style—very theatrical: there are some good Gothic doors, a noble staircase, and a chapel, very good, with rich stone pulpit. The front of the convent put me in mind of a fanciful German design for a frontispiece. The palace of Fabio Nelli is very fair; the portal, however, too delicate for the general massive character of building: the court is spoilt by those ugly depressed arches. The museum is full of remarkable and excellent sculpture, saved from domestic and foreign foe. The Saviour on Mary's knee, by Hernandez, is very beautiful and affecting: in the dim light of evening it is startling. I now can understand the statue of Hermione: the grief of the mother's face Guido could not surpass. Many figures, or demons rather, from a group of the Crucifixion, are fancifully dressed, and are generally very exaggerated, though strikingly impressive. The Christ deposed, by Juan de Juni, is of a more Jove-like character: it is the corpse of a strong-muscled and strong-headed man: it is covered with blood, and is rather disgusting. Many of the little groups in wood are first-rate; sculptors unknown; but they occupy a place between Gothic and the Revival. I have mentioned these, because they form a school of painted sculpture little known out of Spain, and of much merit. Valladolid is a ruin; its palaces deserted; its monasteries, many and rich, destroyed; its churches closed; its university decaying: in the direct road of Napoleon, it has suffered terribly, as did we, for the ground was now covered with snow (October 18th)—no fire—no attendance—broken windows—Inn de las Diligencias: very glad to start for Burgos. The cathedral, though deprived of its portals by some sinner of an archbishop, is the finest exterior I have seen in Spain: the architecture is good, and the pierced spires very beautiful: these with the dome or cimborio, the Constable's Chapel, and the Gate of Santa Maria form a grand and ancient group. It was commenced A.D. 1221, under the auspices of an *English* archbishop, Mauricio; and it is enriched with fine specimens of architectural art from that date down to the time of Herrera (A.D. 1570). The chapels are all worthy of attention, the finest being that of the Constable of Castile—a magnificent monument of late Gothic, externally and internally, well designed, and well executed. The cloisters are charming, and of excellent Gothic (fourteenth century); the application of natural foliage—holly, waterlily, &c. on soffits of arches, very remarkable and effective. The north and south portals are grand, and make one deeply deplore the destruction of the principal entrance. The spires are the work of John of Cologne, *circa* 1442, and have no internal support or tie. Were they not pierced with rich tracery, they could never have resisted the storms of this really wind-scoured tableland. The cimborio is Plateresque, by Felipe de Borgona—bad in a strict architectural point of view, but the work of a true and great artist, and the finest monument of that style in Spain. The coro is rich in first-rate woodwork and illuminated missals of the most elaborate description, now much injured and quite neglected. The wellknown stone staircase is very good, but injured by a confused unmeaning iron railing. The whole building is full of interest to the architect in every branch of his art. Some of the ironwork is unequalled; and the sepulchral monuments of invariably fine sculpture—sufficient by themselves to form a work.

The numerous monasteries and convents here are turned into barracks, storehouses, &c. They have been dreadfully knocked about: of a good late Gothic, generally: they must have been splendid—now they are utterly ruined. The Huelgas (a royal convent, still with some few nuns), has a remarkable and good Byzantine cloister, and possesses some excellent Early Gothic bits well deserving of close study. The sepulchral monuments here are very ancient and interesting. Unfortunately no one is allowed to enter without a Royal order, very difficult to be obtained: this is the more to be regretted, as there is so much really valuable work, especially for the antiquary. The Hospital del Rey has many good Plateresque parts; and the town has many Gothic churches, from the most ancient down to the latest Gothic. Visited the Cartuja of Miraflores, and saw the tombs there: they are the work of Maestro Gil, A.D. 1493, and are invaluable. This man was an artist, and a fine one. The plan of the King's tomb is a star: on it he reclines beneath a richly-worked niche. A small short line of tracery separates him from his wife: their robes are miracles of delicate labour. The figures, foliage, architecture,—the skill, fancy, and industry displayed in these works are, I should think, literally matchless. The niche, or rather canopy, containing the life-size statue of the king, ends at the feet in a foliated bracket, against which two lions crouch in rage and despair. The head of the canopy is adorned with pinnacles, foliage, and figures, let into a piece of solid alabaster of graceful outline, with the royal arms on the reverse. The sides are of the most wonderfully elaborate workmanship—niches, pinnacles, figures small and large—a study for all men. The whole tomb should be raised, and seems to me to want a basement, which might be sculptured more plainly. The lions and animals crouching round and at angles I do not like. The foliage in this and the tomb of Don Alonzo is beautiful: it is curious that the ivy leaf does not once occur. The best are the vine, oak, rose, and thistle. In this foliage are carved snails, butterflies, birds, children, men and monsters, fighting, flying, hiding, drinking—such ornament as might befit a monument to Shakspeare—for which, indeed, this affords a good idea. Spanish Gothic is generally very picturesque and ornamental: figures and leaves fully relieved from a hollow moulding often finish on a small column: columns often stop on the wall supported by a sculptured bracket: statues at angles in niches are frequent and good; arches of small mouldings and elaborately carved; a great use of varied leaves for crotchets, finials, &c. and a great number of the same; mouldings cut out in an opposite form to their base, as angle from square, circle from angle, &c. are the chief features of that rich and sculpturesque school of Late Gothic which flourished so signally in the north of Spain, and which, introduced from Germany, found worthy disciples among the native Spaniards.

The palaces here are generally very picturesque (Renaissance), bracketted out above ground-floor—like some of our half-timber bridges—with a series of enriched mouldings, formed at angles into the base of a circular turret: as usual, the columns are of the bed-post genus,—long, thin, and ugly.

The use of armorial bearings is excessive in Castile: they are usually well designed, with a border round them, or motto in border: some form really fine ornamental features. From here to Vittoria—the principal city of the Basque provinces: there is much interesting street architecture here, and some good Gothic churches. Spain may now almost be said to be left behind: its worst features are gone: dirt, neglect, and indolence are replaced by cleanliness and activity. However the country and people may improve, it loses in interest to the architect. San Sebastian is more remarkable for its fortifications and picturesque situation on the wild Bay of Biscay than for its buildings. From hence the change grows more and more marked, until we reach Bayonne, in which hybrid and delightful town we may consider ourselves safe out of Spain, with an inkling that we live once more in the 19th century.

In taking leave of this interesting country, allow me just to glance over the various styles which adorn it, and to give an opinion as to their merit. The oldest works are those of the Romans, and from those I have seen and what I have read and seen engraved, I should imagine that they must be of a grand and noble character, and well deserving of being delineated and formed into a volume. Next, there are many and remarkable examples of a Normanesque architecture in the north of Spain, known commonly as "*obras de los godos:*" some of the gateways in this style are very fine, but being generally in out-of-the-way parts—villages and provincial towns—they are little known, but I should say of great merit. Contemporaneously with this massive, manly style in the north, existed the entirely opposite, delicate and feminine style of the Moors in the south: on this it would be unnecessary to dilate: to my mind, *in its way*, it is the perfection of art and good taste. Shortly before the expulsion of the Moors, their style had merged into Gothic, and the mixture forms one of the most picturesque and fanciful periods in Spain: its characteristic is ornament of a really gorgeous description. On the expulsion of the Moor, Gothic, introduced by various German artists, reigned pre-eminent, and formed a fine sculptural and truly artistic school of architecture, whose monuments are still the pride of Spain; but its beauty insured it no stability, and soon fashion brought the Revival, which gradually worked into it, and was finally triumphant. Of this Revival, known as Plateresque, I have no high opinion in general: the fertility of invention and spirited execution of its sculpture struck me as pre-eminent: it is *over*-worked with ornament, and, as architecture, it generally fails in proportion and simplicity: applied to domestic purposes, on a small scale, it is good, but has been much, I humbly think, overpraised, and would never repay detailed study. The best specimen of the period between florid Plateresque and the simplicity of Herrera, is the palace built for Charles the Sixth at the Alhambra. Herrera himself designed on a grand scale, and carried out his works with a certain noble simplicity, forming a good school of Romano Greek architecture. After him, came the heresiarch Churriguera, utterly unworthy of mention, except for condemnation, and then the inanities of the modern Academicians. Taken altogether, there are few towns which would not interest an observant architect, and if he has a dash of the artist about him, with eyes not eternally fixed on the merely *correct* merit of architecture, he will visit this strange land with pleasure, study it with advantage, and leave it with regret.

I. B. W.

COPPER ORES.—The sale of foreign, Welsh, and Irish ores at Swansea, will, it is said, on the quarter ending 31st inst. show a further decrease of 519 tons: it exhibited to end of December last, a falling off of 3,707 tons on that quarter, so that the actual decrease during the last six months is no less than 4,226 tons. The decline is owing chiefly to non arrivals.

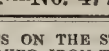
OIL FOR LUBRICATING MACHINERY.—The *Chemical Record* describes an oil prepared from southern oil and cocoa nut or lard oil by means of solution of American potash for the lubrication of machinery.

EXPERIMENTS ON THE STRENGTH OF HOOKED IRON TIES.

THE following experiments, referred to last week, were made at Her Majesty's Dockyard, Woolwich, with Messrs. Bramah's hydraulic press, in January last; they shew plainly the weakness of hooks:—

Common English Round Iron, $1\frac{3}{16}$ in. diameter.

No. 1.—Hooked.



Strain of 4 tons, no effect.
" 5 " opened $\frac{1}{8}$ of an in.
" $5\frac{1}{2}$ " " $\frac{3}{16}$ "
" 6 " " $\frac{3}{8}$ "
" $6\frac{1}{4}$ " " $\frac{5}{16}$ "
" $6\frac{5}{8}$ " " $\frac{7}{8}$ "
" $6\frac{3}{4}$ " " $1\frac{3}{16}$ "
" 7 " " $\frac{1}{16}$ "
" $7\frac{1}{4}$ " broke.

No. 2.—Straight (same piece).

Strain of 10 tons, no effect.
" 16 " "
" 18 " lengthened $\frac{5}{16}$ in 2 ft.
" 20 " " $1\frac{1}{8}$ "
" 21 " " $1\frac{5}{16}$ "
" 22 " " $1\frac{1}{8}$ "
" 23 " " $1\frac{7}{16}$ "
" 24 " " $1\frac{3}{4}$ "
" 25 " " $2\frac{3}{16}$ "
" 26 " " $3\frac{1}{16}$ "
" $26\frac{7}{8}$ " broke.

No. 3.—Hooked open $1\frac{5}{8}$.

Strain of $5\frac{1}{2}$ tons, no effect.
" 6 " opened $\frac{1}{8}$
" $6\frac{1}{2}$ " " $\frac{1}{16}$
" $6\frac{3}{4}$ " " $\frac{3}{8}$
" 7 " " $\frac{1}{2}$
" $7\frac{1}{4}$ " " $\frac{5}{8}$
" $7\frac{1}{2}$ " " $\frac{3}{4}$
" $7\frac{3}{4}$ " " $\frac{7}{8}$
" $7\frac{7}{8}$ " broke.

No. 4.—Straight (same piece as No. 3).

Strain of 16 tons, no effect.
" 18 " lengthened $\frac{6}{16}$ in 2 ft.
" 20 " " $\frac{7}{8}$ "
" 21 " " 1 "
" 22 " " $1\frac{1}{4}$ "
" 23 " " $1\frac{1}{2}$ "
" 24 " " $1\frac{7}{8}$ "
" 25 " " $2\frac{3}{8}$ "
" 26 " " $3\frac{1}{8}$ "
" $26\frac{6}{8}$ " broke.

S.C. Crown Iron, $1\frac{3}{16}$ in. diameter.

No. 5.—Hooked, $1\frac{1}{4}$ open.

Strain of 5 tons, opened $\frac{3}{16}$
" 6 " " $\frac{1}{2}$
" $6\frac{1}{2}$ " " $\frac{1}{2}$
" 7 " " $\frac{5}{8}$
" $7\frac{1}{2}$ " " $1\frac{1}{16}$
" 8 " " $1\frac{1}{2}$
" $8\frac{1}{4}$ " straightened out.

No. 6.—Straight (same piece).

Strain of 15 tons, no effect.
" 17 " $\frac{1}{16}$ in 2 ft.
" 20 " 1 "
" 22 " $1\frac{1}{2}$ "
" 24 " $2\frac{1}{4}$ "
" 26 " $6\frac{3}{8}$ " reduced to $\frac{7}{8}$ diam. and broke.

Best Mitre Iron, $1\frac{1}{8}$ in. diameter.

No. 7.—Linked.



Strain of 15 tons, stretched $\frac{1}{8}$ in 3 ft.
" 16 " $\frac{2}{16}$ "
" 17 " $\frac{1}{2}$ "
" 18 " $\frac{11}{16}$ "
" 19 " 1 "
" 20 " $1\frac{1}{4}$ "
" 21 " $1\frac{3}{8}$ "
" 22 " 2 "
" 23 " broke.

No. 8.—Straight (same as No. 7).

Strain of 23 tons, stretched $\frac{3}{16}$
" 24 " $\frac{7}{16}$
" 25 " $\frac{3}{4}$ broke.

No. 9.—Same as No. 7, linked.

Strain of 15 tons, stretched $\frac{1}{8}$ in 3 ft. dist.
" 16 " $\frac{1}{4}$ "
" 17 " $\frac{5}{16}$ "
" 18 " $\frac{3}{8}$ "
" 19 " $\frac{7}{8}$ "
" 20 " broke.

No. 10.—Straight.

Strain of 20 tons, no effect.
" 21 " stretched $\frac{1}{16}$
" 22 " $\frac{1}{8}$
" 23 " $\frac{3}{16}$
" 24 " $\frac{9}{16}$
" 25 " 1
" $25\frac{1}{2}$ " broke.

Mr. Webb's Iron, $1\frac{5}{16}$ in. diameter.

No. 11.—A Double Hook.

Strain of 2 tons, 1 hook opened—2nd hook.
" $2\frac{1}{16}$ " none.
" $3\frac{1}{16}$ " $\frac{1}{16}$
" 4 broke.

No. 12.



Strain of 2 tons, no effect.
" 3 " $\frac{1}{16}$ opened.
" 4 " $\frac{3}{16}$ "
" 5 " $\frac{1}{8}$ "
" 6 " $1\frac{1}{8}$ "
" $6\frac{1}{4}$ " broke.

Mr. Towns's Iron Mitre, round, $1\frac{5}{16}$.

No. 13.—Flat Eye, Hook, and Key.



Strain of 8 tons, no opening.
" 16 " broke at angle.

Iron.	Tons.	Iron.	Tons.
NOTE.—As $(1\frac{5}{16})^2$	: 16 ::	$(1\frac{3}{16})^2$	: 13.

No. 14.—Same piece straight.

Strain of 30 tons, stretched $\frac{1}{16}$ in 10 in.
" $30\frac{7}{8}$ " broke.

Tons.	Tons.
NOTE.—As $(1\frac{5}{16})^2$: $(1\frac{3}{16})^2$ :: 30	: $24\frac{6}{11}$

STATE OF DORCHESTER.

THE Reports of the Central Board of Health, on the causes of mortality, the sources of disease, and the general insanitary condition of affairs in our towns, in the middle of the nineteenth century, will constitute, in the eyes of future, and it is to be hoped more rational and enlightened generations, a sort of sanitary doomsday-book, in which, to our shame as a generation, in too many respects, will be revealed, in minute detail, a loathsome picture of our barbarous habits as a people, living in the midst of remediable corruption and preventible mortality, in a state of stupid and brutal contentment that would not be credited but for these official and salutary documents.

As Mr. Rawlinson, the superintending inspector of the Central Board of Health, in his searching and able report on Dorchester, recently published, observes, in allusion to various sensible and obvious recommendations of the learned and wise Erasmus as to ventilation, drainage, and other improvements, given more than 300 years ago, but still remaining to be carried out:—

"The following is a short description of England in the reign of Queen Victoria:—Houses are built without order or arrangement upon a damp, undrained, subsoil. They have no proper means of ventilation; the sexes amongst the poor are generally crowded into single rooms; the supply of water is either deficient or vitiated at its source, most frequently both; refuse is accumulated and allowed to decay and give off poisonous gases within or near dwelling-houses of all classes, either in covered cesspools or in open middens; large sums of money are expended to make this objectionable and dangerous provision for the generation of disease; streets are left unpaved for years, and are never cleansed."

Such is, indeed, still the undeniable state of the towns in general throughout this great empire. Let us hope that the Board of Health, by thrusting these unsavoury facts under our very noses as a nation, will induce us to bestir ourselves, and to "set our houses in order," before we ourselves are prematurely cut off as a generation, so that we may leave them to our posterity in something like a state of approximation towards sanitary cleanliness, that will constitute, in some measure, an example to our children, and not an unmitigated disgrace to ourselves.

Dorchester is no exception to the general rule: it is a melancholy mixture of rampant evil and of sickly but commendable and hopeful good. "There is no under-ground drainage in any street." "The churchyards are in a most disgusting condition. St. Peter's churchyard is saturated with human flesh." "There is no water brought to any of the houses, and very many have neither pumps nor wells." Typhus fever rages perpetually in the midst of eternal filth. The walls and foundations of houses are saturated with unmentionable abominations. In a word, the horrors of cholera have had no salutary influence, and have scourged the town without avail. All stands in *statu quo*, awaiting with open arms the return of the grim pestilence, as a household awaits the coming of one whom it cherishes and serves.

Mr. Rawlinson's report contains many important suggestions, some of which at least, it is to be hoped, will be promptly acted on. These, however, we need not here particularise, our duty, as regards sanitary matters, consisting more in general suggestions than in their local application to circumstances.

In speaking of the churchyards, tombs, &c. Mr. Rawlinson observes that—

"It is very remarkable how few works of real art are to be found as tombs or monuments, although hundreds of thousands of pounds have been expended. The money paid for some tawdry monument would have purchased a work of art from some sculptor which would have been alike creditable to the memory of the deceased, as of his living friends, and an ornament to the district."

On the subject of gas, we are pleased to trace the influence of THE BUILDER, both in the reporter's own remarks and in the history of the successive reductions of price, with continued prosperity of the company, at Dorchester. The reporter is obviously anxious, as we are, for the far more extensive use of gas both for public and private purposes, and at Dorchester he is persuaded "that further reductions of price may be made with profit to the shareholders as with advantage to the consumers."

"And when the true interests of producers and consumers shall be recognized throughout the country, the same comparative extent of consumption will take place. Companies will learn that there is no safety to their property in high charges; and as a matter of justice to all, there will be one uniform price to large and to small consumers.

In the return or statement moved for by Mr. Hume, M.P. on gas companies established by Act of Parliament, and printed 31st May, 1850, it is shown that as a whole such companies must be considered prosperous. Fifty-five have declared dividends of 10*l.* per cent. per annum and upwards; few are below 5*l.* per cent.; and *those generally which cannot exhibit so good a dividend, can, however, show the highest price*, and most probably *the least facility for the use of their gas*.

Abundance of light is not only a source of convenience and comfort, but, as applied to a town, lamps take the place of police, and *prevent* much immorality and crime."

The importance of ventilation in connection with the use of gas is very properly urged; but indeed, as remarked, it will compel ventilation where probably none before existed.

PUBLIC BATHS IN PARIS.—There are at the present time in Paris (says the *Lancet*) 125 public bath establishments, besides the four large floating baths, where warm bathing is carried on in the winter and cold in the summer. The yearly number of baths taken is 2,116,325, without reckoning the baths given in the hospitals. All these establishments are situated in the most respectable and healthy parts of the metropolis. The average price of a bath is sixpence, the minimum fourpence, and the maximum eightpence.

THE VENTILATION OF THE HOUSE OF COMMONS.

We have received a letter from Mr. Jeakes in reply to Dr. Reid's communication, urging that whatever he *did* say to which Dr. R. objects had been previously said by Lord Seymour. We can find room for only part of it.

"The statements, that 'every written' requisition of Dr. Reid's had been complied with, and that 'the amount expended was upwards of 57,000*l.*' were not mine, but Lord Seymour's, as reported in the *Times* of Feb. 12.

I *repeat* my statement, that a portion of the drains were put in by his own men, from his own drawings, and the directions *on* those drawings prove that he was aware of passing hot water through them. Of the effect of which in causing offensive odours I am guilty of asking your readers to judge for themselves.

I also stated, and *repeat* that Dr. Reid had omitted to mention the failure and removal of a steam-engine, which he had erected for propelling the air through the House; and I then again left your readers to judge of the probable influence this had towards the failure of the ventilation. Dr. Reid's statement that 'arrangements were made under the authority of Lord Seymour for working the instrument, which was to have been driven by the engine,' is merely an ingenious way of telling you, that he was allowed to employ a certain number of men, to drive very imperfectly, and unequally, that which the engine ought to have performed properly.

I have now answered all the objections taken by Dr. Reid, to my statement, and I will conclude the correspondence by asking your practical readers, whether the whole of the details complained of by Dr. Reid are not trifling matters, and wholly insufficient to account (even if all were true) for the uncertain and unsatisfactory state of the ventilation of the new House of Commons?

The whole question will, I trust, in a few days, be set at rest, and beyond controversy, by Mr. Goldsworthy Gurney, who has been called in to make a report on the subject, and from whose experience and practical knowledge in these matters, much is to be expected. W. Jeakes."

ARCHITECTURAL GUIDE-BOOKS, WITH A TICKLISH ET CÆTERA.

As connected with the subject of my last communication, I now proceed to say something concerning a class of publications which certainly might do much for architectural illustration, literary as well as graphic, yet are generally, or rather almost invariably, executed with such disgraceful slovenliness as to be little less than actually repulsive—certainly contemptible. I allude to what style themselves "Guide-books," and show themselves not only very blind and stupid guides, but particularly ugly ones also, they being of exceedingly scarecrow physiognomy, and the veriest ragamuffins of literature. Those of Italy—the native home of art and taste—are, most strange to say, almost the vilest of any as regards what, though meant for graphic illustrations, might more properly be called graphic *abomination*, and hideous caricature. They are, moreover, usually as dry as chaff—most meagre with respect to description, and puling and feeble, if not utterly inane also, with respect to what is meant for critical remark, but which, when it does occur, answers to the character given by the *Edinburgh Review* of the literary style of a late eminent English connoisseur and leader of *ton* in art, viz. that of being "bombastic, pedantic, and trashy!"

The most barefaced and vulgar claptrap, the most contemptible Jemmy-Jessamy simpering, together with blundering that bespeaks, if not consummate ignorance, consummate intrepidity, seem to belong to the very constitution of guide-books, or such as are of a similar class, however they may happen to be named. That such should be the case is, even if otherwise of no importance, truly mortifying to those who have the interest of architecture at heart, inasmuch as it plainly shows the ignorance and consequent indifference of the public with regard to it to be such that either any stuff may be uttered, or remark suppressed altogether when buildings are to be spoken of. The plain though unpleasing truth is, that, magnificently as it is estimated by its own immediate followers, architecture holds with the public only the brevet rank of a fine art, without any hold on their sympathies.

Their eyesight is far better than their insight into it: like Beatrice, they "can see a church by daylight," and that contents them. So little, in fact, is the interest which the public take in architecture at present, that it is not worth while for newspapers to bestow upon it the same attention as they do on the other fine arts, on whose productions they occasionally descant at considerable length. I do not say that newspapers never speak of buildings, but when they do so it is only as buildings, and as to mere matter-of-fact particulars, without attempting to enter into any critical discussion respecting their artistic merits or deficiencies. It will, perhaps, be said that in so doing newspaper critics show their discretion by abstaining from betraying their ignorance. Be it so: the question then is, wherefore do they remain in ignorance? And the reply is, simply because they do not feel it worth their while to encounter the trouble of removing it, and to qualify themselves for expatiating plausibly and glibly, if not profoundly, on architectural topics. For such criticism there is no demand, consequently no supply.

Very possibly architects themselves may be satisfied with a state of things which wards off from them criticism altogether, both genuine and quack. In itself such security may be enviable, yet dearly is it paid for, as not only the art itself, but the profession also (not individually, but as a body), suffer in consequence, since it is only by being ignored that they escape the surveillance of criticism,

"Bitter to boobies, wholesome in the main."

Whatever it may be to others, to me it is very strange, that those who are so clear-sighted in other respects, and can even see the invisible curves of the Parthenon, cannot see all this, and a very great deal more which I here pass over, for I have wandered so far from the point at which I first set out, that instead of attempting to return to it, I will now make my retreat at once, with fading colours if not with flying ones, and sign myself

Your incorrigible, Q.

THE PROVIDENT INSTITUTION OF BUILDERS' FOREMEN.

The fifth anniversary dinner of members and friends of this useful Institution was held at the London Tavern, on Wednesday, the 24th inst.; Mr. Thomas Piper, in the chair.

Amongst the supporters of the Institution present were Messrs. Kendal, G. Baker, H. Lee, W. Piper, T. W. Piper, W. Dunnege, J. Jay, S. Pocock, G. Wales, J. Wilson, G. M'Lenan, H. W. Cooper, Jas. Bird, G. Bird, Jer. Pilcher, W. Freeman, &c.

The dinner dispensed with, and the duties of loyalty discharged,

The Chairman proposed "The Institution of Builders' Foremen, and may it prosper;" and in doing so said he was requested to offer at that meeting the allegiance, accompanied by a substantial proof of the kind expression of good will of Mr. Hosking (the official referee), Mr. Hardwick, and his (the chairman's) own father. He was greatly pleased to meet so many gentlemen on that occasion for such a purpose as that for which they had assembled, for much as the word "combination" had of late acquired ill fame, this was a kind of combination which all ought to encourage: it was associating to guard against the risks and casualties to which our common nature is subject. In doing so they were running no risk, but were taking advantage of that information which our social condition gives us the opportunity of acquiring. Associated as we are in large communities, there must of necessity be a certain amount of casualty to some individuals, and the application of the correct statistics which had been obtained, in reference to the objects of this institution, enabled its founders and supporters to maintain it on a firm basis. The grand common law, which controlled all existences, was illustrated in the lives of all our fellow creatures; sickness was one of the casualties of existence, but its proportion, in numbers of individuals, could, according to certain known laws, be ascertained and correctly calculated. Death, to an individual, was a casualty, but taking the statistics of the land, and noting the laws which govern all such casualties, we were enabled to calculate our individual longevity by our comparative longevity, and by thus throwing the risk over a large circle, we were enabled to provide for those most dear to us, and for whose welfare we were always most anxious. The great question of the day, and which was agitated from hour to hour, was the question as to the rights of labour and the rights of capital. He wished to avoid introducing any topic to vex their feelings, but he did it to observe that they, the foremen—the middlemen—were the lookers-on on both sides, and when strifes arose between the employed and their employers it was for them to judge and see how difficult it was to draw the line, and say where the rights of one should end, and where the rights of another should begin. They themselves, who had to superintend large numbers of people, had to perform duties to the men under them, as well as to their own employers; and through all the gradations of life the duties of men were so interwoven that they could not be separated: it was trifling for any men to talk about their rights, for no one class could assert its rights without almost of necessity trenching upon the rights of another. History told us that the strifes which had rent nations to pieces arose from the attempts to build up impossible barriers between classes. The former, from their position, had a mission to perform between the employers and the employed, to make them both understand their relation one to the other; and in the due discharge of that duty depended the prosperity of this great country. To turn their association together into a means of offence upwards or downwards, would be to destroy all individual happiness, and it would be like erecting a building into which the rays of the sun could never enter. It was the duty of all to look one another in the face and feel, each in his position, and according to the extent of his means, able to assist one another in their passage through this world. It was by such an institution as this, in providing against the contingencies and uncertainties of life they were inculcating habits of providence, and promoting good will amongst all classes, and thereby each one best serving himself, and securing his own happiness.

The next toast was—"The Architects and Civil Engineers of the Metropolis," which

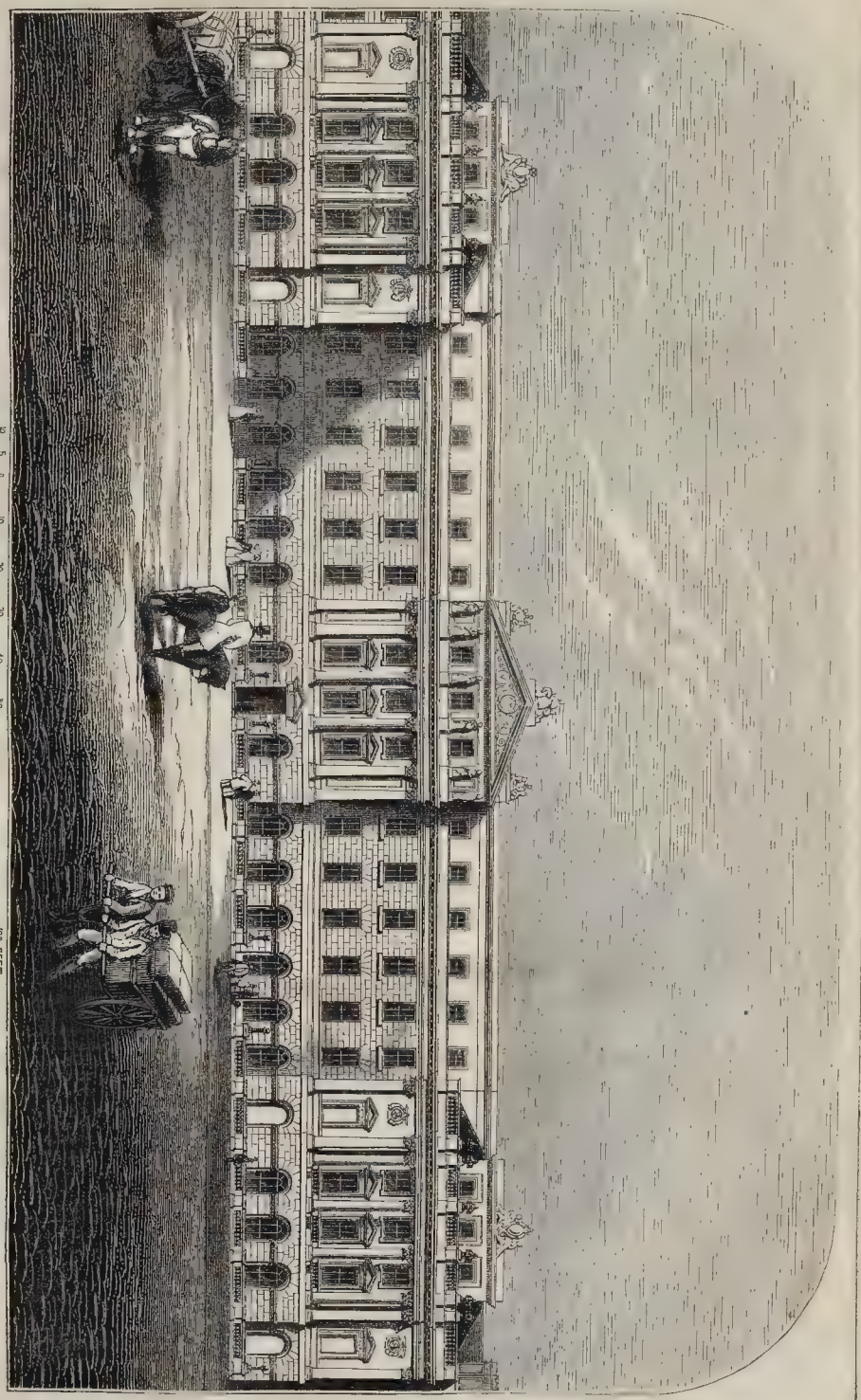
Mr. Kendal acknowledged, and said it was the wish and desire of the architects to support the Institution by every means in their power, and he acknowledged the great services he had received in a long career from the builders' foremen.

The next toast, "The Master Builders of the Metropolis," was acknowledged by Mr. Lee; and this was followed by "The health of the Governor."

Mr. George Baker responded to the toast, and said that when he was invited to accept the office he felt it was the greatest honour that could be conferred upon him, because he was asked to preside over a body of men with whom he had been intimately associated in matters of business all his life, and although he had now retired from business he should still feel it one of the most cheerful duties of his life to promote their interest and welfare in every possible way that he could, because there was no class of men to whom he owed a greater obligation than the class of men for whose welfare this institution was founded.

Various other toasts were given, and at the conclusion the chairman announced that the donations in the room amounted to 295*l.* 12s. 6d. and the annual subscriptions 21*l.* 11s.

Cambridge Architectural Society.—At the third meeting for the Lent Term, held on Thursday last, Mr. E. Freshfield, Trinity College, read a paper on Illuminations, illustrated by copies from mediæval illuminated manuscripts.



INLAND REVENUE OFFICES, SOMERSET-HOUSE.

MR. JAMES PENNETHORNE, Architect.

[See page 183, in our present number.

INTRAMURAL BURIAL.—LEGAL MURDER.

THE METROPOLITAN SANITARY ASSOCIATION.

On the 20th, a numerous deputation of the members of the Metropolitan Sanitary Association, including the Earl of Harrowby, Lord Robert Grosvenor, M.P., Mr. Benjamin Bond Cabbell, M.P., Rev. C. Hume, Messrs. F. O. Ward, R. Fox, Lewis Hume, M. Nelson, H. Roberts, C. F. J. Lord, T. Abraham, W. D. Bruce, W. Cotton, Dr. Milroy, G. Godwin, and the Rev. William M. Lusignan, Dr. Barnett, and C. R. Walsh, the honorary secretaries of the Association, waited upon the new Commissioner of Public Works—Lord John Manners—at his official residence in Whitehall-place, to urge upon the new Government the necessity of putting into execution the Metropolitan Interments Act, with such modifications as might be required to remedy the defects in it.

The Earl of Harrowby introduced the subject, and urged that the Act might easily be made efficient.——The Rev. Dr. Hume spoke as to the effect of the interment system on the poorer classes, and showed that matters were worse now than if the Act had not been passed, because parishes who would have provided places for interment had been prevented from doing so.——Mr. F. O. Ward went into the financial bearings of the question. He thought the objection that was raised against compelling persons to contribute who did not desire to avail themselves *directly* of the means of interment provided, was unsound. There were many persons in London who never required the service of a policeman, and yet it would be absurd to say that they were not bound to pay the police-rate—there were, perhaps, many persons who never required to go out into the streets after dark, and yet they were obliged to pay the lighting rate; and so of others, an indirect equivalent being given to the party in the general benefits derived by the community.——Lord Robert Grosvenor said that some of the graveyards which had been declared unfit for use, and had been closed up, were again opened; and, if the present state of things continued much longer, others would be re-opened, to the serious injury of the public health.——Mr. G. Godwin objected to the mock legislation which provided an Act to prevent fatal injuries, and allowed it to remain nineteen months in abeyance. Government could not feel the truth of what science had proved again and again as to the effects of the present system. He pointed out the fearful condition of some of the graveyards and church vaults in the metropolis, and implored the Government to prevent the sacrifice of life which the practice caused.——A conversation then ensued, in the course of which Mr. Nelson objected to the Act on the ground of "centralization."

Lord John Manners declared himself impressed by the importance of the subject: the present session threatened to be very short, but if they could arrive at any satisfactory conclusion previously he should be most happy.

NOTES IN THE PROVINCES.

Ely.—The Cathedral is now re-opened for divine service. The choir is effective. The organ has been removed and repaired. The Bishop's Green, at the western end of the cathedral, has been inclosed with an iron railing, dwarf shrubs planted on the borders, and a promenade formed.

Ipswich.—On Thursday week the first stone of a small chapel, for students, at the Grammar School, was laid by the mayor. The site of the building is at the north-east corner of the new school premises. The cost is estimated at about 700*l.* towards which the Rev. S. J. Rigaud, the present principal, has contributed 200*l.* Mr. Fleury is the architect, and the design is in keeping with the Tudor character of the buildings adjacent.

Wisbech.—The Public Hall, which was far advanced towards completion, lately, according to the *Cambridge Chronicle*, gave evident symptoms of being in a dangerous state. The architect, it is added, "made a public declaration of its safety; but as it requires an extreme degree of confidence to trust in walls out of the perpendicular, the committee for the erection of the building called in an architect from a distance, the result of whose examination on the 5th inst. was a suspension of the work, and an immediate shoring up of both sides of the building. A removal of the roof is also well-nigh determined on, as it is stated that the mis-construction of the roof, on a span of 40 feet, has been the cause of the disaster."

Eton.—It is intended to restore the antechapel and other portions of the College Chapel, in the same style as the choir. Plans have been prepared by the architect, Mr. J. Deacon, and the estimated expense is 2,000*l.* for which subscriptions are solicited. The contemplated works include a new wooden ceiling and stone facings throughout.

Winchester.—It is intended to restore the eastern window of the Cathedral, at the joint expense of the dean and the wardens of Winchester and New College, Oxford. Mr. Bailey, of Shrewsbury, it is said, has already been engaged to do the work.

Marlborough.—A site and 150*l.* have been given by the Bruce family for St. Peter's National School-rooms, to be erected from a design by Mr. J. Gould.

Worcester.—The *Worcester Chronicle* states, in reference to the remarks in our columns on the removal of the numerous little spires which once gave a peculiar character to the cathedral, that it is the intention of the dean and chapter, "if not to replace the spires (which probably formed no part of the present cathedral as it at first stood), at least to supply their places by such terminations as may be consistent with the style of the architecture (chiefly Early English)." It is to be hoped that nothing will be done without competent professional advice as to what *will* be consistent. The *Chronicle* itself admits that "it is true that the pinnacles erected of late years in place of some of these spires are totally out of character with the rest of the masonry, and that the fabric of the cathedral has been much neglected, and in some parts—the exterior of the south side of the nave, for instance—is almost in a ruinous condition." The blame for this neglect, it seems, rests with "the predecessors of the present body, who seem to have thought it no part of their duty to lay by out of their ample revenues a portion yearly for the repair of this venerable structure."

Wolverhampton.—The congregation of St. Mark's Church were in peril of suffocation lately, and had to be dismissed, after many of them left the church, unable to remain, in consequence of an accumulation of carbonic acid gas, or choke-damp, from the stoves, which were supplied with coke. The sheet-iron pipes, it is said by the local *Chronicle*, had become corroded where they penetrated the outer walls, and were stopped up at the lower angles; but the mischief is supposed to have been increased by a back-draught through the pipes.

Leigh.—A determination has arisen amongst many of the parishioners to erect a new church, in secession from the parish church, the teaching of the vicar of which being disliked. Upwards of a thousand guineas have been already subscribed.

Nottingham.—The *Bristol Journal* says that Nottingham Castle is to be razed to the ground, that a crescent of villas may be erected on its site. The new "building ground," it remarks, does not exceed two or three acres.

Bradford.—The first stone of St. Patrick's Roman Catholic Church was laid here, at the top of Westgate, on St. Patrick's day. The works, according to the local *Observer*, are already somewhat advanced. The new church is to be of Early Decorated character, and to consist of a nave, north and south aisles, chancel, chapel of the Blessed Sacrament, and sacristy. The following are the dimensions:—The nave, 90 feet by 24; aisles, 90 feet by 12 each; chancel, 28 feet deep, 24 feet wide; chapel of Sacrament, 28 feet by twelve; and sacristy, 25 feet by 18. The edifice will be adapted to seat 1,000 worshippers, and the estimated cost is 3,000*l.* The church will possess in its design and arrangements all the rubrics of Catholic art. It will be built entirely of stone. The architects are Messrs. Weightman, Hadfield, and Goldie, of Sheffield.

Plymouth.—The foundation-stone of the Plymouth new workhouse was laid on Tuesday in last week. A pamphlet, published by Mr. Damant, one of the unsuccessful competitors, seems to show a strong case against those who had the selection of the design.

Eighton Banks (*Gateshead*).—On 16th inst. according to the *Gateshead Observer*, the chief stone of a new church for 350 persons was laid here. Mr. Wall, of Durham, is the architect, and Messrs. Ferguson and Beattie are the builders; Mr. English, clerk of works, and Mr. Liddell, mason.

Ambleside.—Mr. Benson Harrison having proposed to build the spire of the new church, at a cost of 500*l.* if the subscribers and others will enable the committee to finish the remaining part of the tower, not yet contracted for, and estimated to cost about 350*l.* the required amount has been subscribed.

Glasgow.—The Victoria-bridge is progressing. According to the local *Gazette*, a considerable advance has been made in sinking the foundation for the fifth pier—four of the six having been already finished, or nearly so.

Guernsey.—The period for receiving tenders for the new harbour works is extended to the 10th of April. It is confidently rumoured that the specifications involve an expenditure of many thousand pounds beyond the original estimate.—*Guernsey Star.*

THE ENCLOSURE OF THE BRITISH MUSEUM.

SIR,—In your number of the 6th inst. you give an engraved specimen of the iron railing now being fixed in front of the British Museum, and in reference to which you observe—"The new enclosure round the British Museum is now nearly completed; and whatever opinions may be entertained as to the expediency or otherwise of putting up so large and costly a railing, it must be pronounced a fine work of its class."

That it is a fine work of its class (apart from the situation in which it is placed) I think no one will doubt; but with all due deference to the high character of the professional architects who have been engaged upon the structure and its accessories, it cannot be too deeply deplored, by all lovers of *pure Greek* architecture, that the huge and elaborated railing, now placed in front of the principal *façade* of the Museum, completely destroys the character of the building.

Without dwelling on the solecism which is involved, the most casual observer cannot refrain from remarking that the excessive height of the horizontal line formed by the top of the railing cuts the whole front in two (if I may use the expression), and effectually mars its entire effect.

If, instead of wasting nearly 7,000*l.* of our public money in costly and inappropriate cast-iron work, the same amount had been applied to the construction of a low parapet in sandstone or granite, with suitable pedestals at intervals, surmounted with statues of eminent naturalists, antiquaries, botanists, geologists, &c. in place of the figures of Shakspeare, Milton, &c. so questionably suggested, there surely would have been some degree of consistency observed, and the public would have had the satisfaction of contemplating an edifice recalling to their minds the classic and exalted associations of ancient Greece.

What Shakspeare and Milton have to do with an institution similar to the British Museum I am somewhat at a loss to determine, and trust I am not far wide of the mark in suggesting that the pedestals should be occupied by eminent *antiquaries, philosophers, artistic, and scientific men*, instead of poets and dramatists, and trust the press and the people will join in raising their voices to prevent the committal of further absurdities in the completion of the minor portions of this admirable institution, which is an honour to our land.

If we take a retrospective review of the

public buildings erected in London within the last twenty-five years, amongst which may be lamentably mentioned Buckingham Palace and the National Gallery, upon which thousands of pounds of the public treasure have been wasted with the most unsatisfactory results, I trust I have some justification in lifting my pen, with the view of directing public attention to subjects of this description, in order to prevent the recurrence of such failures which will remain as lasting stigmas on our country.—Roberto Angelo.

Notices of Books.

The Metropolis and its Municipal Administration; showing the Essentials of a Sound System of Municipal Self-government, as applicable to all Town Populations. By Mr. J. Toulmin Smith. Trelawny Saunders, Charing-cross. 1852.

This is a mere pamphlet of sixty pages, but it has much suggestive matter for all interested in the great question of Centralisation *v.* Local Self-government. For our own part, we are much inclined to think that there are, properly speaking, three parties to this suit, three causes here to be defended or attacked, and, probably, as in so many disputes about truth, the right view will be found to lie in the third position, between the two extremes. Self-government is the very basis and foundation of our liberties; but even the most segregative system of self-government implies association and centralisation. Look, for instance, to Mr. Smith's own idea of the most fitting system of municipal government for the metropolis. But first of all, let us here observe that the present author is a stern and out and out advocate for "self-government;" so much so, indeed, is this the case, and so determined an opponent is he to the principle of "centralisation,"—by which he does not mean merely Governmental interference by the appointment of commissioners or otherwise, but even *elective* government at all centralised,—that he objects on this ground alone even to such a "centralisation" as that implied in the combination of water-supply and sewerage into one intercommunicative system. Nevertheless, even so decided an opponent to centralisation as this,—who would not admit of the organisation of the *one* metropolis into *one* municipality or corporation, simply because it would be an extensive centralisation, and therefore advocates its division (or rather, in fact, its partial centralisation) into a number of separate municipalities and corporations,—even he cannot do without further centralisation, even here; and hence himself suggests the necessity of effecting "the *combined* action of different districts (that is of his separate municipalities or corporations into one centralised government) in all cases where any work *requires* such combined action in order to the sound accomplishment of what the public welfare needs." Now, what is this but centralisation? It is exactly what his opponents would insist on, that "in all cases *where* any work *requires* such *combined* action in order to the *sound accomplishment* of what the public welfare *needs*," there should be "centralisation." In fact, the only great question of difference between them is, what really does "require" such combined or centralised action for the public welfare.

Manual of Field Operations, adapted for the use of Officers of the Army. By Lieut. Jervis-White Jervis, R.A. Murray, Albemarle-street. 1852.

Who will tell us that the designers and builders of castles, towers, and fortifications, have nothing to do with "field operations?" As to the moral question, or the politic, little as we desire to have our peaceful occupations interrupted by warlike ones, we feel that the best way of preserving the former is to be prepared for the latter. By the way, however, does not the agitation of the militia and rifle club and corps questions imply a sort of foregone conclusion that *invasion, à priori*, not only is possible, but is not preventible? Would it not have more befitted the mistress of the main had her talk in such a case turned mainly on naval tactics, channel fleets, marine regattas, cruising war yachts, getting up the steam, and what not? As it is, we doubt not there are many of our readers, of all ranks and classes, who will think a little book on "field operations" to be just now a very timely and appropriate work even for general perusal. To all such we may say, that the one under notice is evidently got up with mental ability at least, and we doubt not with professional as well.

Memoirs of the late Thomas Holcroft, written by Himself, and continued to the Time of his Death; from his Diary, Notes, and other Papers. Longman and Co. 1852.

The "Memoirs of Holcroft," edited by Hazlitt, has long been a scarce book, and so entertaining a biography, of a remarkable man, in whose chequered life the difficulties with which genius has frequently to contend are so strikingly exemplified, cannot fail to be acceptable to the readers of "The Travellers' Library," of which it forms a new part.

Miscellanea.

Lecture on Progress of the Sanitary Movement.—Last week Mr. Joseph Jones, clerk of the Derby Local Board of Health, delivered a lecture at the Mechanics' Hall in that town, on the above subject. The lecturer traced the progress of sanitary investigation from the introduction of the new Poor Law, about seventeen years ago, when considerable attention was devoted to the causes of pauperism, which led to the publication of reports on the subject by the Poor-law Board. Mr. Chadwick's volume, entitled "A General Report on the Sanitary Condition of the Labouring Population of Great Britain," might be regarded, he thought, as the great text-book on this question, being a comprehensive digest of all the evidence and local reports last referred to. The Public Health Act received the Royal assent in August 1848, which is applied to towns on petition, and up to last summer, petitions had been sent from 210 places. To July last, the Act had been accordingly applied to 45 towns by Acts of Parliament, confirming the provisional orders of the General Board, but before the session closed, the number was increased to 72. Half of these are corporate towns having Local Acts for paving, lighting, &c. The Act has also been applied by Orders in Council to more than 50 other towns and places, and numbers of cases are in progress. The expenses of a preliminary inquiry and report, before the Act is applied, average about 120*l.* whilst to obtain a Local Act giving anything like the same advantages and powers, has, in some cases, involved an expense of several thousand pounds.

Little Gidding Church.—At a recent meeting of the Architectural Society of Northampton, some points as to the restoration of Little Gidding Church were referred to the committee by the lord of the manor. This church is well known, from its association with Nicholas Ferrar. Much of the internal fittings remain as be left them—the row of Jacobean stalls, placed along the north and south walls—the brass font and eagle, and fragments of old tapestry—are still found in the church. The external walls are very plain and of brick; the west end very poor, and certainly altered since N. Ferrar's time.* The committee recommended no attempt at restoring in Gothic style, but the renovation of the materials now existing, as nearly as they were in N. Ferrar's time.

Combination of Mechanics' Institutions.—A letter on this subject with list of queries have been addressed by the Society of Arts to the secretaries of the local institutions throughout the country, intimating that the society is fully prepared to carry out the general idea suggested by Mr. Chester if sufficiently supported by a general desire among the institutions to be associated with the society for lecturing purposes, exhibitions of arts and manufactures, &c.

* A Life of N. Ferrar has just been published by Masters, from Peckard, with an anastatic drawing of the west front.

Railway Jottings.—The contractor for the Hereford and Shrewsbury railway, Mr. Brassey, on visiting Hereford as to the site for a station, advises the adoption of one common station for the termini of all the lines which will enter this city, if the engineers can agree as to its site and construction.——The Pasha of Egypt has determined to employ native "navvies" in place of English, though he cannot do without English engineers, in the construction of railways in Egypt.——The Emperor of Russia has 10,000 men at work almost night and day on the line from St. Petersburgh to Warsaw. All the rails are to be delivered by the end of July, and the locomotive contracts are already signed. So also has the contract for the construction of the line from Moscow to Warsaw; and for the rails 140,000 tons have been purchased in this country, to be manufactured in South Wales by Thomson and Forman, Guest and Co. and Messrs. Boyley.

The Slide Rule.—Messrs. Elliott, of the Strand, have published a treatise, by the Rev. W. Elliott, M.A. on the general Theory of the Slide Rule, with reference, more especially, to the glass rule invented by M. Leon Lalanne. It is now too late to speak of the value of the slide rule: its applicability is generally known. For the mere practical man, content to confine himself to some few manipulations in which he may acquire facility and dexterity, this manual is scarcely intended; but it is for the workman, who, wishing to obtain a thorough mastery of the rule, will have to study it scientifically. A perfect knowledge of the mathematical principles involved in its construction is absolutely necessary; the slide rule *not teaching the method of working* any question; it affords aid in computation, in multiplication, and division to *any one*; in the higher rules *only* to those who understand these principles; and the improvements in M. Lalanne's rule, are, an increase in the number of the scales, and the introduction of many constant multipliers, or "gauge points," upon the slide itself.

Bloomsbury Ragged Schools.—Wide.—I beg to hand you a list of tenders for adapting premises, corner of George-street and Broad-street, Bloomsbury, for the purposes of St. Giles's and Bloomsbury Ragged-schools, Mr. Bellamy, architect:—

	A. Z.
Fullager	£1,377 0 0
H. Saunders	1,177 0 0
Haynes	1,123 0 0
Lansdown	1,092 0 0
Willson	1,050 0 0
Pawley	990 0 0
Holland	989 0 0
Rowland and Son	986 0 0
Cooper	952 0 0
Carter	937 0 0
Frank Saunders	918 0 0
Hinde	898 0 0
Little and Son	875 0 0
Elliott	857 0 0
Lisson and Robinson	815 0 0
Mansfield and Son (accepted)	805 0 0
Turner and Son	797 0 0
Hopkins and Robarts	790 0 0
Rudkins	750 0 0
Symonds	740 0 0

Wide Tenders.—Tenders for two blocks of five, and one block of three, almshouses for indigent foreigners, to be erected at Norwood, Surrey. Mr. E. B. Lamb, architect. The quantities furnished:—

Tippet	£3,229 0 0
Wilson	3,050 0 0
Gerry	2,950 0 0
Gibbin	2,767 0 0
Piper	2,638 0 0
Hopkins	2,608 0 0
Reading	2,414 0 0
Perry	2,349 0 0
Thompson	2,299 0 0
Patience	2,282 0 0
Cooper	1,917 0 0

Mrs. Damer, the Sculptor.—Your correspondent, "R. H. D." might have added to the notice of Mrs. Damer's works, that the statue of Sir Joseph Banks, in the British Museum, is one of that accomplished lady's most beautiful productions, and that the well-known figures on Henley-bridge are also from her chisel.—G. W. B.

"NOVEL AND STARTLING PROPOSAL."—The metropolitan correspondent of the *Liverpool Albion*, it appears, "describes a somewhat Quixotic scheme, which, he says, is being concocted by the Ministry; no less, in fact, than the enclosure of the Irish Sea, by breakwaters thrown across from Anglesea to the Wicklow mountains, and from Donagahee to Portpatrick. Thus, it is argued, Dublin, Belfast, Liverpool, Whitehaven, and other exposed towns, will be placed beyond reach of any hostile fleet, while, by the shutting out of the tidal waters, 'many thousands of acres of land, formerly, no doubt, corn fields, will be reclaimed, sufficient to yield the fifteen per cent. of corn now imported from foreign countries; the whole estuary of the Dee, large tracts of land on the Solway, the entirety of Morecambe Bay, across which the railway will be forthwith completed, so as to bring the mineral districts of Cumberland into immediate contact with the coal fields of Lancashire.'" A project such as this is certainly rather startling, but it cannot be said to be novel; for even the most ignorant of the lower orders in Ireland can point out the remains of the causeways, columns, and pillars (basaltic under the rose) which a renowned "contractor" in the days of yore laid down on the Irish coast for the very same purpose, of uniting it with the opposite coast of England. The *Albion's* metropolitan correspondent is an indomitable quiz, and, doubtless, intended to outvie the grand new project of reclamation at the mouth of the Mersey.

GLASS.—The large western window of St. Matthew's Church, Walsall, destroyed in 1847, has been restored by the mayor to its former state. The execution of the work was entrusted to Messrs. Chance and Co.——The west window of Elvaston Church is about to be filled with stained glass, by Warrington, at the expense of the Dowager Countess of Harrington, as a memorial of the late Earl. A screen will be erected and other improvements made conjointly with the erection of the window. Mr. Warrington was employed by the late earl to embellish Elvaston Castle with stained glass and other decorations.——The Adelaide Memorial Window Committee, at Worcester, having obtained a design from Mr. Preedy, architect, the figures on which, though numerous, were regarded as comparatively small, he was instructed to prepare another design, with the principal figures on a larger scale. This having been done, Mr. Preedy produced the original and amended plans, and the committee resolved upon the adoption of the original design. The centre light represents the genealogy of Christ, by the root of Jesse, the principal figures in it being supported by the four major and twelve minor prophets, while the two side-lights contain representations of ten of the holy women mentioned in the Old and New Testaments.

ELECTRO-TELEGRAPHIC.—It has been decided in the Denmark House of Representatives, by a majority of forty, that the electric telegraph, in continuation of the German lines, shall be immediately extended from Elsinore, *vid* Copenhagen, to Rendsborg.

COMBUSTION OF FUEL.—Mr. J. T. Jeffree, of Blackwall, engineer, has patented an apparatus for the more perfect combustion of fuel. The products of combustion are to be drawn from the flues by a rotating fan, or other contrivance, and to be mixed with such a proportion of atmospheric air as shall insure their combustion, after which the gases so mixed are returned to be consumed in the furnace, so as to obviate all necessity for funnels, shafts, or chimneys. Few seem to keep in view the fact, that the more perfect the combustion the more dangerous the product, though a less unpleasant one than soot or smoke which also it is so desirable to get rid of; and that, to disperse that dangerous product, shafts and funnels will be more requisite than ever, unless indeed, it can be cooled and carried off through flues or drains as a fluid, underground, like water, so as to avoid *drowning* people, which carbonic acid is as perfectly capable of doing as water itself, though not so visible. It would be a serious evil to have a manufacturing neighbourhood or town perpetually deluged with carbonic acid.

A MODEL CLOSE AT EDINBURGH.—In a pamphlet by Dr. R. Foulis, quoted by the *Edinburgh News*, is an interesting account of the renovation of one of those horrid haunts of low Irish to which probably not even the worst in St. Giles's can be compared. It was called Burt's-close. The improvement unfortunately did not extend to the inhabitants, who were rooted out. "Where wretched cellars were wont to be, now stand a handsome coffee-house and reading-room, for the exclusive use of the working classes. Miserable hovels, hotbeds of fever and filth, are now replaced by an airy, commodious, bleaching-green. Dilapidated garrets, at rents of 4*l.* are now occupied by respectable mechanics, who pay 3*l.* for a comfortable house, with water and gas. The process by which this has been effected, consisted of rebuilding one part, remodelling another, removing a third, and repairing the rest. * * * There are four distinct features which characterise the improvements effected on this close, upon the strength of which we feel ourselves entitled to call it the Model Close. The erection of superior houses for the working classes, situated in the heart of the town, with water, gas, water-closet, and bleaching-green, constructed out of *old property*, and at moderate rents—amply remunerative, at the same time, to the proprietor. A grocer's shop, where no spirits are sold. A commodious coffee-house and reading-room, for the benefit of the working classes. A model lodging-house, where mechanics can obtain most comfortable accommodation at the same rates as those charged for the worst."

THE ENGINEERING TRADES DISPUTE.—This unhappy difference still continues; and both parties—masters and men—are suffering severely in consequence. "No surrender" seems to be the determination on both sides; meanwhile, the future interests of both are being permanently and most seriously damaged by the departure of both skilled men and valuable orders to foreign countries, including now not only Belgium and France, but the United States of America, the Brazils, &c.; and, should this dispute continue much longer, the day of British boasting as the engineering workshop of the world will draw to its close. Even as it is, both parties have wilfully combined to scatter and plant the reproductive and perennial germs of engineering skill throughout the whole world,—a circumstance which may please those envious of our past pre-eminence, but one which not masters and men only, but every loyal Briton, will have future cause to regret.

M. LEON FAUCHER ON THE ENGINEERS' STRIKE.—M. Léon Faucher has, in the *Journal des Economistes*, written an interesting paper upon the engineers' strike in England. With reference to the suggestion of Lord Goderich, that the differences between the masters and workmen might be settled by a sort of mixed tribunal of *prud'hommes*, he explains that no such tribunal as the English operatives supposed exists in France. Lord Cranworth was right in his conjecture that the condition and remuneration of labour were things essentially beyond the jurisdiction of any court whatever. The *prud'hommes* in France merely decide questions of contract between masters and men.

THE "TRIFORIUM."—At a recent meeting of the Oxford Architectural Society, Mr. James Parker read a paper on the Triforium. He said that the usual derivation of *Tres* and *fores* did not hold good, as the three-light Triforiums were rather the exception than the rule. He therefore attempted a new derivation, namely, Tri contracted for *Turin-forium*, the Tower Passage, which he applied to the Clerestory Passage, and not to the lower one which generally bears the name of the Triforium, but is more properly called the Blind Story, and was often so constructed that it could be used for no purpose but as an architectural design to fill up the blank space which would otherwise exist between the arches and Clerestory. The upper gallery, on the other hand, he believed always led into the tower. In Christ Church Cathedral, as in many instances, there is no other approach.

MONUMENTAL.—The statue of Lander, the African traveller, by Burnard, has been finished and put up on its column in Lemon-street, Truro. The height of both column and statue is 70 feet. The figure is clad in loose trowsers and paletot, or frock coat, and holds a palm branch in one hand, while pointing with a scroll in the other, to a map of the Niger. The countenance in place of staring into indefinite space or vacancy, is directed towards the spectators in front. The likeness was made out by aid of Brockedon's portrait belonging to the Royal Geographical Society and Lander's own daughter, who is said to be remarkably like the portrait. In the proportioning of the column, the artist was aided by Mr. P. Sambell, of Falmouth, architect; and the whole was erected under the superintendance of Mr. Pryor, of Truro, builder.——The workmen employed in the removal of the ruins of the tower of Cockermouth Church, have discovered a portion of a monument erected to the memory of "Sire Richard de Lorme," supposed to have been a Knight Templar of the twelfth or thirteenth century.——Mr. Steell's bust of Lord Jeffrey has been removed from the sculptor's studio and placed in its permanent position in the Advocates' Library, at Edinburgh. Both as a likeness and a work of art, it is regarded as a successful production.——A monument is to be erected to the late Archbishop Murray.

NEW RECORD REPOSITORY IN CHANCERY-LANE.—The walls of this long-needed building, illustrated in our pages, are now above 40 feet from the ground, and are sufficient to develop the character of the whole. The interior of the building is divided into a series of moderate-sized chambers, evidently with the intention of obtaining security from fire, of a size that would limit the volume of fire in case one should happen anywhere. A correspondent draws attention to the fact that so far as the walls develop the form and arrangements of the chambers, it appears that they are made to communicate one with the other, besides there being an access to each one from a central passage; and that, if this inter-communication is preserved, it will destroy that fire-proof security which is the *first* object of the building.

THE TOMB OF THE TRADESCANTS.—The well-known monument of the Tradescants, in Lambeth Church-yard, has fallen into decay. The inscription also on the stone that covers Elias Ashmole's grave there is nearly effaced. It is proposed to raise a fund for the perfect restoration of the tomb of the Tradescants, according to its original form, and also for renewing Ashmole's epitaph. The cost will not be less than 100*l.* and assistance is earnestly requested from all who are anxious to preserve ancient monuments. Contributions may be paid, amongst others, to Sir William Hooker, Royal Gardens, Kew; the Keeper of the Ashmolean Museum, Oxford; or Messrs. Reeve, Henrietta-street, Covent Garden.

ST. JAMES'S PARK.—You seem to aim at all matters interesting or useful, and to give commendation where you can. Perhaps you will notice with your approval the careful manner in which the shrubberies in the enclosure of St. James's Park are thinned out and arranged for the approaching season; the judicious new walk and opening out of that *terra incognita* the islands; and if you think it worthy a place in your journal, will you be so very obliging as to ask them to plant a few wild flowers and ferns in the islands, and to remove the fountain post from the midst of the west end of the lake to the island, and to buy a little water for it to play with amongst the ducklings and the cygnets? It is terribly out of place now, and gives me the colic whenever I look at it; but, poor thing, it means well, I dare say.—Δ

PROPOSED NEW STREET.—It is proposed, and a Bill will shortly be submitted to Parliament for the purpose, to form a new main street from Blackfriars-road to London-bridge. The line proposed is a continuation of Stamford-street, so that when completed there will be a direct communication on the Surrey side of the river from London-bridge to Westminster-bridge.

WAX-CHANDLERS' HALL. — COMPETITION.—It may not, perhaps, be too late even now, for you to interfere, through the medium of your valuable Journal, to prevent injustice: I allude to the unawarded premiums for the designs for the Wax-Chandlers' Company's new Hall. I understand that some of the members have declined being mixed up with adjudication of the premiums, from the fact of private interest totally eclipsing merit, or in other words, the premiums are likely to be given to "*persons*" not "*things*." You could urge in the committee the absolute necessity of obtaining the services of a non-competing, disinterested professional man of reputation, as the surest means of administering justice to the several competitors.—VERAX.

THE GREAT EXHIBITION BUILDING.—In order that the public may be able to judge of the general effect of the interior now that it is cleared of all the exhibition fittings, and form an opinion as to the desirableness of preserving the building, Messrs. Fox and Henderson, the contractors, have opened it free of charge, and many thousands have visited the interior. Besides this, a committee of gentlemen is being formed, having for its object to test public opinion upon the question of retaining or removing the building; and should the former alternative be ultimately decided upon, then the purposes to which it should be applied, and the means of rendering it self-supporting. Mr. B. Oliveira, of Upper Hyde Park-street, would receive communications on the subject.

PURIFICATION OF SEWAGE WATER.—A black and foul stream at Hulme is being cleared of its odoriferous filth in pools and filters by Messrs. Corbett and Co. sanitary engineers, who use charred pine sawdust in their filters, and convert the solid matter thus obtained in defecating and deodorizing the water into a sort of guano, which is getting into use amongst agriculturists as a permanent manure. The cleared water is not made use of for any manufacturing or domestic purpose that we are aware of; and indeed, as regards potableness, although it is spoken of as equal in clearness and sweetness of odour to drinkable water, of course mere defecation and deodorization by charcoal will not purify it sufficiently for such processes. On the contrary, doubtless valuable salts for manuring purposes might still be got from it by addition of requisite ingredients to the mere charcoal in filtering.

A MILK TESTER.—It appears from recent investigations published in the *Lancet* that the much maligned metropolitan milk is not half so much adulterated as many other articles are, and that the chief, if not the only adulterant is water. To enable "the million" to test their own pennyworths, a simple and efficient, as well as cheap little instrument has been registered by Mr. George, of Adelphi Arcade, Strand. This we dipped into "our milkman's" diurnal supply, and were much pleased to find our estimation of milkmen in general rise with the bob of the tester to an unexpected degree, all through the buoyant conscience of one worthy member of the fraternity. A mere sight of such a tester, doubtless, in the hands of the public at large, would vivify the moral scruples of the milk merchants of the whole metropolis.

DRAINAGE AND EMBANKMENT OF LANDS.—The Earl of Carlisle has laid on the table of the House of Lords a Bill of 133 clauses for the drainage and embankment of land in England and Wales.

A NEW LAMP FOR USE AT SEA.—Mr. Thomson, surgeon, R.N., inventor of the naval telegraphic lights, has submitted a plan to the Admiralty, by which candles and oil may be dispensed with, many thousands of pounds annually saved, and yet ten times more light secured to every ship afloat: this is accomplished by a simple method of using the slush from salt meats, now of no use. The candle-tube may be filled with water, yet it can be instantly expelled and the light fully maintained. The grease is so locked up that it cannot well escape, so that the lamp may be rolled about the deck.—*Edinburgh Post.*

MUSEUM OF PRACTICAL GEOLOGY.—SOME of the working men who attended the lectures have urged the desirableness of having the museum open in the evenings; which would afford them opportunities of visiting it regularly, for the purpose of studying and examining its contents more fully. It is only after the workman's ten hours' toil is done that he can command an hour or two for the acquisition of useful knowledge at home or abroad in the Mechanics' Institution; and so long as institutions which might be of great service to him, and through his class to the community at large, are only open from, it may be, ten in the morning till five in the afternoon, it is evident they can never become available to him.

TENDERS

For a new north aisle and vestry to St. Barnabas Church, Homerton: the quantities furnished. Mr. Ashpitel, architect. The windows and material in the north side of nave to be used in the construction of aisle, &c.,

Norris	£1,470	0	0
Cobb	1,412	0	0
White	1,293	0	0
Myers	1,288	0	0
Curtis	1,268	0	0
Holland	1,260	0	0
Coleman	1,234	0	0
Piper	1,194	0	0

For three fourth-rate houses at Sydenham: Mr. E. B Lamb, architect:—

Barrett	£1,115	0	0
Thompson and Son	1,099	0	0
Julian	955	0	0
Bracher	939	0	0
Johnson and Pask	938	12	0
Hopkins and Roberts	855	0	0
Acocks	852	0	0
Colls (accepted)	823	0	0

For finishing the carcases of two houses in New Cannon-street, City, for Mr. Chaffers. Messrs. Tress and Chambers, architects. Quantities supplied:

Lawrence and Sons	£1,113	0	0
Ashby and Horner	1,075	0	0
Brown	1,049	0	0
Gammon	1,027	0	0
Curtis	946	0	0

TO CORRESPONDENTS.

"Registrar of N.," "G. S." "H. W. jun.," "J. J.," "E. D. H.," "C. D. D." "B. C." "T. E." "T. L. D.," "J. W." (according to the Act, the district-surveyor should be informed), "Dr. S." "J. F. W." (a similar proposal was made some time ago, to cover in with glass the inner quadrangle of the British Museum. The roof of the Exhibition building, however, would not answer the purpose), "J. B." "G. J." (the power of forming cellars would depend entirely on local circumstances), "J." "L." "W. A." "J. B." "G." "G. W." (thanks), "A Hater of Knobs," "J. L." "H. L." (not our custom), "F. and W." "J. M." "G. H. L." (we should not advise any expenditure upon the project), "E. R." "A. B. G." "G. A." "G. A. W." "H. W., jun." (shall hear from us) "T. J." "J. K."

ADVERTISEMENTS.

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EXETER HALL.—The office of SURVEYOR to the Hall is now VACANT. Applications in writing, accompanied by testimonials, and recent address to which letters to the Hall, on or before TUESDAY the 6th of April next. The amount of salary and the duties of the office may be ascertained on application at the Hall. By order of the directors.

March 17, 1852 WILLIAM G. ANE, Secretary

WOOLWICH, KENT.—To WORKING FOREMEN of ROADS, &c.—The Commissioners for Improving the Town and parish of Woolwich, in the county of Kent, will assemble in their Board-room, at the Town Hall Wellington-street, at six o'clock in the evening of FRIDAY, 2nd of April next, to receive applications in the handwriting of each person that may desire to become a candidate for the appointment of FOREMAN of the ROADS under the said commissioners, to be accompanied with unexceptionable testimony as to character and reference to one or more respectable person or persons confirmatory of his ability for the efficient performance of its various requirements. Applicants to be not less than thirty or more than forty-five years of age. The Foreman to attend at the Town Hall every day after the rate of 78l. per annum, and paid weekly; with a residence exempt from rent, rates, and taxes. The duties required to be carried out will be as follows, viz.—The general supervision and disposal of the men employed by the commissioners on the public thoroughfares; to possess a thorough practical knowledge of making and repairing roads and footpaths, formation of channels, &c.; management of horses and other minor particulars that necessarily appertain to the appointment in question. Applicants are not required to attend personally until required by the commissioners to do so. Canvassing the commissioners will be considered and deemed a disqualification for the above appointment. Letters to be addressed "To the Commissioners," under cover to the clerk.—By order of the board,

EDWARD SARGENT, Clerk to the Commissioners.

1, George-street, Woolwich, March 24, 1852.

WANTED, an EXPEDITIOUS PRACTICAL DRAUGHTSMAN. References as to ability required.—Apply by letter only, prepaid to P. L. jun. 5, Windsor-terrace, Pimlico.

WANTED, an EXPERIENCED JOINER to act as WORKING FOREMAN. Must understand Carpenter's Work. Reference as to integrity and ability required.—Address, A. B., Creswick's, 5, John-street, Oxford-street.

WANTED, an experienced, active Man, as WORKING FOREMAN of MASONS. Address, stating particulars, age, salary required, and where last employed, to A. B. Office of "The Builder," 1, York-street, Covent-garden.

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WANTED, a good, practical ARCHITECTURAL DRAUGHTSMAN, who should be well acquainted with church architecture, and capable of taking charge of works.—Address to D. D. D. Office of "The Builder," 1, York-street, Covent Garden.

TO PLUMBERS.

WANTED, a good PLUMBER, who will be required occasionally to fill up his time with painting and glazing. References will be required as to character and ability, as the situation will be for a permanency.—Apply between the hours of Six and Eight in the Evening, at No. 8, Wormwood-street, City.

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WANTED, by a London Firm, a thoroughly experienced, active person in the above capacity, who has previously filled a similar situation. Address, stating age, particulars, references, and where last employed, to X. Office of "The Builder," York street, Covent garden.

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WANTED, a respectable PERSON, thoroughly conversant to making fair and working Drawings, Measuring, taking out Quantities, Estimating, and Bookkeeping, and requisite he should write a good hand. It is requested no one will apply who has not had considerable experience.—Apply, by letter only, prepaid, to A. L. care of Mr. J. D. Thompson, Bookseller, 13, Upper King-street.

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A YOUNG MAN, 24 years of age, with first-rate references, wishes to obtain a SITUATION as OFFICE-CLERK CLERK of WORKS, or to superintend building works for contractors; is a good draughtsman and accountant, has a thorough practical knowledge of the business, and is capable of measuring and estimating. Address, J. K. 27, Charles-street, Clerkenwell.

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A MIDDLE-AGED MAN, of steady habits, and superior talents as a practical Engineer and Millwright, wants an ENGAGEMENT as FOREMAN in an Engineering Works, or as superintendent of Mills or other Works; he is now in a similar situation, and has held such upwards of twenty years. Has no connexion with Societies, and references satisfactory.—Address, A. B. 15, Ecclestone-place, Pimlico.

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ROYAL ACADEMY of ARTS, Trafalgar-square.—NOTICE TO ARTISTS. All works of Painting, Sculpture, or Architecture intended for the ensuing EXHIBITION at the ROYAL ACADEMY must be sent in on MONDAY, the 5th, or TUESDAY, the 6th of April next, after which time no work can possibly be received, nor can any works be received which have already been publicly exhibited. The other regulations necessary to be observed may be obtained at the Royal Academy

JOHN PRESCOTT KNIGHT, R.A. Secretary.

Every possible care will be taken of works sent for exhibition; but the Royal Academy will not hold itself accountable in any case of injury or loss; nor can it undertake to pay the carriage of any package which may be forwarded by carriers. The prices of works to be disposed of may be communicated to the Secretary.

EXHIBITION of the SOCIETY of BRITISH ARTISTS, incorporated by Royal Charter.—The TWENTY-NINTH ANNUAL EXHIBITION of this Society is NOW OPEN from Nine a.m. until Dusk. Admittance, 1s. Suffolk-street, Pall-Mall East.

J. W. ALLEN, Secretary.

PATRON—H.R.H. PRINCE ALBERT

ROYAL POLYTECHNIC INSTITUTION.—Prevention of Forgery: a Lecture by J. H. Pepper, esq. on Glynn and Appel's Patent Paper for the Prevention of Piracy and Forgery by the Anastatic Process.—During Lent, a Lecture on Astronomy, illustrated by beautiful diagrams, will be delivered by Dr. Bachhoffner, on Wednesday and Friday Evenings, at Eight o'clock.—The celebrated vocalist Krauss de Feher, who sings in thirty-six Foreign National Dialects, will appear for the first time in England in his new Musical Divertissement, "The Illustrated Crystal Palace," on Monday, the 29th inst. and continue each Monday, Tuesday, and Thursday Evenings, at Eight o'clock, in which he will introduce twenty National Melodies in twenty different Foreign Dialects.—A Description, by Mr. Oriqe, of the various kinds of Muskets, Rifles, &c.—Dissolving Views, &c. &c.—Admission, 1s.; Schools and Children under ten years of age, half-price. A new edition of the Catalogue.

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PAPER-HANGINGS.—By recent improvements in block and cylinder printing, good satin and bed-room papers are offered to the trade, at very reduced prices, by JEFFREY, ALLEN, and CO., Kent and Essex-yard, 118, Whitechapel.

PAPER-HANGINGS, the Cheapest in London, at CROSS'S Wholesale and Retail Warehouse, 29, Great Portland-street, Oxford-street, where builders and the trade can select from a stock of 50,000 pieces, at the following reduced prices:—

Good Bed-room Papers	from 6½d. per yard.
Painted Marble, Granite, and Oak Papers	from 9d. do.
Superior Dining and Drawing-room Papers	from 1s. do.
Satins and Flock	from 2s. do.

PATENT PAPER-HANGINGS, from Original French Designs, commencing at 7d. per Piece.

SATINS, FLOCK, GOLD, MARBLE, OAK, GRANITE,

Elegant Borders and Fillings for Decoration, equally low.

LINING-PAPER AT MILL PRICES.

Builders and the Trade, Country Dealers, and Exporters, will find the Largest Manufactured Stock at the LOWEST PRICES in the Kingdom, at

L. MARKS and CO.'s, Manufacturers and Importers, 2, Great-Queen-street, and 31, Parker-street, Long-acre, and Consignees of the principal Parisian Manufacturers. Established 1836.

PAINTERS' BRUSHES, Manufactured expressly for the use of painters and builders, of the best Russia bristles, warrranted. Price list sent free, and the attention to the manufacturer, J. B. TYLOR, 29, Great Dover-street, Borough, London. No brushes are genuine unless stamped "J. B. TYLOR, London."

HEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS, sent free by post, contains designs and prices of upwards of One Hundred different Bedsteads, in Iron, Brass, Japanned Wood, Polished Birch, Mahogany, Rosewood, and Walnut-tree Woods; also their priced List of Bedding, and their new warerooms enable them to keep one of each design fixed for inspection. They have also, in addition to their usual stock, a great variety of the best designs of PARISIAN BEDSTEADS, both in wood and iron, which they have just imported.—HEAL and SON, Bedstead and Bedding Manufacturers, 196 (opposite the Chapel), Tottenham-court road.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost. Such a question is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

MR. BARRETT (late FOX and BARRETT),

12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

LONDON ASSURANCE CORPORATION, established by Royal Charter, A.D. 1720.

FOR LIFE, FIRE, AND MARINE INSURANCES.

Head Office, 7, Royal Exchange, Cornhill.
Branch Office, 10, Regent street.
Actuary, Peter Hardy, esq. F.R.S.

This Corporation has effected Assurances for a period exceeding One Hundred and Thirty Years, on the most favourable Terms.

JOHN LAURENCE, Secretary.

PHŒNIX FIRE ASSURANCE COMPANY, Lombard-street, and Charing-cross, London, Established in 1782.

TRUSTEES AND DIRECTORS.

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Octavius Edward Coope, esq.	John Dorrie, Magens, esq
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ASSISTANT DIRECTOR—Thomas Richter, esq

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ARCHITECT AND SURVEYOR.—John Shaw, Esq.

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INSURANCES against Loss by Fire are effected by the PHŒNIX COMPANY upon every description of Property, in every part of the World, on the most favourable Terms.

Persons insuring with the PHŒNIX COMPANY are not liable to make good the losses of others, as is the case in some offices.

INSURANCES with this Company expiring at Lady-Day must be renewed within Fifteen days thereafter, or they will become void.

RECEIPTS are now ready at the principal offices, Lombard-street and Charing-cross, and with the respective Agents throughout the United Kingdom.

UNDER THE ESPECIAL PATRONAGE OF
HER MOST GRACIOUS MAJESTY THE QUEEN
AND
FIELD MARSHAL
HIS ROYAL HIGHNESS PRINCE ALBERT, K.G. K.T. K.P. G.C.B. and G.C.M.G.

THE ROYAL NAVAL, MILITARY, AND EAST-INDIA LIFE ASSURANCE SOCIETY, Established A.D. 1837.

FOR GENERAL ASSURANCES ON LIVES, 13, Waterloo-place, London.

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PHYSICIAN.—Sir Charles Ferguson Forbes, M.D. F.C.H. F.L.S.

COUNSEL.—J. Measure, Esq., 4, Serle-street, Lincoln's-inn-fields.

SOLICITOR.—Stephen Garrard, esq. 13, Suffolk-street, Pall-Mall East.

ACTUARY.—John Finlaison, esq. President of the Institute of Actuaries.

Assurances are granted upon the lives of persons in every profession and station in life, and for every part of the world, with the exception of the Western Coast of Africa within the Tropics.

The Rates of Premiums are constructed upon Sound Principles with reference to every Colony, and, by payment of a moderate addition to the Home Premium, in case of increase of risk, persons assured in this office may change from one climate to another, without forfeiting their Policies.

Four-Fifths of the Profits are divided amongst the Assured.

The circumstances of the Society, on the occasion of the Second Septennial Division of Profits, in the present year (1851), have warranted the application of a very liberal Bonus.

The additions to various Policies are shown in the following examples:—

Age when Assured.	Policy effected in	Sum Assured	Total Additions in 1851	
		£.	£. s. d.	
25	1838	1,000	164 12 2	Participators in Two Septennial Divisions of Profits.
35	1838	1,000	176 19 8	
45	1838	1,000	219 6 8	
53	1838	1,000	235 19 8	
64	1838	1,000	363 1 3	
28	1844	1,000	49 12 6	Participators in One Septennial Division of Profits.
36	1844	1,000	59 4 9	
46	1844	1,000	77 13 0	
55	1844	1,000	83 13 7	
66	1844	1,000	94 15 8	

JOSEPH CARTWRIGHT BRETTELL, Secretary.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 16, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.

CAPITAL £200,000.

This Company assures diseased as well as healthy lives for sums of from 5l. to 5,000l.

The annual income is nearly 4,000l.

Lives declined by other offices accepted at equitable rates.

Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.

M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING-CLASSES.

BRANCH OFFICE—2, EXETER 'CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo bridge), STRAND.

Open every Evening from Six till Eight o'clock.

Subscription for securing payments of 5l. and up to 50l. payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—

Weekly Contributions for payment of 5l. at death.

Healthy persons whose age on becoming subscribers shall be—

From	15 to 35 years,	to pay	1d. per Week.
„	35 to 45 „	„	2d. „
„	45 to 55 „	„	3d. „

Collectors call at the houses of Subscribers for these weekly subscriptions.

The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.

Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.

N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to MR. JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

LONDON and PROVINCIAL JOINT-STOCK LIFE ASSURANCE COMPANY.

Established, 1847.—Offices, 17, Gracechurch-street.

The Company effect every description of Life Insurance, both on the participating and non-participating scales.

They also lend money on the security of freehold and long leasehold property, reversions absolute or contingent, life interests, and incomes legally assignable. And on personal security, accompanied by at least three unquestionable sureties, and a policy of insurance effected with the Company for not less than double the amount borrowed. In cases of personal security, the loan is made for periods of from one to five years, repayable by annual, half-yearly, or quarterly instalments, with interest at 5 per cent.

C. INGALL, Actuary and Secretary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.

TRUSTEES.

Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robt. Swann, esq. York.

BANKERS.—Messrs. Swann, Clough, and Co. York.

ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Tables of Premiums for Insuring 100l.

Age next birthday.	A MALE.	A FEMALE.	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 13 6
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 8	10 3 4
40	2 19 9	2 19 0	76		12 1 9
43	3 5 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 22l. 10s.; and a lady of the same age can secure the same sum, for an annual payment of 19l. 17s. 6d.

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Applications to be made to MR. W. L. NEWMAN, Actuary and Secretary, York; or to

MR. RICH. WOOD, Solicitor, 13, John-street, Bedford-row, Agent for London.

BRITISH ASSURANCE COMPANY, 2, King-street, Cheapside.

Chairman—SYDNEY SMIRKE, Esq. A.R.A.

The rates for both Fire and Life Assurance are as low as can with safety be taken. The Premiums for Life Assurance made payable to suit the convenience of the assured. Prospectuses and all particulars may be had at the head office, or of any of the agents.

JOHN REDDISH, Manager.

THE WESTMINSTER and GENERAL LIFE OFFICE, at the WESTMINSTER FIRE OFFICE, 27, King-street, Covent Garden, London.

TRUSTEES.

George Dodd, esq. M.P.	Colonel W. H. Meyrick.
Geo. Mercer Henderson, esq.	Joseph Wm. Thrupp, esq.

The rates of premium for assurances, either participating or not participating in the profits of the Association, are as low as is consistent with security.

The additions made to the sums assured by policies which have participated in the three divisions of profit declared in 1843, 1847, and 1852, have averaged one-half of the premiums paid on them.

Every restrictive condition of assurance, not absolutely necessary for the security of the office, has been withdrawn from the policies.

Every facility offered to persons about to effect assurances on lives, and any information that may be required on the subject of life assurance, can be obtained on application at the office.

W. M. BROWNE, Actuary.

Agents required in the principal county towns.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—

POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION,

7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON; AND 55, PALL-MALL, MANCHESTER.

Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

IMPORTANT NOTICE TO POLICY-HOLDERS.

Policies absolutely INDISPUTABLE, and made PAYABLE TO THE HOLDER BY SPECIAL ENDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE:—

Assurances may be effected from 50l. to 10,000l. on a Single Life. Entire profits belong to the Assured, and divided annually. Credit for half the amount of the first five annual Premiums. Medical men remunerated for their Reports. Liberty to Travel, and Foreign residence, greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c. Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Copings for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 9, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

MAW'S ENCAUSTIC TILES.—Prices and Samples (Plain or Glazed) of this beautiful and durable production of medieval art, and Patterns appropriate for the floors or walls of public and private edifices, in every style of design forwarded on application to MAW and CO. at their Works, Worcester. N.B.—Plans of spaces to be paved covered with arrangements of Tile Patterns, without charge.

BRICKS! BRICKS!! BRICKS!!!—To save postages and letter writing to the numerous enquiries, L. DAVIS takes this medium to acquaint his friends that his Common Stocks and Place are all sold: he has only on hand About one million Washed, and some Paviors.

L. DAVIS is preparing for a large make this year, and is ready to treat with parties for any quantity in reason at a price to be agreed, and thus prevent disappointment and uncertainty.

Plumstead-park Brick-fields, near the Royal Arsenal, Woolwich.

TO SEWER CONTRACTORS, BUILDERS, AND OTHERS.

T. CROFTS having made arrangements with the Manufacturers, is enabled to supply the best BLUE VITRIFIED and FIRE BRICKS at the LOWEST PRICES.

Best Walls End Coals ..... 21s. 0d. per ton.
Best Birch Coppice..... 17s. 6d. ,,
Hawley Wharf, and 1, Colosseum-terrace, West, Camden-town.

PAN TILES, 48s. per 1000; PLAIN ditto, 32s. 6d. per 1000; FIRE BRICKS, 65s. per 1000.—WARD and CO. Hoodcross Wharf, Bankside, are now offering their Fire Goods (being about to make a considerable alteration in their Premises at very reduced prices. Dutch Clinkers, Windsor Loam, Tiles, and Bricks; Fire-clay, superior, 18 inches and 9 inches; Paving Tiles, of a rich colour, at a very low price. Gas Bricks and shaped Tiles.

AUSTIN'S REGISTERED BRICKS for BRITISH BOND TO ARCHITECTS, ENGINEERS, BUILDERS, BRICKMAKERS, and OTHERS.—W. AUSTIN respectfully solicits patronage for his improved-shaped Bricks, which are calculated for walls of varied he ghts and thicknesses, and will be found to have the advantages of increased strength by their external keying into each other (called British Bond), affording facilities of leaving cavities for drainage of damps from walls, vertically, and allowing a passage of pipes through vertical apertures for heating public buildings, churches, conservatories, museums, picture-galleries, &c. &c. without risk of fire.—Prospectuses sent on application to Mr. W. AUSTIN, Architect, Farnham, Surrey. Licenses granted to Brickmakers. Specimens of Bricks may be seen at Hart's Brick Machine Manufactory, Atlas Works, Borough-road, Southwark.

W. W. RAWLINS'S Lime Wharf, King's-road, Camden-town.—The cheapest wharf for all kinds of Building Materials, and the nearest to the north of London. Drain Pipes, of a superior quality, at greatly reduced prices. Whar'age, landing, and carting, on reasonable terms. Kent and Cowley stocks, grinders, and place bricks.

BARROW LIME.—This celebrated hydraulic Lime, from the Blue Lias Stone, can now be forwarded by railway fresh from the kilns to any part of the kingdom. It is becoming much more generally used for Concrete, and can be supplied ready ground for that purpose. Price, &c. may be obtained on application to JOHN ELLIS and SONS, Leicester

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality

SEGUNDS, PAVIORS, STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

GREY-STONE LIME.—HALL, BROTHERS, of Mersham Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery

Grey-Stone Lime	8s. 0d.	per Yard, or 22 Bushels.
Ditto, for Manure.....	4s. 6d.	ditto	ditto
Ditto, Ashes	1s. 6d.	ditto	ditto
Black ditto	3s. 0d.	ditto	ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the London and Brighton and South-Eastern Railways, or lines connected with them. A fresh supply, hot from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.

Prices for Cash on delivery:—7s. per yard at the stations or works; 8s. per yard delivered within five miles; not less than 3-yard quantities. Booking, 2s. per yard; 1s. per yard off, if paid monthly. Collecting charged for. The quality is warranted to be the best. Address, Mersham, near Reigate, Croydon; or Youl's place, Old Kent-road.

THOMAS FREEN and CO. LIME BURNERS, Wouldham-on-the-Medway. Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal-road, Kingsland road; Queen's Wharf Great Cambridge-street, Hoxgerstone; or King's Wharf, New Wharf road, Battle-bridge. N.B. Laths, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c. &c.

THOMAS FREEN and CO. REGENT'S CANAL, KINGSLAND-ROAD, beg to inform their friends and the public that, since the late fire on their premises, they have entirely REBUILT THEIR MANUFACTORY, and are now prepared to supply ROMAN CEMENT and PLASTER OF PARIS in any quantities, direct from their mills. P. F. and Co. further beg to state that, having made great improvements in their machinery, these articles, they trust, will be found fully to support the high character they have always hitherto borne in the trade.

ROMAN and OTHER CEMENTS, Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other.—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Damp Walls. Under Railway Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT. This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, place it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and may be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster, Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by C. J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 5, Upper Thames-street, City, and 6 and 7, Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial Bushels. QUANTITY NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

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The Builder.

No. CCCCLXXVIII.

SATURDAY, APRIL 3, 1852.

THE information touching the drainage of the sites of towns and of suburban lands, which has been collected and published by the General Board of Health, will, we expect and hope, have the effect of advancing the drainage movement throughout the country, and probably of preventing in some cases great waste of money.* Even in towns, the simple water drainage, the removal of superfluous rain or spring water causing dampness has been and is so generally neglected that the foundations of houses, called drained, are very generally damp from the water-bearing power of the ground on which they are built, and medical evidence is not wanting to show the extent to which the inhabitants of damp localities suffer as compared with those who live in dry houses. The expense of drainage, as we shall see, is comparatively trifling where an outfall can be had, while the value of the result can scarcely be overestimated.† The subject, therefore, addresses itself strongly to all, and more particularly to sanitary boards, proprietors, architects, and builders. The area under the jurisdiction of a Local Board, moreover, usually includes a large proportion of tillage or grazing land, and the perfect drainage of this is of importance in a sanitary point of view proportionate to its proximity to the town. Its importance on agricultural grounds is more tangibly demonstrable, and is already felt throughout large districts of the country, and many owners and tenants who have not yet drained their lands would gladly do so if they knew how properly to set about it.

The following are shown to be the chief agricultural advantages of land drainage to individual occupiers or owners:—

"1st. By removing that excess of moisture, which prevents the permeation of the soil by air, and obstructs the free assimilation of nourishing matter by the plants.

2nd. By facilitating the absorption of manure by the soil, and so diminishing its loss by surface evaporation, and by being washed away during heavy rains.

3rd. By preventing the lowering of the temperature and the chilling of the vegetation, diminishing the effect of solar warmth not on the surface merely, but at the depth occupied by the roots of plants.

4th. By removing obstructions to the free working of the land, arising from the surface being at certain times from excess of moisture too soft to be worked upon, and liable to be poached by cattle.

5th. By preventing injuries to cattle or other stock, corresponding to the effects produced on human beings by marsh miasms, chills, and colds, inducing a general low state of health, and in extreme cases the rot or typhus.

6th. By diminishing damp at the foundations of houses, cattle sheds, and farm steadings, which causes their decay and dilapidation as well as discomfort and disease to inmates and cattle."

All these evils lower the productiveness and diminish the money-value of land, as well as the comfort of suburban occupations.

Much may be done in some soils, by merely abolishing the open ditches and substituting covered drains, at a deeper level. Thorough and efficient drainage, however, should be obtained, and this, performed with judgment, will always pay. What is wanted is, that the whole of the rain-water which falls should filtrate equally and readily, though not too quickly, through the earth to a proper depth, and then be carried away. In stiff soils drainage further accomplishes this by causing the clay to crack, and become pervious. There are some soils which naturally are not sufficiently retentive; of course drainage would not benefit these, but such cases are exceptions to the general rule in this country. After a series of years the subsoil of a thorough-drained field changes into the nature of soil as far down as the level of the water in the drains.

"Those who are not familiar with the reality of this change will be most effectually convinced of it by inspection. It will be found to occur in the most marked degree when, as very often happens in clay lands, the original inorganic constituents of the soil and subsoil are not widely dissimilar. This change is accounted for—

1st. By the ameliorating effect of air and water, as has already been described, producing healthy decomposition of the organic and inorganic constituents, and thereby eliminating substances which constitute the food of plants.

2nd. By the washing out of deleterious ingredients.

3rd. By the loosening of its texture.

4th. By the penetration of roots, and by their ultimate decay in the subsoil.

5th. By the penetration of earth-worms and insects."

Among the beneficial effects of drainage are reckoned the admission of air into the soil from below, or by an under draught through the drains. Common air and water are the two substances most important for plants, and both require to be supplied to the roots in proper measure: and it is considered to be a great advantage to supply air from beneath, as well as from above. But the effects of different methods of land drainage, in this respect, have not yet been sufficiently observed for the enumeration of any practical conclusions in relation to them.

The increased value given to land by drainage of course varies with circumstances; in many cases, however, it has been doubled, and in some quadrupled. The ordinary improvement is variously estimated at from ten to twenty per cent.

The Report before us gives several plans of drainage, and hints as to the guiding rules, together with tables of the cost per acre, &c. according to varying circumstances, but persons about to drain should obtain professional assistance to arrange the general plan of mains and small drains, with the outfall, and decide as to their depth and distance apart. It may be mentioned that the drains should invariably run down the steepest descent and parallel to each other. When the surface is undulating the rule is to lay a main of sufficient size along the principal hollow, with sub-mains along all the secondary hollows, the small drains opening into these generally at right angles. Mains also require to be introduced whenever the length of the small drains becomes as great as would give them more water to deliver than they are capable of.

It is worth remembering, however, that while in respect to town drainage "the practice of architects and engineers was to enlarge the area of any main pipe in the proportion of the sectional area of each junction into it; it was found by the trial works, that the addition of eight junctions, each of three inches diameter, into a main line of pipe of only four inches diameter, so increased the velocity of the stream, that there was no increase of its sectional area."—(*Appendix No. 2 to Report on Water Supply.*)

An air drain on the higher level, communicating with the other drains, is advised by some authorities, and apparently with good reason. Measures must of course be taken to give the drains a perfectly regular inclination; and when the pipes have been laid end to end, a trustworthy man should follow to throw back the first spit of earth into the cutting so carefully as not to break or disturb them. The distance at which the small drains should be placed depends, amongst other things, on the nature of the soil, and the *depth* at which they are to be put in. We have a strong opinion in favour of deep drainage, and believe it will be found to be cheaper, as well as more efficient, because the drains may be much farther apart. Take, for example, a field of 20 acres in one particular county, with the drains 3 feet deep and 22 feet apart, and the cost will be 5*l.* 2s. 6d. per acre, requiring an annual improvement charge for 20 years of 7s. 7d. per acre. In this calculation the main drain is considered to cost 8½d. per rod for cutting and filling, and the minor drain, 4½d.; the larger pipes 40s. and the smaller 30s. per thousand. Now, take a field of the same size, with the drains 45 feet apart, and 4½ feet deep, allowing for the digging and filling 1s. 2d. per rod for the large, and 10d. per rod for the small drain,—the price of the pipes the same as before,—and the cost will be found to be but 3*l.* 19s. 1½d. per acre, or an improvement charge for twenty years of 6s. 1½d. per acre.

The cost of draining a large tract of land in Gloucestershire recently, under our own eyes, the drains being 60 feet apart, and 4 feet deep, was 3*l.* 10s. per acre. The distance apart is larger than usual, but the result is in this case very satisfactory. Money may be obtained from Government for drainage as our readers probably know, by the payment of 6½ per cent. for 22 years, which gives back the principal, and a fair rate of interest, without making a demand upon the capital of the owner. In medium soils an improvement charge of 6s. 6d. per acre for this term will meet the expense.

We have alluded to the necessity for draining land for suburban villas. A space of ground near Birkenhead, now called the Park, was, a short time ago, a mere marsh, over which thick mists hung at nightfall, "It was thoroughly drained with drains varying in depth from 7 feet to close surface drains. The mists and fogs created on this tract have, since the drains came into operation, disappeared. The expense of that work was 20*l.* per acre; and the land, which before the drainage was worth only 1*l.* per acre, is now worth, at the least, 4*l.* per acre for pasturage; so that the work pays 15 per cent. direct profit, besides effecting its main object,—the improvement of the neighbourhood in comfort and salubrity."

The cost of draining one acre of land for a

* Minutes of Information collected in respect to the Drainage of the Land forming the Sites of Towns, to Road Drainage, and the Facilitation of the Drainage of Suburban Lands. Ordered to be printed for the use of Local Boards of Health and their surveyors engaged in the administration of the Public Health Act, Jan. 1852. Her Majesty's Stationery Office.

† Where thorough drainage cannot be obtained a layer of Seyssel Asphalte over the whole site of the house and under the walls will be found serviceable.

detached building, the site of the building deep drained, and the rest of the land thoroughly drained, is shown by the report to be met by an annual charge for twenty years of 18s. 3½d. in light soils, 1*l.* 1s. 4¾d. in medium soils, and 1*l.* 6s. 0¼d. in heavy soils. The drainage of one acre of land for four semi-detached residences would be met by an annual charge per house for twenty years of 3s. 11d., 4s. 7d., or 5s. 7d.

The cost of drainage will be lessened by the use of the draining-plough, when the difficulty which still attends it in respect to giving the pipes, with certainty, the right inclination, is overcome, and the pipes will be made more cheaply before long. As yet, the system is a new one. Until the time of Smith, of Deanston, drainage was applied only in cases where springs and oozes made themselves evident, and in the first instance mistakes were of course fallen into. For example, his minor drains were of no less than 18 inches sectional capacity. "Now," says the report before us, "a single drain of this capacity will, when running half full at the outlet, discharge in twenty-four hours about six hundred tons of water, equal to a rain-fall of nearly 6 inches in depth on an acre. 1 inch in depth is a very heavy fall in a day, and it generally takes two days for the water after rain to drain fully from deep drained land; yet Mr. Smith provided eighteen such drains per acre, having a total sectional area of 324 inches, and capable of discharging when only half filled, 4½ inches of rain-fall from an acre in a single hour. That is in six hours more than the whole annual rain-fall of the London district." Every facility for draining land throughout the country should be afforded. An excess of water in soil is hurtful,—first, by diminishing the amount of air beneath the surface, which air is of the greatest possible consequence in the nutrition of plants; and, secondly, by reducing the temperature of the soil at a time when, for the purposes of vegetation, it ought to be the warmest. Experience has settled the question in an agricultural point of view: the sanitary part of the subject has been less considered. By drainage the climate will be ameliorated, and many diseases prevented. It is really a very important matter, and we hope this publication of the Board of Health will give a fresh impetus to the prosecution of it throughout the country. It has long been admitted that he who makes two blades of corn grow where only one grew before, is a benefactor to his species. *Thorough drainage does more than this.* It tends to lengthen life as well as increase the means of living.

MOSAIC WORK; ENAMEL; EARLY ARTISTS IN ENGLAND.

RESTORATION OF THE TOMBS IN WESTMINSTER ABBEY.

At the meeting of the Institute of Architects on the 22nd ult. (referred to in our last number) Mr. Digby Wyatt made some observations on the various artistic processes which the monuments in question displayed, and especially that of mosaic. The mosaics of Westminster Abbey, he said, were of two kinds, "Opus Grecanicum" and "Opus Alexandrinum," the former being the glass mosaic employed in the tomb of Henry III. and the latter the marble and porphyry work of the two pavements. The first stage of mosaic, it should be remembered, was when the practice was entirely Greek; when the Greek artists, on their expulsion from Byzantium, under the iconoclastic emperors, formed a school at the church of Santa Maria, in Cosmedino, at Rome. That school existed till about the year 800, when the troubled state of the Church prevented the further development of the art, and there ensued a complete lapse for some centuries in Italy. About the year 1150, Desiderius, one of the "abbati" of the great Benedictine establishment at Monte Casino, sent four workmen from Greece, in order "that the art might not be lost in Italy, and that the young men of that country might learn the mode of manipulation." Shortly afterwards the Greek work began to be imitated in Italy and Sicily, though more particularly at Rome and Florence. Andrea Tafi, Gaddo Gaddi, and Pietro Cavalini, became skilful workmen in Italy during the thirteenth century, when the second series of great mosaics—those of Santa Maria Maggiore, San Giovanni in Laterano, &c. were carried out. This series differed materially from the former; and it was in this latter style of mosaic that all the examples in Westminster Abbey were executed. These specimens were peculiarly interesting, because, independently of the inscriptions upon them—which proved their date beyond any doubt whatever—the evidence afforded by their style showed that they were works of the manner and period referred to, and displayed the English sympathy of the thirteenth century with Italian art. The pavement of Becket's Crown, in Canterbury Cathedral, in addition to portions of "Opus Alexandrinum," comprised a very perfect specimen of old Florentine mosaic, or "lavoro di Commesso," which was quite a different kind of work; the best specimens of it being preserved in the Baptistery at Florence, and the Church of San Miniato on the hill above the same city. The latter description of mosaic was formed by drawing the desired pattern on the surface of the marble, and chasing it completely out; and then cutting out of another piece of marble of a different kind the pattern necessary to fill up the cavities of the former. This kind of mosaic was carried still further at Sienna by Beccafumi, who attempted to produce effects of light and shade by the use of different tints of marble; and it ultimately led to the regular Florentine mosaic, in which, in addition to attempts to realise chiaro-scuro, colour was introduced by the employment of different stones, and even jewels. In the earlier specimens of Florentine mosaic, the only colours were red, black, green, and white. In addition to the mosaics, the tombs at Westminster exhibited some very curious specimens of Limoges enamel. At the risk of repeating what might be known to many present at the meeting, he might be allowed to observe, that at Constantinople there existed originally a peculiar style of filagree enamel on thin sheets of gold, to which gold threads b ing attached formed little chambers, into which pounded glass of different colour was put; and the whole being placed in a "muffle" furnace, the glass was fused so as to hold the threads permanently in their proper places, and to convert the surface into a beautiful minute glass-mosaic picture. Specimens of this kind of enamel were exported from Constantinople to different countries of Europe; and examples of it might be seen in England, in the famous Alfred Jewel, a brooch in the Hamilton collection of gems in the British Museum, &c. The style of enamel getting into France, was imitated by the workmen there; who, however, retained the old Gaulish practice, which was of a kind similar to that which might be seen on harness, and other ornaments discovered in barrows. The above kind of enamel was formed by the following process: a copper ground was taken, and lines incised in it; powdered glass was then put into the cavities, and the whole being fused and polished, and the metal afterwards gilded, the different lines and parts cut out glowed with enamel colours, in a manner similar to that which had before existed in Byzantine work. Mr. Wyatt then pointed out a peculiar connection which existed between Byzantium and Limoges, through the Venetians having employed Byzantine workmen to execute mosaic and filagree enamels. In this last style their most important commission was the well-known Palla d'Oro, or Palliotto of St. Mark's, ordered about the year 900, by the Doge Orseolo, which was supposed to have been executed in imitation of the altar frontal of St. Sophia, at Constantinople. At the end of the twelfth century, the Venetians had considerable intercourse with France, and established at Limoges a depot for the merchandise they sent from Venice, such as embroidery, spices, and other rich objects from Greece and the East, which reached Limoges by way of Marseilles. There still existed at Limoges the streets of the Venetian merchants; and it was a remarkable fact that the very Doge Orseolo, who ordered the altar frontal at Venice, came afterwards and lived at Limoges. Thus, the French of Limoges produced, from a combination of the old Gaulish enamel and that of Byzantium, the peculiar material known as Limoges enamel — an example of which was admirably shown in the little feretory belonging to Mr. Hope, exhibited by Mr. Donaldson. The principal application of enamel, illustrated by the tombs at Westminster, was that of forming the effigy of the deceased in wood, and overlaying it with plates of metal, having incised lines, in which the enamel patterns were inserted. The tomb of William de Valence, Earl of Pembroke, was, perhaps, one of the most interesting examples in this country. The figure of St. Edward, on the side of his feretory, as has been observed by Mr. Scott, was probably carried out in Limoges enamel; for it was not to be imagined that the tomb of William de Valence was a singular case: there was a complete effigy of Walter de Merton, Bishop of Rochester, executed in enamel by workmen who came over expressly from Limoges, and set it up in the cathedral. Mr. Wyatt referred to the beautiful altar frontal in the south ambulatory, which he described as completely Florentine in its character and in the details of its fabrication. Other interesting processes might be referred to as illustrated in Westminster Abbey, the monuments in that edifice furnishing a complete history of decoration, as applied to textile fabrics and embroidery in this country. With regard to the nationality of the different workmen employed upon these monuments—remembering what Mr. Cockerell had written upon the subject—it might be observed that Henry III. was, to a certain extent, identified, as to time, with Nicola di Pisa, who was regarded as the great reformer of art in Italy. Before the time of that great artist, however, many important works had been executed by the old Lombard school of art, particularly in the districts of Milan, Pavia, and Lucca. Of this school were the Comaschi, the Freemasons of that district; who, as Mr. Hope stated, and as it was generally believed, connected themselves with other bodies in Europe, and dispersed themselves in various directions, carrying out important works wherever they went. If it were not for the passing action of some such body, it would be difficult to account for the singular appearance in France of a strange sort of Early English style; agreeing in style with that of buildings executed by Nicola di Pisa, by the Cosmati at Rome, by Massuccio at Naples, and other artists anterior and immediately posterior to the year 1,300. The examples of this peculiar style were few, and were found in adjacent localities, exactly as if some passing body had visited them, and left its impress, and moved on. It might be supposed that they had visited England, and brought with them a certain amount of Early English. Indeed, he could not otherwise account for the peculiar appearance of the ornamental sculpture of that period. Henry III. ascended the throne in 1216; and, during his boyhood, was for some time involved in trouble and warfare. At a later period, however, he appeared to have engaged in the production of works of art. Now, in considering the question, by whom these works were carried out, it should be remembered that the King was continually quarrelling with his barons about the number of foreigners (Poitevins and Italians especially) he brought into the country. The Popes of that time insisted on their right to institute to all the churches in England; and the monastic orders in this country were

placed in the closest relation with Rome, embassies, and other communications with that city, constantly taking place. In the last three years of the pontificate of Gregory IX. 300 different Italian priests were nominated to English benefices; these being regular clergy, and entirely independent of the monastic orders. Each Pope, during Henry III.'s reign, exercised the same right, and must have sent over a large number of Italians. In looking for actual records to support this view, it appeared, that in 1253, William of Florence was an artist employed by the King, and, in 1260, by an order printed in the Close Rolls, the King directed a sum of money to be paid to him, "for making an altar frontal, as we have directed him." Again, in the year after the elevation of the relics of St. Edward (1269), the King appointed William of Florence master of his works at Guildford, and paid him sixpence a day, which was, at that time, very good pay; though in Edward I.'s time workmen received considerably more. Among the first artists employed by Edward I. was "Master Torrell," who worked upon the tomb of Queen Eleanor: there was also Andrea Giletto, and a "Master Walter." Mr. Hunter had shown that nine English sculptors were engaged upon the Eleanor Crosses; but that was at a somewhat later period—quite the end of the century—whereas the earlier artists appeared to be principally Italians. It was curious, also, that when Edward I. wanted to carry out his principal works at St. Stephen's Chapel, he had to send out and impress men, who no longer hung about the court, as in Henry III.'s time. Judging from these circumstances, it would appear that the *prestige* of the Italian artists had departed from them, and many had probably quitted the country, or given up their artistic pursuits. The new order of men probably learned their art from these Italians. William Barnaby and Hugh St. Albans were unquestionably English; but from that time the same excellence was no longer found: a different spirit pervaded the latter works, the style of which was rather actual and dramatic, whilst the former were reflective and æsthetic. Of course it would not be forgotten that Odoricus and Pietro, the artists of the mosaics at Westminster, were very great men.

Taking this view of the remains at Westminster, they were peculiarly interesting; and if their restoration could be reconciled to the conscience, its necessity must be undoubted. It would be an excellent thing for the arts of this country if they could be perfectly restored. But, setting aside the artistic view of the question, it was to be remembered that every Englishman had a historical duty in the matter. It would be very injudicious to lay down any general rule, or to say dogmatically that these tombs should or should not be restored. Much would depend on the state of the particular monuments, and every case had its peculiar circumstances. It might be possible to restore the form of a monument, so as to give symmetry to the object, or preserve its solidity, and at the same time enable every one to know what part was old and what new. That plan had been actually carried out in the restoration of the arch of Titus at Rome; where the restorers, instead of attempting to imitate all the fine carving of the old *marble* work, had restored, in Travertine *stone*, the general form; so that, at a distance, it appeared to be a perfect and beautiful arch, whilst, on a nearer inspection, the new work was found to be only sketched, and the old preserved in all its purity. Thus, there was a complete solid restoration of form and effect, yet the work was perfect as a historical monument. With regard to the crumbling ruins of the decaying monuments at Westminster, it should be remembered, that "out of dead bones life cometh," and in their very decadence and mutilation was recorded a history of those Reformers who overthrew what they considered superstitious monuments, and a kind of tradition of the state of feeling in their time. It was right to respect the ancient Sovereigns of England, and if their memorials perished, a spirit of loyalty should induce us to erect others to commemorate their virtues, if we respected them; but the testimony of these Reformers should be likewise respected. If these monuments were to be restored, at least a brass inscription should record their precise existing state prior to the commencement of the work of repair. Where objects were peculiar for their beauty, and where, by any ingenious process, they could be brought back to their original condition—without addition or subtraction—or where they could be improved by washing off dirt, or by otherwise cleaning and varnishing, the employment of such process (which was only uncovering veiled beauty) was perfectly legitimate; but even that had its limits. Only the other night it was agreed that there was no colourist like Time, and that all the polychromy of art was scarcely harmonious till its tones were blended by age. Why, therefore, should what time had done be undone? If these monuments were to be restored, all must agree that *great care* would be required. He should be very sorry to see any rash hand applied to them: he should be, indeed, as grieved to see them "restored," in the common acceptation of the term, as he should be to notice the rust rubbed off a beautiful green bronze of the Etruscan period.

EXHIBITION OF THE SOCIETY OF BRITISH ARTISTS.

THE twenty-ninth exhibition of the Society of British Artists, now open, consists of 667 pictures and three small pieces of sculpture. The members have for the most part maintained their position: some of them, indeed, have made an advance; and yet it is scarcely possible to examine the collection without feeling that the real capability and destiny of art are here little shown. There are many very excellent pictures, several first-rate paintings of their class, but if you look around for the works produced in earnestness, with a purpose beyond making a pleasant picture,—the efforts of thought intended to give thought,—the soul-work, so to speak, by which alone the soul will be reached,—the number will be found lamentably small. Art-the-pleaser there is in several forms, and far be it from us to slight her in that guise, but art-the-teacher, even to the extent of a historical presentment, barely shows her elevated face.

Mr. Hurlstone exhibits no fewer than fourteen large pictures, mostly of Spanish figures, which maintain his right to be considered one of the greatest living colourists. No. 39, "La Buena Ventura, a gipsy foretelling to a Spanish mother the destiny of her child," is his most elaborate work, containing four figures, cleverly grouped. For our own hanging, however, we should covet more No. 475, "A Flower Girl of Seville," a charming specimen of his style. Mr. Woolmer has several pictures of considerable beauty, displaying, in the midst of fanciful colouring, purer drawing and greater care in the setting forth of his poetical views of life than on some previous occasions. Mr. Buckner by (70) "A Roman Boy," makes us regret that he has not sent more: the face is beautiful. Mr. Baxter's heads (not the dresses) in (29) "Olivia and Sophia," and (451) "Portrait of Marian Huth," are charming. Mr. Gale's "Isabella" (390), is full of feeling. Very admirable is the finish displayed by Mr. Gill in (43) "Leap-frog," and (336) "The Dead Bird." We should like to see his skill employed on better subjects than the first. Mr. E. T. Parris has a finely finished small group in the water-colour room (575) entitled "Affection." Mr. Herring in (191) "Cromwell's Soldiers in possession of Arundel Church," has introduced more figures than usual, and produced an excellent picture. His farm-yard scenes are perfect of their class. Mr. Wingfield exhibits an agreeable interior, with figures, (356) "Shiplake Church, Oxfordshire, at the time of Cromwell."

The landscapes by Mr. West, of Clifton, seventeen in number, and many of large size, too, shew improved skill in manipulation. They are truthful and effective, though with considerable sameness. One that pleases us most, though far from being the most important, is (416), "Mountain Torrent, Sogne Fiord." Mr. J. Allen always gives true glimpses of pure English scenery, and is not behind-hand on the present occasion: his atmosphere and distances are always good. What are we to say of Mr. Anthony? What can we say more satisfactory than that all his works, or nearly so, are sold? There is about them such wonderful truthfulness and "sledge-hammer" force, (witness, for example, the spire of the church in (200) "The Village Bridal" and (430) "The Glen at Eve"), that it is impossible to refuse admiration; while, at the same time, they exhibit in other parts such coarseness and exaggeration that the term "fine art," as applied to them, seems a misnomer. The genius shewn in them is nevertheless unquestionable. (No. 371) "Loch Long, with Carrick Castle," is an elegant landscape by Mr. J. Danby. Mr. Clint has been less successful in execution this season than usual; still all his pictures have the merit (and it is a great one) of a sentiment. (No. 471) "Sunset, Poole, Dorsetshire," is one of the best. Mr. Boddington has several good landscapes, especially (96) "Midday on the Thames," and (222) "A Sedgy Nook on the Thames." Mr. Percy's "Rain on the Hills" (392), is truthful, but gloomy. Mr. Tennant's coast scenes, sparkling and pleasing as they are, show nature too sprucely "swept-up:" (470) "Sand Dredges, on the Stour, near Sandwich," is an agreeable exception. No. 190, under the joking title "War in India," a scene in the Himalayas, by J. D. Francis, represents a life-sized fight between a lion and tiger, and shews a power of grappling with violent motion, which promises well for the future career of the artist. Amongst the other works which we find marked in our catalogue are (12) "The Gleaners," by J. J. Hill; (69) "A Portrait," by Z. Burkly; (134) "Lyons," by J. P. Pettitt; (153) "There! He's gone," by T. F. Dicksee; (427) "A Study," by J. P. Drew; (523) "The Cathedral of St. Bavon, Ghent," by T. Scandrett; (630) "Stanmore, Middlesex," by J. Dobbin; (616) "Camellias," by V. Bartholomew. There is something good in Mr. Wainewright's pictures; nor should we omit mention of Mr. Cole, Mr. Noble, Mr. Hassell, Mr. Clater, and Mr. Wilson.

EXTENSION OF THE LAMBETH WATER-WORKS TO DITTON, SURREY.

ON Tuesday last a special train from the Waterloo Station took three or four hundred gentlemen to Kingston, by invitation of the directors of the Lambeth Waterworks, formally to open the new establishment at Seething Wells, Ditton, for the supply of their tenants with water. As we have on many occasions protested strongly against the previous source of their supply, it is but an act of justice on our part to make public the very earnest endeavour which the company have now made to obtain pure water; and we are glad to be able at the same time to say that the works have been executed in an excellent manner, and will confer credit on the engineer of the company, Mr. James Simpson. From a printed paper issued by the directors, we learn that the works were originally established under an Act of Parliament passed in the year 1785, "For supplying the inhabitants of Lambeth and parts adjacent with water from the river Thames, between Westminster-bridge and the confines of the parish of Christ Church;" the want of this most essential element of life in greater purity and abundance, having been severely felt in that suburb of the metropolis, on the south of the Thames, then expanding and forming into densely populated districts. A large portion of St. Mary, Lambeth, and the contiguous parishes were at comparatively low levels: the area comprised many fields and a great deal of garden ground, which in the rainy seasons was often covered with water, and in the winter frequently afforded the diversion of skating to thousands. The names of many of the places to this day indicate that they were situated on marsh lands, with raised roads or causeways running through them: thus, Lambeth-marsh was bounded by the parish of Christ Church and the Westminster and Blackfriars roads. The population was at

first thin; the principal portion of it being scattered on and contiguous to a line of street running from the foot of Blackfriars-bridge, in a direction nearly parallel to the Thames, to the foot of Westminster-bridge.

The southern metropolitan suburbs derived little benefit from improved drainage or underground covered sewers prior to the year 1810, the Commissioners of Sewers for Surrey, &c. not being invested with powers to make new sewers until they obtained an Act for that purpose in the previous year: their operations afterwards had a most beneficial influence, and rendered many places fit for building sites.

Up to the year 1810, the extension and improvement of the Lambeth Waterworks had been progressive, but comparatively gradual; the impetus, however, given to building in Lambeth and the parts adjacent by drainage operations on a large scale, subsequently to 1810, called more rapidly for the construction of waterworks of an enlarged character; and between the years 1810 and 1831 the works were considerably enlarged and extended, and in 1832 and 1833 the present reservoir on Streatham-hill was constructed, and pipes were laid to supply it.

As long ago as the year 1847, the directors found that the complaints made against the quality of the water they distributed were well founded, and in the year 1848, they succeeded in obtaining an Act to enable them to construct new works, under which the arrangements at Ditton have been carried out.

The site of the new works is one mile and a half above Kingston-on-Thames, and three miles beyond the range of the tide. The river is said to be usually very clear and pure; but as it is during a short time every year disturbed by floods, the company have constructed a series of filters, through which all the water is made to pass. These filters are in form sunk water-tight basins. They are paved at a certain height from the bottom with narrow slabs of slate carried on cross walls, and placed half-an-inch apart. Upon these slabs are placed layers of sand, shells, and gravel (about 5 feet in thickness), through which the water descends, filtered, into the culverts and receiving wells, whence it is pumped into the main pipe by steam-engines. These engines, constructed from the designs of Mr. Simpson, are of 600 horses power collectively, and are capable of pumping 10,000,000 gallons of water daily into the company's reservoirs at Brixton, and they can be linked so that any two of them may be worked as one engine of 300 horses power. They are of the kind known as the double or compound cylinder (high and low pressure), expansive engine, combining the patented improvements of Messrs. Pole and Thomson. The great length of the pumping main demands perfect machinery.

The pumps are double acting, ingeniously contrived, with bucket and plunger, requiring only two valves (instead of four valves, with side pipes, as in the ordinary double-acting pump), and they are connected to the engines in such a manner that when any two are worked together, a constant and regular flow of water is ensured through the main pipe. The water passes through the barrels of these pumps direct into the main, it is said, without the stoppages and concussions incident in the ordinary four-valved double-acting pump.

The boilers, nine in number, are cylindrical, each having an internal furnace tube running its whole length, with an arrangement to carry off any water that may be formed by vapours arising. The engines and boilers are placed in fireproof buildings adjoining each other. Over the engines there is a beautiful travelling crane for repairing, &c. The chimney shaft is 110 feet high, and is within a square tower, on the plan of Mr. Thomas Cubitt's, at Thames-bank.

The buildings have an architectural character, solidly and strongly built; and though we cannot greatly admire the battlemented tower (studied from the Castle at Newcastle), we must give the designer credit for having substituted for the usual costly and ugly standpipe, a building sufficiently ornamental. The flue is 7 feet square, the enclosing tower, 17 feet.

The aqueduct or main pipe by which the water is conveyed from the engines at Ditton to the company's reservoirs at Brixton, is 10¾ miles in length, and formed of cast-iron pipes 30 inches in diameter. This pipe was cast by the firm of Cochrane and Co. near Dudley; the weight of iron in it is about 8,000 tons. It is provided, at various intervals in the length, with stop-valves, for preventing the back flow of the water, and apparatus for emptying, draining, and allowing for the escape of air, and was laid by Mr. William Baker, of Bristol, under the superintendence of Mr. John Brough Palmer, the resident engineer. The total sum expended will be, we understand, 146,000*l.* For some distance the main runs side by side with the South-Western Railway.

The day was somewhat gloomy, and we did not exactly participate in the opinion of one of the speakers, that a "pluvial precipitation" was exactly what should be desired on such an occasion; flags, evergreens, military bands, cold chickens, and smiling faces, however, made all sunny within, and the whole affair passed off very satisfactorily.

ARCHITECTURAL GUIDE BOOKS.

ON taking up your interesting journal last Friday, I was attracted by the title of an article which a little puzzled me. It was as follows:—"Architectural Guide Books, with a ticklish et cætera." Now what "*an* et cætera," "ticklish" or otherwise, could possibly be, excited my curiosity, and I read an article which, for correctness and propriety of style, fully carried out all that might have been anticipated from its "funny" heading. After mentally cancelling a series of redundant epithets such as "hideous," "barefaced," "scare-crow," "Jemmy Jessamy," "blundering," "puling" "feeble," "inane," "dry," "bombastic," "pedantic," "trashy," &c. I found that the author's intention appeared to have been to cause the writers of all guide books "to eat dirt."

Now, Sir, as the friend of one or two men of acknowledged profound learning, taste, and intelligence, who have exercised their talents upon such works, I must protest against your allowing the pages of the generally admirably conducted BUILDER to be occupied with such communications as that of your "incorrigible" correspondent.

I need scarcely point out the injustice of a criticism which designates the admirable works of Sir Francis Palgrave, Sir Gardner Wilkinson, Col. Leake, Mr. Peter Cunningham, Mr. Woods, Valery, Forsyth, Rossini, George Dennis, Vasi, Förster, Bünsen, Plätner, Gutensohn, Sir William Gell, Ford, Canina, Sir Charles Fellowes, &c. as "the veriest ragamuffins of literature." After all the money and energy that have been of late years expended by Mr. John Murray upon his most valuable series of works, it does really seem unpardonable for any writer to speak in such abusive and off-hand terms upon the subject. If such judgment awaits the poor architects, in the event of your correspondent's wishes with regard to architectural criticism ever being carried out, I can only express my fervent hope that we may have none of it.

As an old traveller on the continent, I may be permitted to bear testimony to the general excellency of the well-known red books, and the very great use of which I have found them in studying the fine arts. The summaries which have reference to the history of the monuments and culture of the liberal arts in every district, I have heard many of unquestionable authority pronounce to be invariably condensed with judgment, replete with information, and satisfactory as to tone and appreciation. An allusion to Italy is unfortunate, since the "Murray" for Northern Italy happens to have been written by one whose reputation as savant, connoisseur, and writer, is unquestionable, and whose style is as free from pleonasm and *waggishness*, as that of your correspondent is full of both.

If that gentleman has travelled at all, he must either have never used his Guide-Book, and can therefore know nothing on the subject, or he must attribute the majority of whatever he learned to having its council and information at hand for ready reference, to supply him with the precise data necessary to enable him to appreciate the historical and other conditions of every monument he examined. If he has learned what I think he might and ought to have done from the study of "guide" books, I think it is, to say the least, somewhat ungrateful to throw down the ladder by which he may have risen.

It is perfectly possible that you, Sir, may not agree in all respects with my opinion as regards the excellency of the works in question, but I think I may assume, from the earnest and serious tone in which you are in the habit of predicating concerning serious things, that you will be as ready to recognize the impropriety of your correspondent's manner, if not matter, as can possibly be your obedient servant, "FID. DEF."

ARCHITECTURAL CRITICISM.

As you have allowed me to pass the rubicon, and give utterance to one or two far more wholesome than welcome remarks, hardly will you object to my returning to a topic which affords so much of that rare, if not always valuable, stuff—the *non dictum prius*. Among various other equally strange and deplorable anomalies in the position of architecture as one of the fine arts, not the least striking is that, while its followers are apt to bluster not a little about the power and excellence of their *art*, seldom do they practise it as if it were a fine art at all, or let it be seen that they are ambitious of showing themselves to be possessed of that unfeigned *con amore* diligence and sincere affection for their "mission" which are inseparably united with every genuine artistic nature. Some, undoubtedly, there are who can allege in excuse for themselves the want of adequate opportunity for the display of artistic talent; although, for my own part, I am of opinion that he who possesses the requisite talent will be able to put at least some artistic touches—to infuse some artistic sentiment—into almost the humblest and most unpromising subject; nay, that he will do so almost instinctively, since what is in the artist-mind will *ooze out*, although circumstances may hinder its being *poured out*. Few can hope to be called upon to produce architectural epics, yet cleverness and smartness, if no higher quality, may surely be shown in an architectural epigram; or, to speak less figuratively, artistic feeling and taste may be manifested, at any rate negatively if not positively, under nearly the most unfavourable circumstances conceivable. Even where grandeur is utterly out of the question, the *naïve* and the graceful are attainable, would the ambition of embryo palace-builders but allow them to condescend to that level, which they seem to scorn, although, after all, it is perhaps rather above than below them. Instead of endeavouring to elevate their subject, whatever it may be, into the region of art, architects seem to need to be lifted out of quotidian dulness and commonplace by their subject; but architects show themselves to be too much like Cowper's "Jack,"

> "Who knew no medium between guzzling beer,
> And his old stint, three thousand pounds a-year."

For above epigram,* they require the epic of their art to enable them to show *forte*. Well, then, what are our architectural epics? Why, if we are to believe ourselves—that is, those who speak to the public,—they are almost all failures in a greater or less degree. It is the constant taunt of critics and journalists that, with, perhaps, one or two exceptions at most, all our public buildings are a reproach to our taste as a nation.

Architects are widely differently circumstanced from all other artists, literary ones included, and very disadvantageously so, inasmuch as they are completely dependent in the first place upon the chances of opportunity, and, in the next, upon the self-willedness of employers, whose caprices and obstinacy are

* By the epigrammatic, the writer, of course, means the *Pointed* style of architecture.—*Printer's Devil.*

generally in proportion to their ignorance. The architect cannot possibly, like the painter, produce a perfect work, and send it forth to the world to find a purchaser. That is utterly out of the question. It is true, he may exhibit what belongs entirely to himself as the individual artist, namely, his conceptions and ideas; yet that he can do only imperfectly, because only partially. Be their intrinsic merit ever so great, there is no market for drawings of that class, and scarcely any public either, who are capable of appreciating, or even care to look at them. They are exhibited, perhaps, at the Royal Academy, but it is only to be either ignored altogether, or to be spoken of so hurriedly and slightingly by diurnal critics, that complete silence would sometimes be far less mortifying; and they are produced only to be ultimately buried in their author's own portfolio, even though they should happen to be finished pictorial drawings, and also equally effective and artistic as compositions. Paper is no match for canvas: shown upon the latter, a mere tumble-down cottage or outhouse, will be admired and admitted into a gallery from which the established etiquette would exclude the most glorious architectural conceptions, if displayed only upon paper. And why? Simply because the public have no real relish for architecture for its own sake, as art, in consequence of their having never been taught to acquire such relish, or to consider the study of architecture other than an exceedingly dry one, and, to themselves, utterly useless and unprofitable also.

I was going here to quote Scripture, but I will not do so, not because my application might by some be considered profane, but because some others might consider it offensively personal. I will therefore content myself with saying or re-saying, that for this state of matters architects have mainly to thank themselves. They have, in a manner, ignored the public, till the latter have, by the *lex talionis*, ignored them. They admit no criticism as legitimate that does not proceed from their own body. They have succeeded in their efforts to suppress all others, and are to be *condoled with* accordingly. It may be, and if it should be, some one will, no doubt, come forward to tell me so, an egregious error on my part; but I cannot help thinking that it would be infinitely better for us, for architecture itself and its followers, and for the public also, were there very many more, and greatly more competent judges of it than there are at present. Why should not the public, or those who speak either for or to them, be able to express their opinions just as freely and quite as much at length upon architecture as on any other topic? Whereas the merits of a new opera or a new opera dancer—at which architects would, perhaps, turn up their noses, as matters supremely frivolous—are discussed at length both in newspapers and conversation, architecture obtains in such quarters, if any notice at all, only a very hurried, superficial, and brief one.

If architects can be content with such dearly-purchased exemption from criticism, so—whether architect myself or not—am not I. For if I do not deplore it for the sake of the Profession, I do so for that of architecture itself, whose interests alone I have at heart.

And now, I do not conclude, but break off; having very much more to say, provided you will afford me the opportunity of doing so.

Q.

EVENING OPENING OF GEOLOGICAL MUSEUM, PICCADILLY. — A memorial by working men being about to be addressed to Sir Henry De la Beche, requesting that the museum might be opened two or three evenings in each week for behoof of workmen, Sir Henry has caused it to be intimated to the proposer of the intended memorial that the additional expense or trouble in attendance would be no hindrance, but that the specimens really require to be seen by daylight, a consideration which will necessarily limit the time of evening openings to summer. The subject, however, is still under consideration.

NOTES IN THE PROVINCES.

Boston.—The gas company here are making preparations for the production of gas of sufficient purity to induce the inhabitants generally to introduce it into private houses; and moreover, to this end, it is said, they intend to lower the price as well as to improve the quality,—a spirited example, which it would be well for other gas companies to follow. Is it not a strange fact that while our manufacturers in cotton, iron, steel, brass, &c. find and occupy fields of profit even in the midst of Egypt, Tartary, and China, our manufacturers of gas have an immense field of profit at their very doors, which they have not spirit enough to occupy? And yet, that private dwellings, even of the poorest class, do constitute such a field of inexhaustible and permanent profit, has long been demonstrated in Scotland, and indeed in England itself. Cheap and good gas (unless something still better supersede it), will yet, we confidently hope, illuminate every dwelling of every one of our towns and cities, just as now it lights up every street and shop. Gas companies will then see whether we have been their enemy or their friend in insisting on that diminished price and increased purity which must unavoidably precede and pave the way to such an immense new field of profit.

Grantham.—A site for a new corn exchange has been purchased in Elmer-street North. The exchange is to be approached by an arcade of shops.

Lincoln.—A sum of 250*l.* has been voted by the vestry of St. Peter-at-Gowts' parish for the improvement and repair of the church according to the plans prepared by Mr. W. A. Nicholson; but this only on condition that a like sum be raised by voluntary contribution.

Norfolk Estuary.—Messrs. Peto and Betts have of late been engaged in excavating a new cut for the waters of the Ouse at the ends of the two mile marsh cut, for the proprietors of the Norfolk estuary. It was their intention to excavate only partially, and then to complete the work by scouring. To prevent this an injunction was applied for on the part of the proprietors of the Eau Brink Drainage; but men were lately set to work, and the Ouse turned into the new cut before any authority could be got to interfere with the intention.

Thetford.—Workmen have been removing the rubbish from St. Cuthbert's church, old iron, wood, &c. being sold by auction. The bells are now removed from the rubbish. One of them bears the inscription, "Robert Draper, Mayer;" another was cast at Thetford, and two at Sudbury; and on one is the following rhyme:—

> "Henry Pleasance did me run,
> In the year 1701."

Northampton.—The newly discovered ironstone in this county is causing much remark and excitement, especially among the landed proprietors. It is said that it will enhance the value of the land where it is most abundant to upwards of 1,000*l.* per acre. There is a considerable difference in the quality of the ore, ranging from 15 to 80 per cent. in the quantity it yields. The *Birmingham Gazette* declares it will lead to great disappointment.

Buckingham.—The gas company speak of a reduction in price, and also of "devising a scheme to increase the consumption." It would really appear as if the gas companies were now seriously turning their attention to our oft-urged arguments in favour of an extension of the use of gas in private dwellings. Besides increase in purity as well as reduction in price, the companies would find the adoption of a liberal policy with respect to meters and fittings to their advantage in carrying out any scheme for the lighting of private dwellings with gas.——A new approach to the railway station at Buckingham has been staked out across the meadows, between the London-road and Mount Pleasant, at the instance of the Marquis of Chandos. The ground on either side of the road will be let on building leases, for the erection of villas, &c.

Eton.—A public meeting has been held here to promote the erection of a new chapel of ease. Plans of an edifice by Mr. Ferrey were exhibited. The proposed cost is 8,000*l.* for a building to accommodate 1,200 persons. The Provost and Fellows of Eton have presented a site and 500*l.* In all nearly 3,000*l.* have been subscribed.

Winchester.—On the 20th ult. we noted that the east window of the cathedral was about to be restored as nearly as possible to the original design by Messrs. Baillie (of Wardour-street). Observing, however, in a provincial paper, of a recent date, that Mr. Bailey, of Shrewsbury, had been engaged to do the work, we stated the circumstance, as announced, but Messrs. Baillie now themselves intimate, that our previous authority was correct.

Weston-super-Mare.—Archdeacon Law, rector of this parish, has it in contemplation to erect here, at his own expense, a college for the middle class. The site chosen is at present occupied by the old national school-house. Plans are being prepared, and the estimated cost of the building is from 4,000*l.* to 5,000*l.*

Cardiff.—A sum of 313*l.* has been raised towards the proposed erection of a church at Canton, the thickly populated suburb of Cardiff. The diocesan architect, Mr. John Prichard, offers to provide plans, &c. and superintend the building gratuitously. A committee has been formed for building a church at Maesteg. About 600*l.* it is said, have been collected for this purpose, and the building is to be commenced in the ensuing summer.

Llandaff.—The Bishop of Llandaff has had 1,000*l.* presented him to be expended in building a church in some part of his diocese where it is most required; no part of the sum to be spent in the purchase of a site.

Worcester.—A meeting of subscribers to decide finally on the design for the Adelaide window to be erected in the cathedral, was held on Saturday week at the Guildhall. The meeting unanimously confirmed the adoption of the original design, and resolved that the work should be at once commenced, subject to the consent of the Dean and Chapter. It will be superintended by Mr. Preedy, and executed by Mr. Rogers. The estimate is 150*l.* for the stone-work (which is to be constructed after the Early English style, for the admission of three lancets), and 450*l.* for the glass and design.

Liverpool.—The new North Dock Works are rapidly approaching completion. The Huskisson Dock is for ocean steam-ships. The dock itself is ready to receive vessels, and workmen are paving the pier and quay, and constructing the locks at the north end. The width of the east lock-gates is 80 feet, 10 feet wider than the lock-gates of any dock hitherto constructed at this port; the west lock-gates, 45 feet. The water area of the dock, 14 acres 3451 yards, with quay space to the extent of 1122 yards. The water area of the east lock is 4682 yards, with quay space of 342 yards; water area of the west lock, 3650 yards, with quay space 330 yards. The total water area of the Corporation's wet docks along the margin of the Mersey is now 177 acres 3684 yards, with a quay space of 12 miles and 1412 yards; and of dry basins, an area of 20 acres 892 yards, with quay space of 1 mile 712 yards; making a total of 197 acres 4567 yards of water area, and 14 miles 712 yards of quay space, with a length of 5 miles and 20 yards of river-wall. Other docks are yet to be formed, and excavations are going forward. On the walls of the north docks are Norman-like towers, to serve as offices for the gate-keepers: they are built of granite. In the neighbourhood of the new docks, buildings of various descriptions are rapidly springing up, and shops, private dwellings, and public-houses, in a half-finished state, are in progress in almost every direction.

Lichfield.—The razing and rebuilding of certain parts of St. Mary's Church, at a cost of 2,100*l.* is under consideration. A sum of 1,600*l.* has been subscribed for the restoration and improvement of the fabric.

Leicester.—We understand that out of the twenty-nine designs prepared for a Temperance-hall at Leicester, that by Mr. J. Medland, of Gloucester, also the successful competitor

for the design of a new cemetery at Leicester, has been selected. It is in the Italian style, and the whole block of building will cover an area of 115 feet by 58, with an elevation of 60 feet. The hall will accommodate 1,800 persons sitting, or 3,000 standing. There will be galleries, and an orchestra for 200 performers, with an organ, in the hall; besides which there will be a lecture-hall, reading-room, library, club and committee rooms, curator's house, &c. The capital of the company is about 6,000*l.* The chief stone is to be laid on the 2nd June.

Nottingham.—The Arboretum is to be opened to the public under certain restrictive regulations on the 11th May. It is to be free only on two days in the week, Monday and Wednesday, and on part of Sunday. On close days a fee of 6d. for adults and youths, and 3d. for children will be exacted, except to yearly subscribers, who will pay fees of 5s. for each individual, and 10s. for each family, or 1*l.* with the additional privilege of admittance to visitors of the family not resident in the town. In place of promoting harmony and good feeling these regulations, it is feared, will establish the contrary between the inhabitants and the corporation.——In consequence of the very large amount of premature and preventible mortality indicated by the septennial returns of the registrar-general to be prevalent at Nottingham, the Central Board of Health have intimated to the sanitary committee of the council that it is probable the usual inquiry on such occasions will be instituted. The council have been discussing the subject, and have unanimously passed various explanatory and defensive resolutions and objections to the Board's interference. One of the local papers, in also objecting to the threatened investigation, expresses a fear, that "as in the case of the Poor Law, the system of centralization would destroy the good old English plan of local self-government."

Doncaster.—Building operations are becoming rather extensive here in consequence of the accommodation required by the Great Northern Plant in Doncaster. Five new streets have been planned and laid out. The houses are to consist entirely of a superior description of cottages. The laying out of such streets is, by a special provision, under the authority of the local board of health, who have power to fine, to alter, and to charge offenders with the cost. The board have given their sanction to the laying out of the new streets.——Subscriptions to the amount of nearly 500*l.* have been got towards the erection of a window in the parish church to the memory of Sir William Cooke. It is intended to remove the organ from its present position when the window is put up.

Miscellaneous.—In Middlesborough, says a contemporary, the charge for gas to private consumers is 5s. per 1,000 feet, and the public lamps, which are lighted in October and put out in March or April, according to the moon, something under 2*l.* per lamp, the company lighting, extinguishing, and keeping them in repair. In Hartlepool, where the charge to private consumers is 4s. 6d. the public lamps are charged 2*l.* 10s. each. In Stockton, 232 lamps are lighted during nine months for 2*l.* per lamp: nine nights at each moon they are not lighted, and one-half are always put out at twelve o'clock. There also the town provides the lamps; but the company keep them in repair. The charge to private consumers is 5s. per 1,000 feet. In Seaham the public lamps are 2*l.* 5s.; and private consumers are charged 3s. 4d. per 1,000 feet. In Durham, where the company find the lamps, light, extinguish, and keep them in repair, 215 are charged at the rate of 1*l.* 16s. per lamp.

Glass Bagatelle-board.—A capital table of glass, 10 feet long by 3 feet broad, and perfectly level, according to the *Shields Gazette*, has been converted into a bagatelle-board, by Mr. Swinburne, of that town, to order. The boring of the nine holes, it is said, was the greatest difficulty experienced in its formation. If we mistake not, there is a simple method of boring glass with great facility and safety recorded somewhere in our own pages.

AMERICAN NOTES.

The Boston Fire Alarum Telegraph.—We have received a copy of the city report on the new telegraph organised throughout the city of Boston, and described on page 63 of our present volume. From this document it appears that the original estimate of Dr. Channing, exclusive of superintendence and (Morse's) patent right, was 7,959 dols. 60 cents. The actual cost, exclusive of the same is 10,749 dols. 40 cents, being an excess of 2,789 dols. 80 cents, or about 35 per cent. This excess is due chiefly to an extension of Dr. Channing's plan, according to suggestions embraced in the plan itself. Thus, there are forty signal stations placed in iron boxes on the outside of buildings, in place of twenty-six, the number in his estimate. The instruments in the central office are thus described: —A triple Morse register, a triple receiving magnet, a triple alarm bell apparatus: these, with the necessary keys and switches, are connected with the signal circuits. An instrument called the "district keyboard:" a triple alarm register and proper switches are connected with the alarm circuits. An instrument called a "testing clock" is connected with both signal and alarm circuits, and once each hour gives notice on a small bell of the integrity or interruption of the various circuits: the battery room is No. 13 of the same building. The interior of the central office, says the *Boston Transcript*, "well deserves to be considered the brain, or at least the *cerebellum* of the city. It is the centre of two sets of iron nerves, the signal or sensational system, by which it receives intelligence from every one of forty distant stations scattered all over the city, and the alarm or motive system, by which it disperses that intelligence simultaneously to all quarters of the city, and arouses its muscular energy by means of nineteen heavy bells. Thus, by a slight pressure with one of his fingers, the central operator sets in instant motion engines of alarm equivalent to nineteen stout men, and ensures absolute precision and agreement in their signals. They are made to tell the story of the locality of the fire intelligibly and unmistakably. The sensation at one point is propagated through the central office, or brain, to all parts, almost as quick as thought. The mechanical adjustments in this office are very ingenious and beautiful, and reflect great credit on Mr. Farmer (superintendent of construction) and Dr. Channing (the originator)."

Preservation of Trees.—"The efficiency of a decoction of tobacco," says the *Home Journal*, "in preserving elm, linden, and other shade trees from the ravages of the worm, has been satisfactorily established by repeated experiments. The decoction is destructive both to the bug which feeds on these trees, and to the eggs which it deposits on the other side of the leaf. The proper time for the application is as soon as the leaves are well developed, at which time the presence of the bug may be easily perceived.

Tubular or Suspension Bridge of Planks.—A patent has been secured by Mr. Animi White, of Boston, and partner, for a new mode of constructing suspension and tubular bridges, chiefly of seasoned planks or boards, so as to supersede all necessity for the erection of piers in crossing rivers even 1,500 feet broad by railway. The following particulars are condensed from Messrs. White and Thayer's own description:—First, erect the towers on good firm abutments, or on a rocky bank; then extend across the stream two or more sets of stringers, according to the number of roadbeds needed. Each stringer is made by selecting a tree of proper size, which is sawed square and is tapered from the top to within about 5 feet of the base. This serves as a starting point, on which are spliced good sound boards, 6 or 7 inches in width, on a curve of 40 feet in 500, till the required length and thickness is obtained, the whole terminating in a corresponding timber, which forms the other extremity. In securing one board upon another, care is taken to fix keys of wood or iron into mortises, made into one board and half into the other, to prevent the stringer from elongating. This suspension chain or stringer is run across the stream by means of a wire cable and pulleys, and when locked and keyed fast in the towers, with the two backstays, is allowed to take a catenary curve. After a sufficient number has been extended across, the suspension rods are bolted to them and to the girders, which are made slightly arching, and to the floor-joist. The rafter is connected with the stringer and top of the suspension rod, to which is bolted the roof, constructed of double diagonal boarding. The floor, if a turnpike bridge, made of double diagonal planking, bolted together, is then laid, and, in the capacity of cross-bracing, serves to render firm the whole structure. If a railroad bridge, the cross-bracing is fitted under the floor-joist, in connection with the girders. By loading either kind of bridge with double the weight it is required to sustain, the girders will be brought down to a level, and while the weight is on, the sides are covered with a double diagonal boarding, similar to that of the roof, both of which must be firmly attached to the towers and backstays, to form a part of the strength of the bridge.

The Mountain Drill.—There is in course of completion at Souther's Globe Works, South Boston, a machine thus entitled, the invention of Mr. Charles Wilson, of Springfield, Massachusets, and intended to be used in building the Hoosac Tunnel. It consists of a large wheel, having a thin rim, projecting five feet from its outer edge, mounted with steel cutters of such a size, and so arranged, as to cut, when in motion, a circular trench or groove in the face of the rock 1 foot wide, and of the entire diameter of the tunnel—24 feet. The revolving shaft of the drill is on a sliding frame, which rests upon a main bed, supported by flanged carrying wheels, 5½ feet diameter, and is fed forward, with the sliding frame, by means of a powerful screw, the distance through which it is made to pass with its wheel and cutters being 5 feet for each adjustment of the machine, that being the depth of the rim upon the main wheel: buckets are placed on the rim, also, into which the rock cut away is gathered. To the end of the shaft, and in the centre of the circle described by the motion of the cutter, a drill of 6 inches diameter is attached, which enters with the cutters, and the same distance, into the rock. This is, then, the mechanical construction of this monstrous mole. Its application is easy: the approaches to the tunnel being prepared, and a track laid for the purpose, the drill is brought against the face of the rock, the shaft, with its wheel and cutters put in motion, and being kept properly screwed up, the circular trench will be cut, the central drill entering at the same time. When the rim of the wheel has cut into the rock its full depth, the machine is to be drawn back, a charge of powder placed in the central hole, and the rock within the circular trench will be removed at one blast. One of the arms of the main wheel is made removable, so as to allow a car to pass under the machine, into which the broken fragments will be loaded and deposited at the mouth of the tunnel, and the machine is again placed to recommence its operations. Its entire weight is from 80 to 90 tons, the weight of the shaft 11 tons, and that of the main wheel 30 tons. The intention is that it shall be driven by stationary engines; and two of forty-horse power have been constructed, and are all ready to commence work.

The Great Wheeling Bridge.—A decision as to the longer existence of this bridge over the Ohio has at length been arrived at by the Supreme Court of the United States after a protracted litigation of two years. The wheeling, it will be recollected, is a suspension-bridge with a clear span of 1,010 feet, and 92 feet above the river, sufficiently high to allow all the steamboats running to Pittsburg to clear it with their chimneys, excepting only seven of large size, which are compelled, when passing the bridge at high-water, to lower theirs. In consequence of this a complaint was made and the removal of the bridge demanded as an unconstitutional obstruction to the navigation injurious to the commerce of the river, and a nuisance. In this view the court accorded

and ruled that it was either to be wholly removed or raised 20 feet higher over the channel of the river, for a width of at least 300 feet. Against this an appeal was made as to whether the difficulty might not be obviated by allowing a draw of 85 feet, the largest supposed to be practicable. In answer to this, the judges have expressed their opinion, arrived at after much deliberation, that no draw could be constructed there of sufficient width to prevent obstruction and accidents, and that, consequently, the bridge must be raised, as they had before ordered, or entirely removed; but at the same time, as the erection had cost 200,000 dollars, they would defer the execution of the decree until May next, in order to afford an engineer time to report what sort of practicable and sufficient draw can be made in a suspension-bridge. The decree is filed, and though it is not to be executed until after the report in May, there seems to be not the slightest probability that the final decision will be changed, it having been virtually given twice over. The following extract from their report may not be uninteresting:—"We have an extent of river coast, counting both sides, exceeding twenty-five thousand miles, through countries the most fertile on the globe. This is a greater distance than the combined railways in the world. That our railroads, as avenues of commerce, may develope our resources in a greater degree than is now anticipated, must be the desire of every one. But the great thoroughfares provided by a beneficent Providence should neither be neglected nor abandoned. They will still remain the great arteries of commerce. If viaducts must be thrown over the Ohio for the contemplated railroads, and bridges for the accommodation of the numerous and rising cities upon the banks of the river, it is of the highest importance that they should not be so built as materially to obstruct its commerce. If the obstructions which have been demonstrated to result from the Wheeling bridge are to be multiplied as these crossways are needed, our beautiful rivers will be in a great measure abandoned."

The State of Literature in the New World.—The *Home Journal* informs us that during the last year the library of Harvard University has received the addition of 1,616 volumes, and 1,539 pamphlets, nearly one-half donations from individuals. The purchase of Professor Jacobi's Mathematical Library, of Berlin, considered one of the most complete private collections in Europe, is spoken of as a very important acquisition.——The Astor Library, says the same journal, will be opened in September next to the public. It now comprises 60,000 volumes, Dr. Cogswell having added, during his late visit to Europe, 28,000 volumes: the unexpended portion of the fund appropriated for the purchase of books will suffice to increase the number to 100,000. [It is to be hoped they measure their books as well by *quality* as quantity.]——The state of New York already has one of the largest and *most useful* libraries in the world. It contains 1,507,076 volumes, and occupies upwards of 11,000 apartments, one in each school district in the state.

A Great Edifice.—The *Boston Traveller* tells us that the largest building in the States is now in course of erection at New Orleans, by the Federal Government for a Custom-house, but of sufficient size to include the United States Court-rooms, together with the necessary warehouses for the use of the Government. The building, which is of granite, furnished by the Quincy quarries, Massachusets, covers some two acres of ground, and is one-third larger than the Capitol at Washington, as completed with the new wings. It is supposed that it will be three years before it is entirely finished.

Acoustic Reporting Apparatus.—At the new law courts, Liverpool, according to the local *Times*, tubes of gutta percha will probably be fitted up between the reporters' boxes and the bench and bar of the Nisi Prius Court, a noisy one it appears, in which the reporters are placed so as to be unable to hear connectedly what is going on.

THE MEDALS OF THE INSTITUTE OF BRITISH ARCHITECTS.

The Royal Medal for this year will be awarded to such architect, of any country, as may have executed any building of high merit. It will be determined in January 1853.

The Silver Medals of the Institute will be awarded to the authors of the best essays on any of the following subjects:—

1. On the introduction of colour, including paintings in fresco, to promote or heighten the effect of architectural composition generally.

2. On the use of bricks (now that the manufacture is unrestricted by law) in respect to utility, durability, and economy, as well as for the purpose of producing ornamental details in the various styles of architecture; with suggestions as to the improvement of their present manufacture in connection with any of these qualities.

3. On the various kinds of construction of walls, as influenced by local circumstances and the materials most readily available.

4. On the advantage to architecture which has resulted, and what further advantage may be derived, from the use of iron, both as to construction and embellishment.

Essays on any other subjects connected with architecture, besides the above, that may be submitted, will also be entertained and considered by the Council.

The Soane Medallion will be awarded for the best design among those sent in for any of the following subjects:—

A metropolitan railway station for a main line on the ground level; a general cemetery; or a town-hall for a large municipality.

The successful competitor, if he go abroad, will be entitled to the sum of 50*l.* at the end of one year's absence, on sending satisfactory evidence of his progress and studies.

ST. DUNSTAN'S-IN-THE-EAST, LONDON; AND SAINT NICHOLAS', NEWCASTLE-UPON-TYNE.

You give, in your number for March 13, a carefully engraved view of the tower of St. Nicholas at Newcastle; and in the comments thereon by "J. B." it is said to be distinguished by a "light and airy effect, a fulness and purity of form, and tasteful distribution of ornament," in which Sir C. Wren's steeple of St. Dunstan's-in-the-East, London, is "deficient."

Mr. Britton, in his 2nd vol. on London, gives a still "unkinder cut" at St. Dunstan's, and seems the more stimulated thereto by the praise bestowed upon it in Elmes's "Life of Wren," where it is described as "a masterpiece of construction"—"unequalled for lightness and elegance"—"the noblest monument of geometrical and constructive skill in existence"—"surpassing in every essential quality those of St. Nicholas at Newcastle, and of the High Church, Edinburgh."

These eulogies Mr. B. terms "unjust and false;" adding that "the architect and critical amateur who have examined the tower of St. Nicholas at Newcastle, and that of the *High Church at Edinburgh* (!), will not find much to admire or praise, by comparison, either in the design or construction of the steeple under notice." "It loses," says he, "in *every respect*, by comparison; but, taken by itself, and viewed without reference to any of those bold, but light—sublime, but *simple*, towers and spires raised by the monastic architects of the thirteenth and fourteenth centuries, the eye is pleased, and the mind analyses its design and execution with satisfaction."

Now, Sir, in respect to general *picturesque* character and true *Gothic detail*, there can be no doubt that the Newcastle tower has much the advantage; but, it is equally certain, that Wren's example has a commensurate superiority in the elegance of its general form, in the more energetic spring of its flying buttresses, and in the loftier proportion of its crowning spire. The latter, too, is much more accordant with that *simplicity* which Mr. Britton eulogises in the spires of the "monastic architects;" and, if the whole composition have not the "fulness" of the Newcastle compound, it has, for that very reason, a "purity of form" peculiarly its own. I admit the "tasteful distribution of ornament" on the Newcastle model; but I deny its comparative "light and airy effect." The spired lantern of St. Nicholas's, with its four legs, seems to have descended, like a great spider, to rest *on* the sturdy tower beneath; while the crowning composition of St. Dunstan's looks as if it had naturally (as the development of an essential principle of growth) sprung *from* its substructure. In short, if we take Wren's tower, in all the integrity of its general form and substance, crocket its spire and pinnacles, and otherwise decorate it with genuine Gothic details, we shall produce a result of absolute superiority, where we now merely behold an equality by compromise.

As to the Edinburgh example, it is "just abominable;" with the faults of the Newcastle tower exaggerated! It exhibits neither Wren's taste, nor the Gothic perfection of the "monastic architects." Like Roslyn Chapel, it is neither one thing nor the other. The latter, however, has some exquisite details of its own; but the tower of St. Giles's is a squat ugly thing, no more comparable to that of St. Dunstan's than a four-legged muffin-warmer to a candelabrum.

I would take this opportunity of remarking on the laxity with which certain current terms in criticism are constantly used. "Light"—"heavy"—"simple"—"pure"—are so many words thrown in like miscellaneous ingredients into a witch's cauldron to make an ephemeral sparkle that may deceive the beholder's trust.

Philo-Wren.

THE ARCHITECTURAL INSTITUTE OF SCOTLAND.

The last stated meeting of this association for the present session was held on Thursday night, the 25th ult. Mr. Charles Baillie, advocate, in the chair.

Mr. J. Dick Peddie, architect, read a paper on Greek architecture. The subject was divided into two heads. 1. An examination of the elements which entered into the architecture of the Doric temple; and 2. The principles on which these elements were associated together. The latter portion of the subject was reserved for a subsequent paper.

The Secretary (Mr. W. A. Parker) next read a letter from the Architectural Society of the Archdeaconry of Northampton, containing an invitation to the council to attend an Architectural Congress, to be held in that city on the 14th proximo.

Mr. David Cousin, architect, moved that Mr. Parker, the honorary secretary of the Institute, and Mr. Charles Wilson, architect, the secretary of their committee in Glasgow, be deputed to attend the Congress as the representatives of the Architectural Institute of Scotland.

Bishop Terrot, in seconding the motion, said, no doubt the reading of papers was attended with the best results, but they should strive to extend their circle of usefulness by coming into contact with the architects of England, who were laudably turning their attention to the restoration of several of the fine old buildings of that country, and to the sweeping away of the disgraceful abominations of the last century.

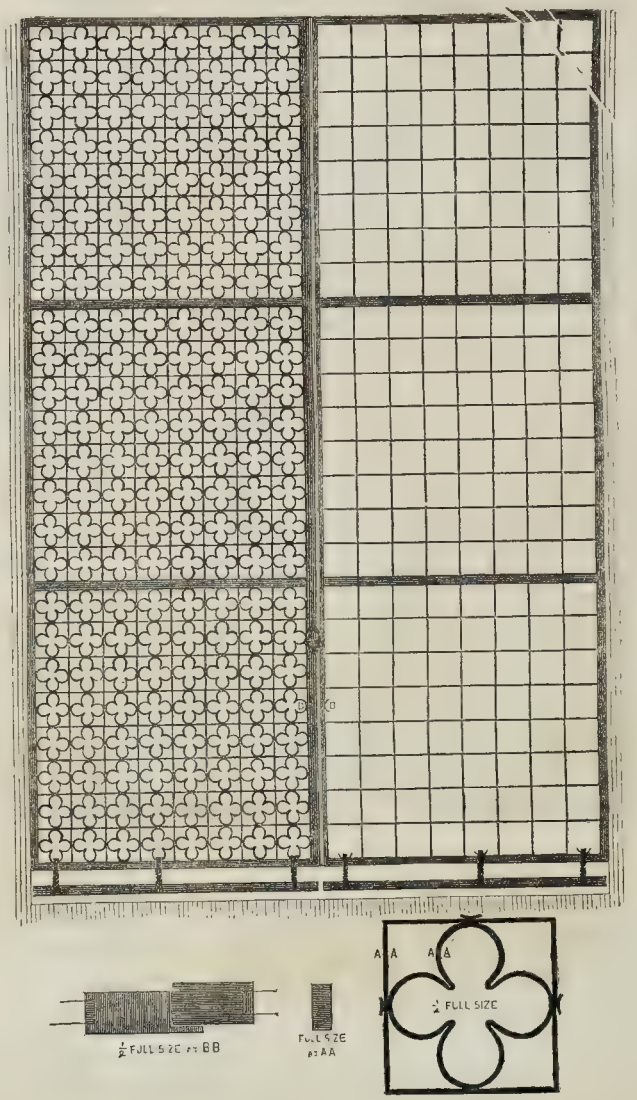
It was remitted to the council to make arrangements for carrying out the motion of Mr. Cousin.

Mr. W. G. Smith (Glasgow) then exhibited specimens of slate from the Denbighshire Slate Company's works, and briefly stated some of the uses to which the slate slabs were applicable.

A letter was read from Mr. D. O. Hill, accompanying a donation of calotypes of architectural subjects by himself and the late Mr. Robert Adamson, and ascribing the credit of perfecting the art to Edinburgh; which, on the motion of Sir William Johnston, was ordered to be recorded on the minutes.

A number of specimens of the Chromatic Fac-simile Process, invented by Messrs. Leighton, were also exhibited. The process, it was stated, was well suited, owing to its moderate cost, and at the same time delicacy and precision, for the illustration, by coloured designs, of works upon decorative art.

MEDIÆVAL IRON GATE, CHICHESTER CATHEDRAL.



MEDIÆVAL IRON-GATE, CHICHESTER.

Some time since, when we gave some notes on Chichester Cathedral, mention was made of the iron-gate to the choir. We now publish a view and the details of this gate, the simplicity of which is as remarkable as its effect is good. It presents the repetition of one form only, the quatrefoil, made of thin iron-bar bent.

THE TOMB OF HYDER ALI AND TIPPOO SAIB, SERINGAPATAM.

The tomb of Hyder Ali at Seringapatam, represented in the annexed engraving, is one of the last of those splendid series of mausoleæ with which the Mahometan kings of India adorned the environs of the various capitals of their empire. The finest of these are, of course, those of the imperial capitals of Delhi and Agra. But even the subordinate capitals, such as Mandoo, Beejapore, and Golconda, have each of them tombs which in size, if not in design, rival those of the imperial family.

The furthest south and last also of these Mahometan dynasties was that which established itself in the Mysore, where its two great sovereigns, Hyder Ali and Tippoo Saib, waged war with us in the latter part of the eighteenth century, a war which long kept our tenure of the empire of the East uncertain, but ended in the fall of the capital and death of Tippoo Saib in the year 1799.

The tomb of Hyder Ali was, like all Eastern tombs, commenced, and was nearly completed by the sovereign who lies beneath its dome, though it was not quite finished till two years after his death, or till the year 1784, when Tippoo Sultaun completed the mosque and garden which is the invariable accompaniment of these royal sepulchres. The garden is laid out in the usual formal style of Eastern gardens, surrounded by cloistered arcades used as caravanserai or places for pilgrims, and with its usual accompaniments of fountains and pavilions is almost as expensive and important a part of the whole as the tomb itself. It generally, too, is the first laid out, the tomb being erected only as the principal pavilion or central object of the whole, and during the lifetime of its founder used as a hall for festive recreation. It is only after his death that the lower arcades are walled up, and the place dedicated to the more solemn rites it was ultimately destined to serve.

Though as large and as richly ornamented as many of those in the more northern capitals, this one shows sad traces of the decline of taste which is only too indicative of its modern date, and a mixture of Hindoo architecture with the

TOMB OF HYDER ALI AND TIPPOO SAIB, SERINGAPATAM.



simpler forms of the Saracenic, owing, no doubt, to its being so far removed from the centres of the Mahometan population: these, though they add something to its picturesqueness, detract very much from the grandeur so often observed in the entire structure of this class.

As will be seen in the engraving, the building is raised on a terrace, which gives considerable breadth and dignity to the whole. The mausoleum itself is a square apartment, with one opening only on each face; one used as an entrance, the others filled with slabs of stone or marble, pierced with the beautiful open tracery of the Saracenic style. At about half its height, the square internally is converted into an octagon by pendentives in each angle, and then again into a polygon of sixteen sides, on which rests the dome, the centre of which is about as high as the chamber is wide. Above this is the external dome seen in the woodcut, which, however, is in reality a false dome placed considerably higher than the real one seen from the inside.

The tomb with its outbuildings was used as the general hospital for our troops during the siege in 1799, and all the trees were then cut down to make facines and galleries for the trenches of the attack. The damage then done has since been repaired to some extent; but it never has, nor probably ever will now, recover the beauty in which our force found it, and before it was desecrated by the uses to which we applied it.

We are indebted to Lieut. Donaldson, of the Bengal Engineers (son of the professor), for the original sketch from which our view is made, and to Mr. Fergusson for the particulars which accompany it.

SMOKE AND DUST.

THE present system of watering the streets is very faulty: why should the supply be intermittent? Or, to put the question in another form,—Why are we content to allow a nuisance one day, and vote it intolerable the next? For the last month we have been smothered with dust, and stifled with smoke. One of these nuisances is within our grasp, if not both. Economy in our dress and comfort in our houses would both be consulted by the daily watering of the streets: in fact, the imperfect way in which many of our leading streets are paved, or rather strewed, with broken granite, renders this indispensable. In Paris, I hear, asphalte is being used with good effect on some Macadamised roads now being made. Some cementitious body is surely desirable.

A word as regards the giant evil of the day—the smoke nuisance. I am convinced that we should have less smoke by one half, if the means and appliances for the more perfect combustion of coals were brought to bear upon household purposes in some form approximating to the smoke consuming apparatus of large establishments.

Of the possibility of the economical application of gas for cooking, and as an agent of heat, we have had experience; but whether this can be brought to bear economically as a substitute for coal, is yet a problem unsolved. Of one thing I am certain, that, in a sanitary and in an architectural point of view, great will be the gain if we can to any extent diminish the smoke nuisance—"a consummation most devoutly to be wished." S.

MEMS. OF IRISH WORKS.

THE contract for the erection of a new wing to the Lismore union workhouse has been disposed of to Mr. Brash, of Cork, for 605*l.*

The churches of Castletownarra and Lismalin, in the county of Tipperary, are to be rebuilt, according to the drawings of the architect to the Ecclesiastical Commissioners.

A new lunatic asylum is being erected at Killarney by the Commissioners of Public Works, and the works are progressing towards completion.

The extensive buildings of Mr. St. Vincent, at Limerick, have been commenced by the Sisters of Mercy. The site is peculiarly favourable, as it crowns the highest point of elevation at the western side.

A new bridewell is proposed to be erected at Antrim by the grand jury, according to the designs of Mr. Charles Lanyon, architect, county surveyor.

The viaduct over the Boyne is progressing. Two steam-engines and several hand-engines have been employed night and day for the last six months, in driving the piles for the cofferdams, through silt and gravel from 25 to 30 feet deep, many of the piles requiring 7,000 blows before the rock was reached. Nine of the piers and the two abutments are in a forward state; the foundations are in; and the superstructure is carried to a height varying from 3 to 14 feet. Some of the masonry for the lattice-work has been erected, and the blocks of limestone are 12 feet by 3 feet, varying from 4 to 7 feet in breadth of bed. The abutments and piers of the bridge over the Newfoundwell-road are raised to the springing of the arches, one of which is closed, and the others half finished.

The bridge over the river Lagan is completed: Mr. W. Evans, contractor.

The Craigmore viaduct is nearly finished: half the string course is set, and the parapet commenced. The men are engaged both day and night. The masonry is of granite. Messrs. Killen and Moore are the contractors, and Sir John M'Neill the engineer-in-chief.

The church of Kilnemamagh, county Wexford, is to be rebuilt, and a small church at Thurles is to be erected by the Ecclesiastical Commissioners.

The Cork and Bandon Railway Company are erecting a new terminus at Albert Quay, Cork. The foundation walls and portion of the superstructure have been completed. Mr. Hargreave is the architect.

Arrangements are being made for the erection of a monument to the memory of the late R. C. Archbishop of Dublin. A committee appointed for the purpose are receiving subscriptions. It is also contemplated to erect a national testimonial to the late Irish bard, Thomas Moore.

The Royal Irish Beet Sugar Company intend building factories in or near several of the provincial towns. The works at Mountmellick are complete, and the "sugar making" is now in full operation.

In Dublin the building trade is at present "unprecedentedly" dull. In Belfast there is a general stir: many handsome shop-fronts and houses of business are in progress. The Northern Banking Company are having an extensive building erected from the design of Mr. Lanyon, architect.

A new bridge, 1,370 feet in length, is to be erected over the river Slaney, at Wexford. A provision to enable vessels to pass is to be made in the centre, having a clear opening of fifty feet. Tenders will be invited immediately on the adoption of the design.

The county grand jury of Armagh have determined on the erection of a new wing to the gaol, at an outlay of 2,500*l.* Forty additional female prisoners are to be accommodated, and a premium of 20*l.* has been offered for the best plan.

Messrs. Killen and Moore have been declared contractors for the works of the Kells Extension Line (9¾ miles in length), on the Dublin and Drogheda Railway. There were fourteen tenders received, and the amounts were within a few hundred pounds of each other. The contracted amount is about 15,000*l.* the works to be completed by the 1st of January next. The Craigmore viaduct (which we have fully described in a previous number of THE BUILDER) is progressing towards completion under the same contractors.

RAILWAY JOTTINGS.

IT appears that a small portion of the London and North-Western, near the Westwood Colliery, Ince, a short distance from the Wigan station, has been undermined, and is in a precarious state, though repaired, being watched night and day.——A proposition has been laid before the Liverpool Dock Committee to construct a high level railway to extend over two docks, the Wellington and Bramley-Moore, and to form a junction with the Lancashire and Yorkshire and East Lancashire Railways for coal traffic. The cost of the undertaking is estimated at 45,550*l.* while the anticipated revenue is 3,375*l.* per annum. It is also proposed to build warehouses, four stories in height, along the north and south quays of the Stanley-dock, at a cost (including necessary alterations, &c.) of 127,978*l.*——The enlargement of Rugby station, when completed, will cost upwards of 80,000*l.* The tenders are to be sent in by 5th of April. This undertaking, and the new church, are likely, it is thought, to cause an advance in the price of bricks in that quarter, for which there is already a great demand.——The tunnel underneath the York, Newcastle, and Berwick line, near Northallerton, for the passing of the Leeds Northern, is now approaching towards completion: about two millions of bricks, as well as stone, have already been made use of in this undertaking. ——In many places, on the North Western, between Rugby, Watford, and London, the turf, shrubs, trees, &c. on the slopes, are either burnt or are still burning with alarming rapidity. On Monday week more than 100 burning plots were observed blazing and destroying everything in their course, in spite of all efforts to extinguish them.——The Great Western, according to *Herapath*, are making arrangements with parties in South Wales to bring large quantities of Welsh coal to London at ½d. per ton per mile. —— The Eastern Counties Company have fish-jointed their line to Sawbridge, and are proceeding over the whole line at the rate of 2 miles a-week. ——There are thirty-one applications before the United States Congress for grants of land to aid in the construction of railways in the west. If proceeded with, they would measure upwards of 8,300 miles in extent; and, could they all receive alternate sections of land, 6 miles in depth on either side of the track of each road, the aggregate number of acres would be upwards of 30,000,000. Assuming this land to be quadrupled in value by the roads in question, which is a moderate estimate, the worth of them would be 140,000,000 dollars. There were eighty similar applications last session.——The works on the short junction line to unite the Strasburg Railways, at La Chapelle and La Villette, are terminated. The new line is only a kilometre in length.

"THE ORIGINATOR" OF ELECTROTYPE.

A PAMPHLET has been recently published, under the title of "Jordantype, otherwise called Electrotype; being a Vindication of the claims of C. D. Jordan, as the Inventor of Electro-Metallurgy. By Henry Dircks, C.E. Patent Agent."* It appears from this pamphlet that while Mr. Thomas Spencer, the reputed originator of electrotype, first announced his discovery, in brief and purposely obscure terms, to the Liverpool Polytechnic Society, on 9th May, 1836, Mr. Jordan published *his* ideas and experience on the subject in the *London Mechanics' Magazine*, without any purposely obscure terms, on 22nd May of same year. Both gentlemen were induced to do so by previous announcement, published in the *Athenæum*, that Professor Jacobi, of St. Petersburg, had discovered "a method of converting any line, however fine, into relief, by a galvanic process." Neither of them, by the way, appears to think of including Professor Jacobi amongst the *originators* of electrotype, although, on their own showing, and as every one knows, the Professor's discovery was first of all announced. Each still regards himself as *the* originator of this important discovery, whereas we think it probable that all were independent and nearly simultaneous originators of it, their real merit consisting in their special discovery, and not in their incidental priority. As to the latter point, if the chief merit were to consist in that, neither Jordan nor Spencer would be entitled to claim it, but Jacobi, who *confessedly* called forth the announcements of both by his own of a previous date. Mr. Dircks and Mr. Jordan use language in speaking of Mr. Spencer's claims with which we cannot sympathise. They even charge him with plagiarizing Mr. Jordan's account of the discovery, in his paper of 12th September, 1839, read, as promised on 9th May, to the Liverpool Polytechnic Society. That there is any truth in this charge we cannot see, although passages are placed side by side in order to support it. The first actually insinuates that Mr. Spencer's allusions to Jacobi and the *Athenæum* were based on and plagiarised from Mr. Jordan's, although both allusions were made by Mr. Spencer in his announcement of 9th May, as well as in his paper of 12th September. If unworthy insinuations and charges are to be allowed, what is to prevent Mr. Jordan himself from being suspected of secretly adopting the idea of the electrotype from Mr. Spencer's previous announcement, or from that of Professor Jacobi himself, of trying a few hurried experiments, and of publishing these in order to claim credit as the originator? We all know that to many active and ingenious minds the merest *hint* of a new discovery is quite enough to suggest the whole process, like a flash of electricity itself; and to a man accustomed to galvanic experiment, nothing would be more likely than that the hint given by Jacobi might have suggested, both to Jordan and to Spencer, all that was essential. We do not believe that this *was* the case, for there is every reason to believe that both had been for some time engaged with the very same discovery, having been especially indebted, however, as Jacobi himself doubtless was, for the germ of it, to previous experimenters,— to Dr. Bird, for instance, who had, two years before, announced to the British Association the obtainment of crystals of metallic copper by deposit within the diaphragm of the galvanic apparatus. In short, we do not see why any *one* man should carry off *all* the merit of having *originated* the science of the electrotype.

* Printed for the Author, Moorgate-street, 1852.

LANDLORD AND TENANT.

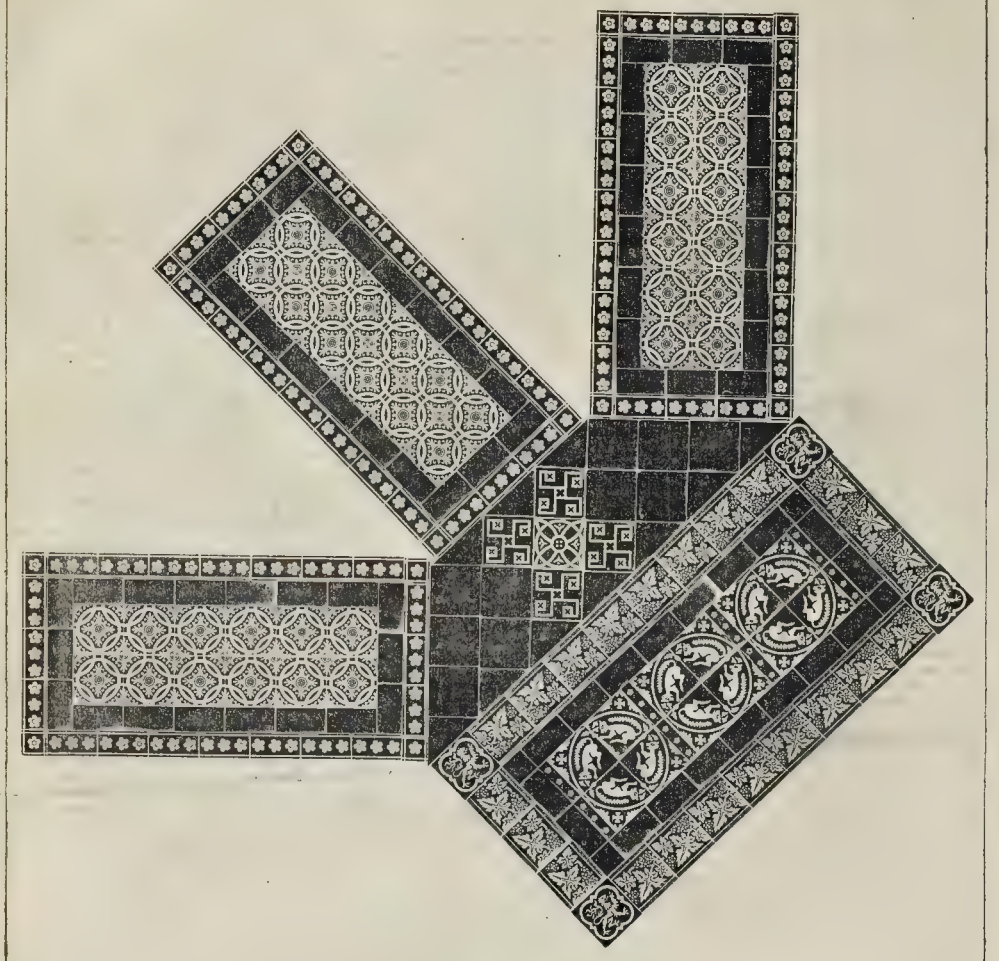
JOB *v.* WHATMORE AND ANOTHER.

THIS was an interpleader summons, brought in the Clerkenwell County Court, before Sir Thomas Phillips, who sat for Mr. Serjt. Jones. The defendants, who are managers of a loan society, had distrained upon the claimant's tenant (a Mr. Morgan) for a claim, 4*l.* 6s. 2d. which sum the claimant, to prevent the removal of the goods, paid under protest, he having previously levied upon the goods for a twelvemonth's rent. The goods were never removed, and the house, which was originally let for 24*l.* was subsequently let, *furnished*, to the same tenant for 28*l.* a year.

The claimant assured the Court that he had acted purely from motives of kindness, not wishing to break up his tenant's home, and submitted that the goods being his property and not that of the tenant, he had a *bonâ fide* claim.

His Honour said he would give the claimant credit for *bonâ fides*, and would not assume that he meant anything wrong; but it was clear there was no change of possession, nor was there any assignment by deed, or anything but the mere seizure of the goods by the claimant and the supposed sale of them to himself. There was no removal of the property: even the bird and cage remained on the premises, and, in fact, there was no apparent change of possession whatever. It might be that it was a contrivance to protect the tenant and to enable him to obtain credit, although he (his Honour) did not intend to impute any improper motive to the parties. He was, however, clearly of opinion that the creditor, finding the goods in possession of the original owner, had a right to distrain upon them, and under such circumstances to appropriate the proceeds of the sale in liquidation of his claim. The judgment would therefore be for the execution creditors.

ENCAUSTIC TILE FIREPLACE.



ENCAUSTIC TILE FIREPLACES.

The accompanying engraving shows an arrangement of tiles (mostly mediæval patterns) by Messrs. Maw and Co. of Worcester, for lining the walls and paving the hearth of a fireplace, for which purpose the employment of encaustic tiles is gradually extending. Where the construction of the fireplace will allow of it a simple movable stove is better in such cases than a fixed one, and *glazed* tiles are, for this purpose, preferable to unglazed, as they reflect heat more powerfully, and there is no difficulty in keeping them clean. In summer, when the stove is removed, the tiled recess is a pleasing feature in a room, and servants are spared the labour induced by bright bars, steel fender, and polished concomitants.

Cambridge Architectural Society.—At the third meeting for Lent Term held on Wednesday week, Mr. W. Wayte, of King's College, read a paper on Brixworth Church, Northamptonshire. After some other proceedings, the meeting adjourned till 9th May.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

The great Railway Bridge over the Vistula at Dürschau.—The superior Prussian Building Commission have approved of the plan of the Eastern Railway bridge, by M. Lintze, architectural councillor, and the construction will be begun this year. Its length will be 2,500 feet, by a breadth of 63 feet, and it will repose on six pillars, of which four are to be placed in the river, at a distance of 500 feet each. Before each of the pillars will be an ice-protector, but as the impetus of ice in the spring is here very great, pillars and protection must be conjointly ready before the floods of spring. Only one such large structure can be completed during one season, so that it will take five years to build these fundamental structures. The cables of this bridge will be made after American patterns, where Prussian architects have made extensive studies of late. The parapet will be formed by the five parallel cables, which will support the bridge: they will be turned round and embedded in the masonry of the pillars. There will be openings in the pillars for tightening the cables, if they were to slacken. Beneath the bridge will be placed a trellice work, which will rest on particular supporters for keeping the bridge level. The two rails will be placed at the sides of the bridge, while the common roadway will occupy the centre, the footpaths to be at the sides of the latter. The number of bricks required for this structure is enormous, and the surrounding brickkilns of government have been engaged for the last three years in making them, turning out one million at each firing. It is said this will be the largest bridge existing in Europe: in America there are some larger, but they have not to stand such pressure of ice floods. The estimated cost of the bridge is three millions of thalers, and, including the earthworks on the banks, five millions of thalers.

The Paris Crystal Palace.—M. Michel Chevalier, once a journalist, now a senator at Paris, has put forth a *plan* for the French Exhibition of 1854, being also one opened to the industry and arts of all nations! M. Chevalier says to the French, "You *may* exclude foreign talent from your exhibition, but can you do the same on the *marts* of the world? It is there where the great contest of competition and jealousy is decided!" M. Chevalier enjoys

the particular advantage of being greatly esteemed by the present ruler of France. Hence, therefore, a credit of twenty-five millions of francs (one million sterling) is to be allotted to the mere construction of the Paris Exhibition Palace. Paxton's plan will, it is said, be fulfilled at Paris, most probably with modification by Horeau. The Champs Elysées are fixed as the place of this intended construction, which, with our neighbours is beforehand decided to be a *permanent* one. The next exhibition (after those of Brussels, New York, and Paris), will be that at St. Petersburg, for the expense of which the Emperor has already conceded an almost unlimited credit.

THE PARKS FOR THE RICH.

It can hardly be understood by those who regulate the parks that the prohibition of public vehicles of all sorts is also an exclusion of persons in moderate circumstances (invalids in particular) from the enjoyment of what should be open to all. Many with limited incomes like myself, who are obliged to reside within the precincts of Hyde-park, and who do not keep private carriages, are constrained to go to Regent's-park when we wish for an airing, and to incur the additional charge of 2s. 8d. for four miles' additional drag.

Sir, I am the widow of an admiral, having barely 300*l.* a year, and many I know (a baroness amongst the number) who have not so much. We are debarred (unless we walk) from enjoying even a traverse from Hyde-park Corner to the Marble Arch, whilst Mrs. Cutlet, the butcher's wife, and many dames of far *more questionable repute*, who can afford 15s. for a show off on the drive, are free to join in the processional display of a full park. If hackney cabs are admitted to Regent's-park, why are they excluded from the more accessible and convenient promenade? Where does the aristocracy end, and the *plebiscite* begin? What is the difference in quality between a Clarence at 2s. an hour for three hours, and a job drag at 15s. for half a day? None in point of respectability. The prohibition is unreasonable, as it is unjust, and unworthy the Government of a free country.

When a slice of any of the parks is wanted by a favourite or an acquaintance, there is no delicacy or difficulty in sharing of the public domain, as all *down the Green-park*, from Piccadilly *all along the Birdcage-walk*, and the monstrous appropriations (of about eight years' standing) within the circle of Regent's-park, fully testify!

What I and all my consulting friends, and I truly believe *the public* also, require, is at least a free thoroughfare, by NIGHT AND DAY, between Hyde-park Corner and the Marble Arch. This would be an immense convenience and solace to the whole community, both as a pleasing route and a saving of time and distance by the awkward detour of Park-lane.

MARTHA MIZEN.

Notices of Books.

Reading for the Rail: The Flower Garden; Theodore Hook; Music and Dress; The Honey Bee. John Murray, Albemarle-street, 1852.

The readers of *The Quarterly* will remember all these delightful essays, which Mr. Murray has, with good judgment, added to his Red Railroad Series; but there are thousands to whom they will be entirely new. The notice of Theodore Hook, attributed to Mr. Lockhart, is one of the saddest stories ever written. Poor Hook, what a fate was thine! A man of two lives—the life out, and the life at home. Alas! how different. Truly, as he used to say, "wrong never comes right." As a dinner-table talker, Hook has never been surpassed: his readiness was surprising. We remember an instance which, so far as we know, has not been printed. He was walking in the days of Warren's Blacking, where one of the emissaries of that shining character had written on a wall "Try Warren's B," but had been frightened from his propriety and fled. "The rest is *lacking*," said Hook, almost before he saw it. We well remember his speech at the dinner of the Society of Antiquaries, when, as the "youngest Fellow," he had to return thanks, and a score, too, of his sayings; but this sort of gossip would take us out of our province.

The brochure, "Music," shows, amongst other things, how recently it is that we have begun to move in the science of

> "Sounds and sweet airs that give delight and *hurt not.*"

"There is only one class of men who *condemn* it, and those are fanatics; and there is only one order of beings, according to Luther, who *hate* it, and those are devils." The direst enemies, as it seems to us, to the spread of a love for music, are some of the young ladies who "play a little." We have sometimes longed for "a mournful muse, soft *pity* to infuse," that they might be led to leave off. "A very difficult piece is it?" said Dr. Johnson once, when a small child had finished playing, —"I wish it had been *impossible.*" Of the "Flower Garden," to which is prefixed an essay on "The Poetry of Gardening," we could talk for a day. Our weakness in respect of flowers, which we will call music for the eye, is great, and the writer of the treatise before us is one after our heart, loving the sweet and unassuming plants, christened when gardening was an art and not a mystery, and it was easy to know "every flower, because they were few, and every name because they were simple." Give us a Rose, and let those who will, take the *Ietactepetzacuxochitl Icohneyo*, and the other equally euphoniously named rarities. Carnations and geranium, and the fragrant violet, jasmine, and pale primroses, all breathing poetry and sentiment, sound far sweeter in our ears than the eccrymocarpos, the polypodium aspenifolium, or the cardiospermum halicacabum! If we were not afraid of having it quoted against us years hence, when we may think differently, like two abused lines by a rising statesman of the day, we would positively say—

> Let garden-science die,
> So they but leave our old vocabulary.

Miscellanea.

Engineers' Salaries.—In the Home Circuit at Kingston, on Friday in last week, an action was brought by Mr. Hedley, gas engineer, against the Surrey Gas Consumers' Gaslight and Coke Association, for damages on breach of contract. Numerous witnesses were examined. The engineer's salary was to be 300*l.* per annum, with half a year's notice of dismissal. By a majority of one, however, the directors dismissed him without such notice. The defendants principally urged the plea of incompetency, and brought evidence to show that the supply of gas manufactured under plaintiff's management was inadequate to the demand, and that he endeavoured to obviate this by using Cannel coal at a heavy cost to the defendants, besides causing complaints of smoke from consumers, their burners not being fitted for such gas, and preventing the possibility of selling the gas at 4s. their fixed price. It was shown, on the other hand, that the failures and inconveniences arose from causes connected with the first establishment of new works, and beyond the plaintiff's control. The jury decided in favour of plaintiff, excepting on one count, stating that no incompetency had been proved against him, that his failure arose from not being supplied with proper means by the company, and that the latter should pay him his half-year's salary.

The Engineers and their Employers.—The masters propose to originate an institution, to be called "The British Engineers' Benefit Society," to be confined to those who are either members or employed by members of "The Central Association of Employers of Operative Engineers," established on 23rd December last. No one to be admitted to membership till he has been three months in the employ of a member of that association. All the rules to be enrolled and registered under the Benefit Society's Act. One of the fundamental rules is intended to prevent this being turned into a society for interfering between employers and employed. Another provides that as far as practicable honorary members shall endeavour to find employment for the ordinary members, in their own works, or by special recommendation to other members.

"British Polytechnic Fire."—In an article on the "Domestic Use of Gas for Lighting and Heating," in our journal of 13th July, 1850, we spoke of the efforts of ingenious men towards the accomplishment of "the great aim and end of all our endeavours to obtain for the public an abundant supply of cheap and good gas, namely, the promotion of its use in private dwellings, both as an economic fuel, for heating and cooking, and as a cleanly, cheap, and cheerful light;" and, amongst others, instanced Mr. Defries and his cooking-stoves, gas-heated baths, &c.; and also Mr. D. O. Edwards, surgeon, and his new invention, named the "atmopyre," a new sort of fire-grate, in fact, in which gas-flame was made to bring earthenware, porcelain, or other refractory substance to a glow of red heat, presenting the appearance of a solid red flame. We are glad to perceive that Mr. Defries has not lost sight of a purpose so desirable as that of promoting the domestic use of gas for heat as well as for light; and that, with the adaptive aid of Dr. Bachhoffner, of the Polytechnic Institution, he is exciting a good deal of public interest in the construction of a new fire-grate, apparently based on Mr. Edwards's invention. Though invited, we have been unable as yet to avail ourselves of the opportunity of seeing this new "Atmopyre," or "Polytechnic Fire," in action; but from the several accounts of it which have appeared in the daily papers, it seems to be essentially the same idea, earthenware or porcelain, however, here giving way to platinum, a very expensive metal, but alleged, in its recent adaptation to a similar purpose in connection with gas for the use of jewellers by a French inventor, to be indestructible for years, even though continually red-hot. The gas preferred by Dr. Bachhoffner, moreover, is non-carbonized hydrogen, got by decomposing water, and alleged to be procurable at a cost of 1s. per 1,000 cubic feet. A company, according to the *Daily News*' account of the invention, is being started by Messrs. Bachhoffner and Defries to lay such gas on in towns. They appear to have patented their new household fire. The *Daily News* states that "any metal" will do in place of platinum. This we very much doubt; and indeed we hesitate to regard even platinum on the whole as a practical improvement on earthenware or porcelain, a cheap and generally available material, even at first cost, and probably as indestructible in such circumstances as platinum. The beau ideal of such an invention, at least for the extension of gas-fires in poor dwellings, would perhaps be an adaptation of the recent discovery of a mode of enamelling iron, or covering it with a glaze of porcelain, as a material for the fire-tongues to be red-heated by the gas. As to the flame of hydrogen gas, it is usually very feeble in *illuminative* power, but it is said that when *catalized*, it yields as bright and cheerful a flame as carburetted hydrogen. Its heating power, however, is here what is requisite, although, to form a perfect imitation of a bright and cheerful fire, of course its illuminative capabilities ought also to be considered.

Benevolent Societies' Dinners.—Surely the claims of charitable societies need not necessarily intail on their supporters the eating of a dinner, a very cumbrous business, and drinking alcoholic drinks, in order to further their interests with the public, not to say anything of the loss of time and detriment to health caused by these feastings. It is to be hoped that some "other custom of entertainment" may shortly supersede these barbarous feastings, more worthy of the enlightened age in which we live, and equally productive of benefit to charitable institutions. It never can be urged that John Bull is only to be successfully wooed when "Bacchi plenus."—A District Surveyor.

THE IRON TRADE.—The feeling manifested at the preliminary quarterly meeting at Dudley on Thursday in last week was still despondent. Iron had been sold at as much as 20s. a-ton, below the "understood price;" but it is alleged that the low-price masters have resolved "not to persist further in so ruinous a competition." The propriety of attempting a general reduction of make was canvassed, and the *Birmingham Gazette* thinks it probable that some understanding will be arranged with the Welsh, Scotch, and other districts for that purpose, unless the position of the trade should shortly be sufficiently improved to prevent the necessity for such an effort.——The *Glasgow Herald* announces the discovery of a practical mode of chemically purifying iron, that when turned out in a malleable state, chain-links made of it will sustain a weight as much greater than that sustainable by the best of the ordinary manufacture, as 10 is to 7¼.—— In his lecture on iron, at the Geological Museum, Mr. Percy remarked, that as to cast or pig iron, though in Europe it is a modern and British invention, the Chinese had, in this matter, long anticipated us. Cast-iron had been used by this people immemorially, and not as baubles or playthings, as they used the compass and gunpowder, but for economic every-day use. Their culinary utensils were made of it, as well as the vats and pans of their manufacturing processes. They not only largely use, but largely export these utensils, and have even transferred the manufacture to the neighbouring countries, from which they are again exported. Iron, the lecturer also remarked, was known to the Jews, but steel as well as iron to the ancient Greeks and Romans, as indeed in all known ages they seem also to have been, among the nations of the far East, such as the Hindus, the Chinese, the Japanese, the Birmans, the Siamese, and even the Malays.

NADAUD, THE STONEMASON.—Our readers may recollect of an anecdote in our pages as to how Nadaud, the Parisian stonemason, having, by the thrift of his worthy wife much more than by his own nevertheless persevering and industrious habits, scraped together a little fortune, shared it to the uttermost sous with a host of fellow-workmen at Paris, who were thrown out of work at the Revolution of 1848; and how M. Nadaud was, in consequence of this act of generosity, lifted into a comfortable seat in the National Assembly, where he enjoyed the honours and emoluments of a French M.P. till Louis Napoleon put an end to all their differences by dispersing them on the eventful 2nd of December. Poor Nadaud, it seems, stepped quietly across the Channel, came up to London, and is now here hard at work as ever he was with chisel and mallet. A *striking* instance of the vicissitudes of French existence.

IRON-MASTERS' PROFITS.—Lady Charlotte Guest piques herself more on being the wife of the great ironmaster than the daughter of the Scotch Earl. Though she may possibly startle at the question, "what is the price of pigs?" she knows what the price should be. Upon one occasion, I am told, she astonished the wild Cymbri by rolling out a rail bar herself. A circumstance was narrated to me which, if true, indicates her character aptly enough. It was, if I mistake not, the great railway year. She had a grand party at her London residence, probably brought together to give *éclat* to the project. When the festivity was at its height, a courier arrived from Dowlais, booted and spurred, with a tin box. Lady Charlotte ordered it to be brought to her in the brilliantly lighted saloon. "What's that, Lady Charlotte?" exclaimed they all. "'Tis our balance-sheet," answered her ladyship. "Balance-sheet!" exclaimed the fair Aristoi, "What's a balance-sheet?" "It is an account made up, and showing the profits down at the works, for the last twelve months." The company laughed, for they thought, with Lady Lindsay, of the *cinder-hole*. Lady Charlotte not seeming to heed them, said, as though she spoke to herself, "Three hundred thousand pounds—a very fair year," and re-committed the balance-sheet to its tin case, while peeresses looked as Lot's wife might have looked as she was being changed into salt. "Three hundred thousand pounds profit? What!—you don't mean that in one year?" —"In one year," was the reply, as if there was nothing at all remarkable in the matter. "I'd be a Cinderella myself (said a border countess) to a husband with such a business: it beats the glass slipper!" Lady Charlotte had her revenge. None of them sneered at the cinder-hole after that.—*Abridged from Roebuck's History of the Whigs.*

CHURCH BELLS.—You have of late been so kind as to give your readers a few "touches" on church bells. Will you object, for the information of those who are interested in this subject, to invite either opinions or authoritative statements respecting the time at which the present mode of hanging bells and swinging them by means of "the wheel" and other parts of "the cage" were first introduced? The question is probably connected with the invention of "peal ringing," and, therefore, the answer to it may more exactly determine than is generally known *when* that art was discovered. I beg, too, to call attention to a woodcut and description of "Wix Belfry," which will be found in "the Eastern Counties Railway Illustrated Guide;" and if any more distinct account can be given of this ancient and remarkable structure, I shall be very glad to have it. May I take the liberty of adding that as I am endeavouring to compile what shall be a work of some authority and interest on bells, any stray anecdotes or information about them will be most acceptable to me.—ALFRED GATTY, Ecclesfield Vicarage, near Sheffield.

PERPETUAL MOTION.—After years of "mathematical labour and mathematical results," says an American paper, "Professor Willis, of Rochester, U.S. has completed, and has now in constant operation, a self-winding clock, which determines the seconds, minutes, hours, days, weeks, and years of time, with unfailing accuracy, continuing in constant motion by itself, never requiring to be wound up, never running down, but moving perpetually so long as its components exist."

BUILDERS' CALCULATIONS.—Sir,—Do, pray, insert the following diversified tenders for three second-rate warehouses, and one second-rate dwelling-house, in Cannon-street, City, Mr. Hague, architect. The quantities supplied.—CHIP.

Holland	£9,747	0	0
Gammon	9,559	0	0
H. Burton	9,333	0	0
Cubitt	9,216	0	0
Curtis	9,182	0	0
Haynes	8,988	0	0
Jay	7,945	0	0
Myers	7,876	0	0

TENDERS

For new rectory and tower to St. Martin's Ongar, Martin's-lane, Cannon-street. Mr. J. Davies, architect.

Greenwood	£2,750
Cubitt	2,744
Brass and Son	2,685
Haynes and Co.	2,597
Piper	2,523
Matthews	2,457
Ashby and Sons	2,452
Curtis	2,299

For a house at Lewisham, under Messrs. Smith and Son, of Greenwich.

Howard	£2,194
Hall	2,166
Willson	2,139
Paul	1,864
Taylor	1,765

Delivered March 6 for building new Independent Chapel at Richmond. Mr. Jos. James, architect. Quantities taken out by Mr. S. B. Wilson.

	Chapel.	Lecture Room.	Kentish rag in lieu of brick lacings.	Bargate stone in lieu of brick lacings.	Allowance for old building.	Total.
Barnes	£5,000	£780	£195	£164	£100	£6,690
Cooper, H. W.	4,137	722	240	260	250	4,659
Harmer	4,090	550	390	297	72	4,658
Patrick	3,977	615	315	385	165	4,437
Cooper, Jas.	3,840	740	120	160	200	4,380
Hurst & Co.	3,884	656	76	121	123	4,377
Dowell & Co.	3,829	598	168	179	140	4,297
Dove	3,680	650	127	150	76	4,255
Piper	3,758	684	140	98	206	4,236
Jay	3,393	549	150	150	130	3,812
Myers	3,100	519	30	50	50	3,569

For eight houses and gateway for the Dean and Chapter of Westminster, at Deans-yard. Mr. Scott, architect. Quantities taken out by Messrs. Hunt and Stephenson and Mr. C. Balam.

Grunsdell	£31,165
Piper	30,244
Lucas	30,244
Candy	29,972
Locke and Nesham	29,563
Holland	28,690
Kelk	27,607
Jay	27,186
Myers	24,916

For mill and stores at Dartford, Kent, for Messrs. Thompson and Co. Quantities taken out by Mr. Meakin and Mr. Belcher.

	Mill.	Store.	Total.
Piper	£3,579	£1,678	£5,257
Carter	3,500	1,700	5,200
Jay	3,335	1,652	4,987
Lawrence	3,422	1,560	4,982
Wilson	3,339	1,552	4,891
Brown	3,220	1,527	4,747

For new gas tank at Fulham, for the Imperial Gas Company.

Kelk	£8,589
Cubitt	7,980
Hoof	7,297
Jay	7,143
Piper	6,986
Myers	6,740

[Under what heading some of these should come, we leave readers to determine.]

TO CORRESPONDENTS.

"J. P.," "M. D. W.," "S. C. Jun." (thanks), "J. F.," "W. A. P." "J. W." (we cannot refer), "R. L. S.," "G. B. M.," "J. B." Horsleydown (under our mark), "W. C." (ditto), "J. J. L.," "H. P." (power of the Local Board of Health may be seen in the local Act), "J. B. B.," "J. L.," "T. P.," "R. S.," "W. N.," "T. B. L." "A Labourer," "R. A.," "J. B." Westminster, "G. S.," "Col. F.," "J. B." Notts, "E. B.," "R. K." "T. T." "A Friend of Architecture," "W. G. H." (it is out of our power to send opinions on such subjects), "F. and W." (thanks), "C. J. S."

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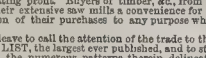
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		£.	£. s. d.	
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35	1838	1,000	176 19 8	
45	1838	1,000	219 6 6	
53	1838	1,000	235 19 8	
64	1838	1,000	265 1 3	
26	1844	1,000	49 12 0	Participators in One Septennial Division of Profits.
36	1844	1,000	59 4 9	
46	1844	1,000	77 13 0	
55	1844	1,000	93 13 7	
66	1844	1,000	94 15 9	

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		Number.	Amount.		
	£.		£. s. d.	£. s. d.	£. s. d.
15	3,000	6	315 0 0	164 16 8	52 6 6
25	5,000	7	773 16 8	447 13 4	54 16 3
35	2,500	6	431 17 6	183 18 0	42 11 8
45	2,000	6	464 0 0	172 6 7	37 2 10

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Age.	Without Profits.	With Profits.	Age.	Without Profits.	With Profits.
	£ s. d.	£. s. d.		£. s. d.	£. s. d.
15	1 11 0	1 15 0	40	2 16 10	3 6 5
20	1 13 10	1 19 3	50	4 0 9	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

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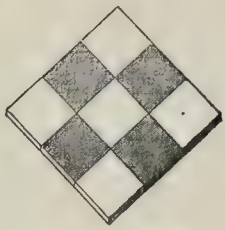
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DAL OF THE EXHIBITION 1851

TO THE EDITOR OF "THE BUILDER."

SIR,—In asking for the publication of the following letters and extracts, relative to the subject of two advertisements in your number of the 20th instant, I congratulate you, as well as the authors of the *Labourer's Friend*, and of the very large number of papers issued at the model structure in the Crystal Palace, on the fairness and truth of your several statements having been proved inviolable. You, Sir, know too well what serious *effects* have originated in apparently the slightest *causes*, to blame me for having tried to substantiate the accuracy of the above publications, to maintain my position in my business against what I must still believe to have been a surreptitious attack upon it, and to acquaint the public with the *fact* that the tiles in the left-hand ground-floor rooms (the only tiled floors generally open to their inspection) were manufactured by myself. Sir, it is surely not so light a matter, under a plea even of ignorance, to issue, in 9,038 copies *gratuitously*, a statement which has been called "exclusive," but which I—from what has taken place during the last six years between myself (touching my rights) and the other parties, in either their individual or official capacity—must continue to view as intentional and malicious. Sir, if five persons see the 9,038 papers (dispensing with the possibility of its being republished by other periodicals, and especially in the United States), it may have the effect of misinforming 45,190 persons how to address the identical firm whose manufactures (and whose *alone*, with but few exceptions) they had inspected; yet, as far as appears, no satisfactory counter-statement, however inoperative these must ever prove, is to be circulated through the same channel! Sir, I lost excellent, though not literary or special pleading, parents at an early age, but not before they had taught me that what is not fair must be unfair—that what is not true must be false—and that I ought to call a brick a "brick;" and though, through frailty, I have, alas! fallen so short of ever soting up to the standard they raised, still I hope to be enabled to carry their advice into effect in my own person, as well as to leave behind those committed to my charge, more blessed and successful herein, than either generation of their ancestors. Sir, it is laid to my charge that I had done wrong in having noticed a letter, then public, without having first communicated privately with its author. Not only conventional etiquette, but the precious Gospel also is quoted to show that, in the present case any mode of interference and investigation is unjustifiable; but I appeal to you whether I had not the same right to *answer* as he had to publish, and, having weighed every circumstance, to state frankly, in the reply, my judgment on the matter. Surely a Briton has the right, not only to do this, but to train his children also to exercise and cherish it. It is, however, both wiser and better that conventional etiquette, and especially HOLY WRIT, should in the heart PREVENT questionable conduct, or even carelessness, in cases of this nature, than stifle investigation or elude merited consequences; and great as human frailty confessedly is, the attempt was never more desirable than now, when, amid much which is deplorable, means are steadily applied to ameliorate the trials of our common species, and to include the whole in a bond of amity.

To return to the replies to my complaint, and to conclude, I must prefer another appeal to you, Sir, as to whether the SPECIAL interest Mr. Ridgway had in the "Materials and Fittings," both in the Four Houses, and also in the Structure within the Crystal Palace, is not presumptive proof that he must have read some of the descriptive accounts published last year—your own, for instance? He had two paragraphs out of about fourteen in your paper *confined* to his productions,—one being before that about the tiles, and the other after,—besides in the papers of the Society, the statement following, viz.—"The model group of four tile-kilns is exhibited by Mr. Ridgway, as showing a compact and economical arrangement of an important requisite in the manufacture of hollow bricks, tiles, &c."—upon which model kilns, in his own writing, was fixed a notice that the goods exhibited by Messrs. Haywood opposite had been fired in his kilns. Notwithstanding this latter statement, I challenge, in respect of *bulk*, regarding specimens as snares, though no doubt unintentional, any Manufacturer in "terro-metallic" as to superiority of quality in every point of view,—to assisting Architects and others in the application of the material to new and difficult objects,—and also as to long and extensive acquaintance, practically, with the various ramifications of the trade.

Sir,—It is my duty to myself and mine,—if not to the Public in some respects also,—to maintain, if I can by fair means, my honest *position* as a Manufacturer. I have endeavoured to do it in this instance, though at some expense and trouble, and with various and great infirmities;—and emphatically inquiring, WHY OR WHEREFORE DRAG FORWARD THE TILES! in the instance complained of, any more than the stoves of Mr. Leslie, or the goods of some other of the twenty persons concerned,

I am, Sir, your obedient Servant,

31st March, 4 Wharf, City-road-basin. THOS. PEAKE, Proprietor of Peake's Terro-Metallic.

(No. I.—Copy.)

J. Ridgway, esq. to Mr. Peake.

"Cauldon-place, Staffordshire Potteries, March 6th, 1853.

"DEAR SIR,—I am sorry to have penned any thing which has given you pain, or caused you trouble. It is perfectly true that I wrote the letter in the *Manchester Guardian* that bears the signature of my Firm. But so far from intending to do you any injustice by its contents, I can assure you I never had you in my thoughts, therefore neither withheld your name from good nor used it for purposes of evil. The fact is, until I saw *The Builder* of this date, I knew not that any part of the Tiles in Prince Albert's Cottages were manufactured by you; or, depend upon it, I should have associated your name with that of Messrs. Haywood, who, it was told me, had supplied the whole. Had you written and explained this to me, I would have corrected the mistake, as I shall now do, without laying you under the necessity of adverting to private transactions, at all times a very doubtful course, but in your case a very groundless one; inasmuch as I have relied on your promise to introduce my kilns, and have waited your convenience as to the time; so there has been no disappointment in the business, nor, I can promise you, will there be. As to the negotiation for wharfage which you suppose has had an unfriendly influence on my feelings, you never judged more erroneously; so far from this being the case, I consider you are the party who has suffered and will suffer from not taking the advice which I gave you, and that my friends are greatly indebted to you for throwing so many obstacles in their way, and enabling them to obtain better accommodation on better terms.

"Should you wish to manufacture the glazed, veneered, hollow bricks, quarries, &c. (my nephew Mr. Bale's patents) he shall be prepared to license you on liberal terms, but it is only proper to caution you that you will expose yourself seriously if you go to work without being properly licensed.

"I remain respectfully yours, per pro Jno. Ridgway,

"W. HAWLEY."

(No. II.—Copy.)

Mr. Peake to Jno. Ridgway, esq. and Co.

"Jno. Ridgway, esq. and Co. Cauldon-place. "London, 10th March, 1853.

"DEAR SIRS,—Your letter of the 6th instant was delivered here yesterday.

I have to state, with respect to what you published in the *Manchester Guardian* of the 24th January last, that it is calculated to do me *injustice*, both as extensively as that influential journal circulates at home and abroad, and also to continue so to operate as long as that postscript shall be in existence.

"With these feelings, it will be my duty to have recourse to the best antidote in my power, and especially to publish from either your present or future letter any extract or otherwise as the case may appear to require.

"This communication to be *without prejudice*.

"I remain respectfully yours, "THOS. PEAKE."

(No. III.—Copy.)

"March 11th, 1852.

"SIR,—The letter I have received from you to-day is anything but satisfactory, and, therefore, requires me to be very plain with you. It was your duty, when you saw my note in the *Manchester Guardian* (the cause of this offence), to have written to me for an explanation before you published on the subject. I should have done this to you, and, I repeat, you ought to have done it to me. Notwithstanding your course has been to strike and then to hear, I wrote you a friendly letter, frankly accounting for the error, as having arisen for want of better information, and as having occurred without the slightest design of hurting either your interest or feelings.

"You appear to have overlooked a passage in my letter which avows all this, and adds, 'Had you explained this to me I would have corrected the mistake, as I *shall now do*,' thereby meaning that this correction would be given in *The Builder* (the channel of the error), to which it was sent for the purpose, on the date of my letter to you.

"If, as you say, I have done you injustice, I can only repeat, it has been most unintentional; and I have made the *amende honorable* for it, not only without any appeal being made to me, but against (to speak in the mildest way of it) 'evil for evil,' and I have not done this by reservations, or, as you term it, 'without prejudice' (words that you would do well to omit in such correspondence), but in full measure, and most respectfully. Before, therefore, you think of publishing any part of my letter, I would recommend you to see *The Builder*, because a sight of what I have written may render anything of the sort unnecessary. If you are of a different opinion, I shall neither object to your publishing my letter to you, or that sent to *The Builder*; but allow me to caution you, that in either case I shall require you to publish the whole, and not such extracts as you, in your fancy, may choose to select, but which I may happen to think should not in fairness appear without their proper connection. And that there be no misunderstanding in the case, I beg explicitly to state, that while I give you liberty to publish either letter in full, I will not allow you to publish any extracts from one or both, without being first submitted to me, and receiving my approval. The application you have thought well to make to Mr. Roberts, the way you have put the thing to him, and the publication of the whole without any previous reference to me, have not commended your kindly feeling to me, nor exalted your discretion in my estimation; and I must say I shall feel bound to wait for some better proofs of both before I can regard you with the same respect, or trust you with the same confidence, that I have heretofore done. I have only to add, in conclusion, that I regret the occasion for writing you at so much length and plainness. It is not my wish to continue our correspondence; I have said and done all in my power; and I hope nothing will transpire to require my further interference,

"And am respectfully yours, "JOHN RIDGWAY."

Extracts from THE BUILDER, *May* 17, 1851.

"The glazed bricks were made by the Ainslie machine, at Mr. Ridgway's, the Potteries, Staffordshire. These being the first specimens, the actual cost at which they are likely to be hereafter supplied has not yet been ascertained.

"The brick-work was executed by Mr. S. Grimsdell, Sun-street, Bishopsgate-street.

"The metallic lava covering the roof, the floor lava, and the gravel lava to the front, were laid by Messrs. Orsi and Armani, Guildhall-chambers, Basinghall-street.

"The French plaster and the Portland cement floors have been executed by Messrs. J. B. White and Sons, Millbank-street, Westminster.

"The tile floors in the left-hand ground floor rooms are from Mr. Peak, Tunstall, Staffordshire, or Macclesfield-street South, City-road Basin. Those in the right-hand rooms are from Messrs. H. and R. Haywood, Burslem, Staffordshire, and South Wharf, Paddington.

"The staining fluid used for the wood work is from Ibbotson's Varnish and Colour Works, Hammersmith.

"All the traps used in the building are those of Lowe and Co. Salford; agents, Messrs. Kennard and Co. Upper Thames-street.

"The metal window-lights, the ventilators, and all other articles of ironmongery, excepting the stoves, are manufactured by Hart and Sons, Wych-street, Strand.

"The bell-pull apparatus to the left-hand water-closets, is supplied by J. W. Dann, Cromer-street, Gray's Inn-road. That to the right-hand, by G. Jennings, Great Charlotte-street, Blackfriars-road.

"The stoves in the left-hand ground-floor rooms are from Mr. Leslie, Conduit-street; in the right-hand room is the 'Cottager's Stove,' manufactured by D. and E. Bailey, High Holborn. The stoves in the left-hand rooms, first-floor, are from Pierce, of Jermyn-street; to the right-hand, the Prize Cottage Range, by Nicholson, of Newark, is fitted in the living-room, and suitable stoves in the bed-rooms, with fire-brick back and cast-iron chimney-piece complete, by the same maker.

"The earthenware sinks are from Mr. Ridgway, the Potteries, Staffordshire, who has also supplied specimens of earthenware pipes, washhand basins, and the water-closet pans: two of the sinks are of slate."

The Builder.

No. CCCCLXXIX.

SATURDAY, APRIL 10, 1852.

THE Royal Medal of the Institute of Architects has been awarded to M. Leo von Klenze, Architect to the King of Bavaria, and founder of the present school of architecture at Munich. A few weeks ago, as if in anticipation of such an incident, though at that time M. Klenze's name had not been mentioned in connection with the medal, we gave a view of a saloon, in one of his principal works, the Glyptothek,* and we have in preparation a view of the interior of another, —the Walhalla, at Ratisbon. The award was confirmed at a meeting of the Institute, on Monday evening last, the 5th inst. Mr. Hardwick, R.A. in the chair, when a discussion arose, which showed that the members generally had not manifested that sense of the importance of the trust confided to them which they ought to entertain: the special meeting called to consider the report of the Council as to the award of the medal, was a small one, and they did not accept the name proposed to them by the Council. At the meeting, on the 5th, several irregularities became apparent: the special meeting clearly had not power under the notice by which it was summoned to make an entirely different award from that proposed by the council; their course was, if they were not disposed to accept the report, to send it back to the council with such suggestions as they thought proper to make. However, we will not go further into the matter: the difficulties were all removed at the meeting on the 5th; the award was unanimously confirmed; and on our own part we will say, there is no living foreign architect better entitled in our opinion to receive this high compliment from the architects of England than M. Leo von Klenze.

A medal of merit (in lieu of the Soane medallion and its accompanying travelling allowance) was awarded to Mr. James Thomas Knowles, the author of a design for baths and washhouses on an extensive scale. This was the only design submitted for the medal.

In the competition for a premium in books—a design for a parsonage-house—the successful competitor was Mr. B. Fletcher.

Mr. William Lightly, jun. the author of the only other design sent in, was also awarded a book on architecture, as an acknowledgment of the ability he had displayed; and he also received, with Mr. T. C. Tarring, a premium for sketches.

Reference was made to the proposed connection of the Tuileries with the Louvre, which the French President has intrusted for execution to M. Visconti, the architect who has charge of the erection of the tomb of the Emperor Napoleon, and who appeared, therefore, to have been selected in preference to M. Duban, who has, till lately, been engaged in improving the Gallery of the Louvre.

* See page 185. We promised some further particulars of the building, although it is known to the majority of our readers, but accident having prevented us from doing so at the moment, we shall postpone the intention for another opportunity.

Mr. Donaldson suggested that an historical sketch of the various schemes promulgated at different times for this undertaking, would furnish an admirable paper for a future sitting of the Institute.

At this meeting Mr. John Clayton read some particulars of the towers and spires of the London City churches built by Sir Christopher Wren, which will afford us a good opportunity to draw attention to this gentleman's work on the parish churches of Wren, which is now completed.*

"Well known as these buildings are," said Mr. Clayton, "from having been the constant pride and boast of the metropolis for nearly two centuries, they have hitherto received very little *practical* attention, a circumstance which has been repeatedly adverted to by the learned Professor from the chair at the Royal Academy. These buildings are interesting and valuable specimens of architecture on many considerations. They are the first applications of a style to an entirely new feature, and are what may be termed perfectly original. They are buildings which are to be found in no other part of the world, and with which the architectural student should be thoroughly acquainted. Notwithstanding this neglect, much excellent information has appeared in various works respecting them: first, the 'Parentalia,' where they are catalogued; elevations in the 'Vitruvius Britannicus;' views in the London guide-books; views by Shepherd; and, lastly, in "The Churches of London." These works have accomplished all they professed to do, but being chiefly of a pictorial character they do not convey those ideas of form and proportion which are valuable to the Profession. The little attention they have received appears at first sight the more remarkable from the circumstance of their being situated close at home,—though their proximity is most likely the very reason. Had they been placed nearer the centre of the Roman States, we should, in all probability, have had, long ago, measurements of the minutest portions to the greatest nicety, together with photographic drawings of every cornice, cap, and steeple. This makes good the assertion of Colin Campbell, that 'the general esteem that travellers have for things that are foreign is in nothing more conspicuous than with regard to building, though perhaps,' he adds, 'in most we equal and in some things surpass our neighbours.'"

The writer placed the towers and spires under two heads, viz. those all stone, and those finished with lead work, and these he again divided into spires and lanthorns, adding a third head for those finished as towers. He gave a table, which we annex, showing the date of completion (we have not checked it), the total height, and the size of the tower. The heights were taken to the top of the vanes. We must confine ourselves to a very few statistics.

"*St. Mary-le-Bow*, though not the loftiest, is perhaps the most beautiful of all the spires which Wren built. It measures, it will be seen, a total of 222 feet, and the square of the tower is 32 feet. The walls are 7 feet thick as high as the belfry. Over the doorway next Cheapside is a large projecting balcony, which from its position is well suited for addressing the populace below, and was probably provided with that intent.† The terminations to the corners of the tower measure 17 feet high, are composed of scrolls placed at the angles of a quadrate octangular-moulded pedestal: these carry a cap above, and are finished with a vase. These designs are of great beauty in their form, and admirably prevent any abruptness in the transition from the square tower to the circular spire, and are altogether a different expedient to that used at St. Bride's.

The spire, the centre of which is a cylinder of masonry, 8 feet 6 inches diameter, and 9 inches thick, is supported on a dome, resting on massive moulded corbellings in the angles of the belfry. The dome is circular on plan, and 20 feet 8 inches diameter at its base. It is slightly curved in section, and rises upwards of 18 feet above the springing. *The joints in the masonry of the dome are kept horizontal*, as may be observed in the entrance to the upper part, where it passes through one of its sides."

The spire is divided into four stages. The first, a circular peristyle of twelve Corinthian columns, is an exceedingly beautiful part of the composition, both at a distance and on closer inspection. Owing, however, to the lightness of the order, and its exposed situation, several of the columns are rapidly perishing; this is the more observable on the south-east side. The roof is formed with large stone slabs overlapping each other.

"*St. Bride's Fleet-street* has the loftiest of the city spires. It attains a total altitude of 230 feet. The provision made for carrying the magnificent spire, which appears a wonderful structure, when the design, dimensions, and the excellent manner in which the constructive difficulties have been overcome are taken into consideration, is excellent. Within the belfry are angle corbels with flat surfaces, which contract the square to the octagon form; this is reduced to a circle by a bold torus moulding on a level with the top of the external cornice. The circle measures 17 feet in diameter, and above rises a lofty conical dome, measuring 14 feet 6 in. to the crown. The sides of this dome are somewhat of an ogee form, but nearly flat, to within a very short distance of the apex, and it should be distinctly observed (many errors having been made in this respect), that the joints of the masonry do not radiate, but are kept perfectly horizontal, as in Bow Church, each course corbelling over with a slightly bevelled surface, until within a few courses of the key. Had this been otherwise no metal bands would long have retained the tower together, and the destruction of the whole would have been the consequence. The masonry of this part is extremely massive and carefully put together: the depth of solid at the keystone is not less than 4 feet 9 in. The spaces between the sides of the dome and the exterior are nearly double this, and it is probable that voids are left at intervals within, though there is now no opportunity of ascertaining that fact."

The spire was injured by lightning twice, and on one occasion had to be restored for nearly 80 feet. This was done by Mr. Staines, afterwards Lord Mayor of London, and created Sir William Staines.

Before these alterations the spiral portion was much loftier; and, it is said, we do not know on what grounds, terminated upwards in a sharp point.

The variety obtained by Wren in his towers and spires, with the use of only a few elementary forms, is very extraordinary. Mr. Clayton's work illustrates no less than forty-six churches by sixty large plates, the whole of which, with the exception of the measurements of eight, contributed by Mr. Cockerell, to whom the book is dedicated, were measured, drawn, and lithographed by himself. In a previous notice of the work, vol. vi. p. 409, wherein we pointed out the attention to geometric ratios observable in the dimensions of the buildings, (and we might have added, the indifference with which many of the churches are built out of square, in order to cover the whole of the ground), we stated our regret that the

* Plans, Elevations, and Sections of Sir C. Wren's Parochial Churches, from careful Admeasurements, and drawn to one uniform Scale. By John Clayton, architect. Subscribers' names received by the author, 38, Elizabeth-street, Eaton-square. Longman and Co. Paternoster-row.

† "Cheape" was famous for joustings, and close to Bow Church was a shed which darkened it, called "Seldam," erected by Edward III. for himself and others to behold the shows in. The balcony is evidently a memorial of this shed.—ED.

engravings were not of a finer and more careful character. This regret we still feel: the author himself feels it, and expresses a hope in his dedication "that the imperfections of the performance will stand excused with the lovers of the Art, in consideration of the merit of the examples, and the utility of an easy reference to them." We must nevertheless warmly commend the author for the determination, energy, ability, and industry which have enabled him alone and unaided to complete so heavy a task: we sincerely hope that he will find a remunerating sale for his work, and we invite our readers to assist in bringing this about.

WREN'S TOWERS AND SPIRES.

Table of Dates and Heights.

	STONE SPIRES.	Date.	Height.	Square of Tower.
			Ft.	Ft. In.
1	St. Bride	1699	230	30 0
2	St. Mary-le-Bow	1680	222	32 0
3	St. Vedast	1697	160	20 0
4	St. Antholin	1684	158	20 0
5	Christ Church	1704	160	23 3
	LANTHORNS.			
1	St. Stephen, Walbrook	1676	120	20 0
2	St. Michael Royal	1694	135	20 0
3	St. James, Garlick-street	1683	120	20 3
4	St. Mary Magdalene	1685	86	16 0
5	St. Dunstan in the East	1698	171	20 0
	TOWERS.			
1	St. Andrew, Holborn	1704	140	23 0
2	St. Mary, Somerset	1695	120	20 0
3	Allhallows, Watling-street	1697	104	17 6
4	St. George Botolph	1674	72	16 0
5	St. Michael, Cornhill	1672		
6	St. Mary, Aldermary	1711		
7	St. Clement, Eastcheap	1686	88	16 0
8	Allhallows, Lombard-street	1694	105	21 0
9	St. Bartholomew, Exchange	1679		
10	Allhallow, Thames-street	1683	88	22 0
11	St. Dionis Back	1684	101	20 0
12	St. Anne, Blackfriars	1692	80	18 0
13	St. Matthew, Friday-street	1685		
14	St. Olave, Old Jewry	1673		
15	St. Sepulchre, Newgate	1670		
16	St. Mildred, Poultry	1676	73	16 0
17	St. Mary-at-Hill	1672		
18	St. Clement, Strand (left a tower by Wren)	1680		
	LEAD SPIRES.			
1	St. Margaret, Poultry	1687	200	22 0
2	St. Swithin, Cannon-street	1679	150	20 0
	LEAD LANTHORNS.			
1	St. Magnus, London-bridge	1705	185	30 0
2	St. Peter, Cornhill	1681	141	20 0
3	St. Benet, Gracechurch-street	1685	145	20 0
4	St. Benet, Thames-street	1683	115	16 0
5	St. Benet Fink	1673	97	18 9
6	St. Mary, Abchurch-lane	1686	150	20 0
7	St. Martin, Ludgate	1684	168	22 0
8	St. Margaret, Lothbury	1690	142	18 0
9	St. Mildred, Broad-street	1683	150	18 0
10	St. James, Piccadilly	—	155	24 0
11	St. Edmund the King	1690	136	17 0
12	St. Michael, Queenhithe	1677	140	18 0
13	St. Austin, Watling-street	1695	140	20 0
14	St. Nicholas, Coll. Abbey	1677	120	19 0
15	St. Lawrence, Old Jewry	1667	160	25 0
16	St. Michael, Bassishaw	1679	140	21 0
17	St. Ann and Agnes	1703	95	14 0
18	St. Stephen, Coleman-street	1676		
19	St. Mary, Aldermanbury	1711		
20	St. Michael, Wood-street	1675		

Royal Italian Opera House.—Mr. F. Gye has commenced the season with judgment and success, and has made the conventional dreariness of the "opera before Easter" a tradition. In *Maria di Rohan*, Sig. Ronconi is able to display his great power as an actor as well as a singer. Rossini's *Guglielmo Tell* (to which Meyerbeer owes something) has been revived with great splendour and completeness, and has served to introduce a new tenor, Herr Ander, of great capability. Messrs. Grieve and Telbin's beautiful scenery for this opera will be remembered, especially the opening view of a mountainous country with a village in the middle distance, and Tell's cottage in the foreground. Donizetti's *I Martiri* will be given directly after Easter, with a very strong cast; and Spohr's *Faust*, Weber's *Oberon*, and a new opera by M. Jullien, are promised.

THE SCIENCE OF RESTORATION.

ARCHITECTURUS TO HIS SON.

Everything has its scientific system. If men would believe this,—if they would act upon their abstract acknowledgment of it,—that there is a reason for everything,—for every possible effect a definite cause (just as definite as when two and two make four) how many mysteries would become clear as noon, and old philosophisms dissipated away like mere fogs as they are!

It was the exquisite conception of the fresh energy of the modern mind under Bacon to affirm this. Ancient sages and mediæval schoolmen had been over and over again, from generation to generation, vexing their heartstrings as to how this slippery egg could be set up on end; and they had made nothing of it,—it every way fell over somehow, do what they would. Poor humanity could make nothing of its world but on the one hand the confusion of the kaleidoscope of nature, and on the other hand the confusion worse confounded of their visionary philosophies: till at length, in the fulness of time which heaven had prepared for the great renewal of youth, it was revealed in all its marvellousness of simplicity, that *à priori* reasoning must be forsaken for scientific system, for that old philosophies were foundationless.

Science resolves the confusion of phenomena into system, and resolves the certainty of system into fundamental law; it melts the universal tumult into harmonies, and distils from these harmonies their abstract essences; and the mission of all true philosophy is to search out in this manner the elements of things,—to push step by step into the secret dark strongholds of nature, and light them up for intelligence to look upon, one by one on the long way to the inaccessible Agency. Therefore, when you meet with a thing hard to understand, remember all this. There is always a system, and for that system there are laws. Whatsoever is true has a reason for its truth, and a reason which diligence can discover. *Everything*, I say, has its scientific system.

Now, with this preface in your hand, as it were a magic mirror to look into, descend with me to any question of our particular business, which among other things may arise; for it is the perfection of good philosophy to apply its principles to every-day and very common matters. There arises thus at present a subject to our hand.

THE RATIONALE OF RESTORATION.

The indefatigable energy of Mr. Donaldson has already in this session of the Institute brought forcibly forward two separate questions of much interest, to the decision of which he has challenged the profession at large. The first of these questions had the misfortune to be on the wrong side of history, as present fashion goes; so, with the mere remark that it *has* its scientific system for any one to deduce who will take the pains, let me pass it by. But the second question, as matters go, is eminently fashionable; and as its decision is of great practical moment, let me attempt a search into the scientific system which it possesses, in order to point the way to a decision.

The Royal tombs in Westminster Abbey being in an extremely dilapidated condition, a question of propriety is broached whether something in the way of repair or renovation ought or ought not to be done to them; and, as a previous question, the whole abstract principle of *Restoration* comes under review.

For the restoration of certain ancient things is at present a favourite principle with us. In the course of ever-changing fashion, our mediæval antiquities, long out of fashion, have now come strongly into fashion, as a matter of fact. Our new buildings are being modelled with infinite care on the mediæval system; and accordingly the numerous edifices of the ancient time itself with which our land abounds are brought into a practical prominence which their dilapidated condition, the consequence of centuries of other fashion, does certainly not suit. What, then, is to be done? This is the question of Restoration.

Now when I allude to the old *à priori* philosophies, you will recollect how one man would try to find an explanation of nature in the elaboration of the idea, as an abstract fundamental, that its first essence was what he might call *water*; another doing the same with *fire*; and another trying *number*; and so on; and you do not wonder now that all this came to no result except perplexity. But when I affirm that this mode of argument, supposed to have been for ever dissipated by Bacon, still finds favour and flourishes in our very midst, you may fancy I speak a paradox. But I do not; for, in fact, this is the true reason of a whole labyrinth of doubts and difficulties which encompass us on every side every day wherever we go. Instead of generalizing appearances and searching backwards for their unknown system, it is still too much the fashion to assume abstract principles and push forwards to a foregone conclusion. And to show you how this fallacious system penetrates into matters of detail in everyday thought, the present question is a case in point; for, instead of commencing by an examination of the superficial phenomena of the subject,—instead of calmly inquiring first what this restoration is, and in what manner it seems to operate,—some highflying and plausible abstract idea is puffed forth—whether any one will dare to deny the virtue of antiquity, or whether any one would not feel ashamed to impugn the sacredness of our trust, or whether we must not all admit some other such axiom; and upon this quicksand it is demanded that we build, with this breath we are to blow bubble schemes, no matter how visionary; and if the result produces none of that conviction which is the end, it is simply because it has no *science* in it—no *à posteriori* argument for its base,—our fabric sinks from sight while we build it,—our schemes vanish in thin air while scarcely spoken.

In generalizing, then, the mental phenomena which pertain to the category of the restoration in question, I seem to discern as their system the following: that the value attached to an ancient building is of six species,—serviceable, monumental, patriotical, artistical, art-historical, and archæological.

Value serviceably is that which is attached to the structure when considered as an edifice for present occupation; value monumentally, when considered as a special memorial of present hero worship; value patriotically, when considered as an object of interest in association with past history, or such like; value artistically, when considered as a work of direct beauty; value art-historically, when considered as a record in the past history of design; and value archæologically, when considered as a matter of the fashionable or dogmatical antiquarianism of the time being.

If we be right so far, we have next to examine the particular circumstances of all these various species of value; and, connecting with this the principle of restoration, the result ought to be, more or less, a scientific system of abstract regulations to act upon.

Accordingly, value serviceably is the value of a building as property purely with reference to the purposes of its uses; for instance, an ancient church, as property, is valuable for use as a house of worship (demanding by the way a certain amount of what may be called ornament, as a matter of decency); also, an ancient tomb would be valuable as property in any such case as when certain funds or privileges were held on condition of its being kept in existence; and an ancient pump, structurally, would be valuable as property so long as it furnished a water supply of any value; and an ancient gate, so long as a gate in that position might be desirable; and so on. Connect, therefore, with this the principle of restoration.

I consider restoration to operate in four forms:—first (or preliminary), as simple preservation, by those attentions which prevent decay; secondly, as positive partial repair where decay has occurred; thirdly, as total renovation when in ruins; and, fourthly, as the act of improving by anything additional to the original subject; and any case partaking of more than one of these characteristics would

merely require a corresponding complex application of the principles of regulation.

Now, an ancient building of value serviceably ought manifestly (first) to be preserved in order; also (secondly) it certainly ought to be partially repaired when decayed, both structurally and, so far as decency or such like goes, ornamentally; again, (thirdly) if it falls into total ruin, it is manifestly admissible to renovate it; and moreover, (fourthly) it is impossible to raise any objection to improvement in any form it may assume as far as regards mere value serviceably.

In the next place, value monumentally is the value of a structure which forms a present celebration of any hero or heroic event (using these terms comprehensively); as, for instance, our Nelson, Wellington, Peel, and Scott monuments, if any of these might be supposed to fall at present into decay or ruin: in short, the memorial of any man or any event that at the time present might be the subject of popular honour. And here I need not say that to preserve, to repair, to renovate, and even to improve, are all admissible so long as no principle comes into operation but present homage to the hero or event.

Again, value patriotically is the value of a structure regarded merely as an object associated with bygone history, and awakening in our minds that interest which we feel in our forefathers. Thus, an ancient tomb we would forbear to desecrate, although marked with a name now scarcely known; the house where a great man lived of old, or the room where he was born or died, is a thing of value to the community; and the old village church, where our grandsires' grandsires knelt to pray as little children so long ago,—how could we bear to see it swept away? And here, again, preservation and repair become both, as it were, a duty. But here I fancy restoration must end: to rebuild if in ruins, even in perfect similitude and partial identity of substantial material, is only to destroy the patriotical value by substituting a new *model* for those old ruins whose disturbance disturbed the entire patriotic value of the subject, inasmuch as identity of substance in ruins is better patriotically than any perfect similitude whatever of mere form. And at the same time, again, the improvement of any such remains of old times is simply impossible as regards patriotical value: strew flowers, fresh flowers, upon the old tomb, but do not whitewash it. And when time has at length gathered the worn memorial into the same inevitable grave with him whose name it bore, do reverence to the fallen dead! When the hoary temple at long length bows down in imbecility of age to seek the quiet rest of the weary, can you not discern a smile of welcome there, and a mute but fervent appeal? Raise me not up,—prop not my tottering bones,—do not elevate again this dead body into your new youth—I would have none of it: set up a new Bethel hard by, and let me look upon it and let it look on me!

But when we come to artistical value, the case is entirely changed. I mean pure excellence of beauty. And here to preserve, to repair, to restore again, and to improve, of course, are all not only admissible, but desirable.

Likewise in value, art-historically, which is the value seen by the intelligent observer of the chain of many links by which art has drawn itself onward from the far and small beginning to the still advancing end, not only are preservation and repair as applicable as before, but renovation is admissible in so far that ruin destroys that *form* in which the value consists, and which is independent of substance entirely. Improvement, however, inasmuch as art history involves identity of form, cannot attach itself, except it be to material in any way.

Value archæologically, may require to be enlarged upon. Art-history, as I understand it, coupled with patriotism, is the true archæology; but it is not what I mean. There is (and in great intensity just at the present day) a conventional, dogmatical, fashionable affection for a particular description of ancient remains, which I think forms by far the chief part of popular antiquarian interest; just as we always find that any intellectual and refined development of thought whatever is immediately travestied in some lifeless similitude which requires no such intellect and refinement of mind, and by which the common place many are thus enabled to affect, or even to fancy that they feel, the afflatus of the inspired few. Now, some such lifeless similitude as this is common archæology with reference to intelligent antiquarian study. Butchers and literary dustmen take to it, and buy pictures of saints, and put up old crucifixions and adorations and emblazonments for their parlour windows. How much of public architectural taste may be referred to such a feeling, excuse me from more particularly entering upon. But let me assert that, at the least, this value archæologically is one of chief appreciation in respect of ancient edifices just now. All the other values—serviceable, monumental, patriotical, artistical, and art-historical—every one of them have I seen ruthlessly sacrificed to this. But although thus rampant in an objectionable form, let us not, therefore, lose sight of the fact that to a certain extent this fashionable archæology serves a good purpose, in so far that it directs intelligent attention to genuine merits as they pass among the rest: wherefore the operation of archæological value must be included in our system. And here, preservation being still desirable, repair, if it interfere with the identity of antiquity, is scarcely so; inasmuch as material tangible identity is the essence of this conventional value. Restoration also and improvement are both out of the question, as any merit which form may give does not enter into the value at all.

Thus much for a hasty sketch of a scientific system of restoration. It is not pretended to be a complete elaboration of details, so much as a skeleton for your own thought to work upon. K.

ARCHITECTURAL GUIDE-BOOKS.

REPLY TO "FID. DEF."

I now find that besides having more to say, I have more to say than I expected, having first and foremost to make some reply to your correspondent, who signs himself "Fid. Def.;" and as it would be absurd to suppose that the name he assumed has any thing to do with "defender of the faith," I conclude (at least until its real meaning be interpreted) that it means nothing more or less than "deaf fiddler." Be he deaf or not, the fiddler or "Fid." seems to be not a little angry with me, accusing me of having spoken of Sir F. Palgrave, and sundry other gentlemen, some of whom I have scarcely ever heard of before, at least not in connection with either guide-books or architectural criticism, as "the veriest raggamuffins of literature." The individuals whom he has named will, I suspect, so far from thanking him, rather look upon him as a blundering officious Marplot,* who has dragged them down to the level of our present guide-book-makers, among whom he has placed even Canina, although he might with equal propriety have introduced the names of Stuart and Revett.

As to Mr. Murray's guide-books, what may have been "the money and energy expended" upon them, I, not being in the confidence of the great Albemarle-street publisher, cannot pretend to tell; therefore will only say that *bonâ fide* architectural criticism occupies no more space in them than do the few, far-between, and straggling plumbs inserted into a very ordinary plumb-cake.

There is a Spanish proverb which says, "Harto ayuna quien mal come" (*i.e.* whoso has no appetite will be in no danger of eating more than enough); and it seems that almost the minimum of artistic or æsthetic criticism will satisfy "Fid." Of himself your "Fid." speaks as "an old traveller on the continent;" and I have known not only some old, but some very anile gentlemen who have travelled not only through Europe, but beyond it; one in particular, who boasted to me of his having been presented to every crowned head from St. Petersburg to Madrid, and who, in the unsuspicious felicity of his architectural ignorance, likened—not in mere conversation, but in the more serious matter of paper and print,—the Temple of Baalbec to St. Paul's, Covent Garden! Of travellers on the continent, young ones as well as old, I could say much,—more, in fact, than they would thank me for uttering. Well do I remember how grievously I was once disappointed by a young, as I fancied, enthusiastic architect, just returned from a visit to Italy and Munich. Incapable of describing, criticising, or expatiating upon any thing he had seen, he appeared to have brought home only the most misty, confused, and higgledy-piggledy jostling reminiscences, so to call them, conceivable. He seemed, indeed, to be wide awake, but only by having awakened from a poetic dream scarcely worth remembering, to the prose of plodding matter-of-fact and every-day reality.

But I feel as if I were not quite awake myself. Where was I, or where am I? Oh! I had quite forgotten my Orpheus—that is, my Deaf Fiddler, on whom I appear to have inflicted,—pestiferous wretch that I am!—a most virulent attack of bile. He imploringly deprecates all criticism in any such tone as mine, although as to criticism I have not yet either favoured or troubled you with any of it from my pen. He, it seems, would have criticism to be quite honey-mouthed, mealy or *mele*-mouthed, obsequiously complaisant and toadying; in short, not to be criticism at all, but mere abject flunkeyism, equally mean in its insolences as in its contemptible flatteries.

Among the writers enumerated by your correspondent "Def. Fid." there are scarcely any who have either dealt in or aimed at what really deserves the name of æsthetic and artistic criticism. They have, for the most part, shown that their element is that of the matter-of-fact; of the historical and archæological; and that if they occasionally leap out of it, it is only by mere jerks and starts, as does the flying fish,—a creature which, I suppose, hardly ranks itself with the eagle, or compares its own jumps and skips to the heavenward soarings of the king of the plumed race. But hold! I am getting poetical; far more poetical, at least, than "Fid. Def." has shown himself to be gallant. Assuredly it would have been not only more gallant in him, but infinitely more to his purpose, when speaking of works that belong, however remotely, to the guide-book class, to have referred to Mr. Jamison's "Visits and Sketches at Home and Abroad;" where may be found notices of some of the earlier architectural undertakings of the "*Kunst liebend*," Ludwig of Bavaria,—notices which, if not perfectly satisfactory, give evidence of more than usual critical power and artistic sympathy. Whereas of too many other writers who pretend to touch upon similar matters, it may aptly enough be said:—

> Whenever they of buildings speak,
> They merely tell us they are Greek,
> Or Gothic, or Egyptian;
> Or Doric, or Ionic call,
> And say if they be large or small,
> But faults or *fortes* note not at all;
> And sadly shirk *description*.

And now for the present I have done; done, too, with, if not also *for*, "Def. Fid." That there exists a distant similarity between us I do not deny, because

> I own we both in water deal,
> Yet of a different sort 'tis;
> For his mere milk and water seems,
> While mine is *aqua fortis*.

Q.

* Gently, gentlemen, gently. Argue out each your own case if you will; but don't call names or get angry.—Ed.

Slate Sawing.—An invention has been patented by Mr. Searell, of the Cwmorthin Quarries, for sawing slate slabs. By this contrivance, circular saws, at the time they revolve, are moved forward while the slab is stationary, and is there cut into any required lengths and breadths. There is an easy method of raising or lowering the saws at pleasure; of making any number of cuts at one and the same time, &c. According to the *North Wales Chronicle*, recent experiments of a successful nature have been made with this machine.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

Here am I beginning my fifth communication to you, and we have not yet left Egypt, the land of the "Beetle," the cradle of the art in which I am endeavouring, feebly, to interest you. If we dwell as long on the architecture of other countries the tale will not soon come to an end. We have yet to treat of the classic styles of Greece and Rome, all the phases of Mediæval art, its decadence and revival. We may say, invoking the Spirit of Architecture, as one who desires to prove himself a poet writes to me,—

"Gentle maiden, let me trace
All the features of thy face,
In thy simple cottage home,
In thy proud cathedral dome,
In aërial spires whose height
Mocks the keen observer's sight,
Blending as thou bidst them rise
Heavenward with the azure skies,
In thy many towers that stand
Way-marks in our peaceful land,
Towers of every age and birth
That bestud the face of earth;
In stupendous temples found
Upon Egypt's desert ground,
Or in pyramids survey
Thine imperishable sway,
Or with Layard let me trace
Sculptures vast in earth's embrace,
Palaces and halls of stone,
Histories of *states unknown*:
In thy simple Grecian dress,
In thy Roman sumptuousness;
Or when thou wert overwrought
From the deepest mines of thought,
When thy glories were enshrined
In the pensive monkish mind,
And thy beauties understood
Only by the few that would
Seek thee for thy love alone,
Unrewarded and unknown,
Dead to all the world beside,
Thou their glory, light, and guide."

I cannot, however, quit the land of the Pharaohs without a few more particulars, though they shall be brief. The Egyptians did not regard their houses as so important as their tombs. Nevertheless, the latter were sometimes of considerable excellence, and covered a large space. The rooms were arranged around an open area; sometimes the buildings were four or five stories high, although generally low, and they had a portico before the door.

The top of the house in hot countries is, as you know, a valuable place of resort. Constant reference is made to it in the holy writings. On the top of many of the houses in Egypt there was a small chamber at one corner, open at the front, which is peculiar. It is referred to in the proverb, that "It is better to dwell in a corner of the house-top than with a brawling woman in a wide house."

* No. V. See pp. 100, 134, 180, and 196.

Fortunately, there are no such things as "brawling women" now,—they know their mission better,—charity, peace, and love. What would the world be without them? Sometimes the house-top had a covering supported on pillars. Their villas were extensive, and were elegantly adorned. The walls and ceilings were richly painted: scrolls and other ornaments, which are common in Greek works, were employed very generally in Egyptian decoration. The extent to which sculpture was employed is shown by this, that Cambyses is said to have taken 2,500 statues from Egypt.

Great progress has been made in deciphering the hieroglyphics on Egyptian monuments, but I need not tell you the steps by which the power has been acquired. The first investigators of Egyptian antiquities made many strange mistakes, as you may suppose. For example, a paper was read at the Society of Antiquaries lately, showing that a tablet at Turin, hitherto supposed to be a plan of the Tomb of Sethos the First, was in truth a map of the gold mines of Ethiopia!

The ancient monuments of Egypt have suffered fearfully from those who needed stone for new constructions; and even at this time the inhabitants are with difficulty prevented from continuing their ravages. Parts of many interesting ruins have been broken up to mend the roads. Some educated investigators have, it is to be regretted, aided in the evil work; there are loud complaints even against M. Lepsius. According to an American writer recently travelling in Egypt (Mr. Bayard Taylor), Lepsius has been splitting pillars to obtain the paintings upon them for the Museum at Berlin. "At one spot," the writer says, "where the latter has totally ruined a fine doorway, some indignant Frenchman has written in red chalk: '*Meurtre commis par Lepsius.*' In all the tombs of Thebes, wherever you see the most flagrant and shameless spoliations, the guide says 'Lepsius.' Who can blame the Arabs for wantonly defacing these precious monuments, when such an example is set them by the vanity of European antiquaries."

Sir G. Wilkinson has recently endeavoured, in a work on "The Architecture of Egypt," to arrange the columns found in the various buildings there in "Orders;" with this, however, whether the monuments justify it or not, I need not trouble you. The Egyptians, as I have already mentioned, used colour very extensively in the decoration of their buildings; in fact, the ingenuity with which they mixed painting, sculpture, and architecture, making them co-operate to one purpose and in one utterance, is especially to be noticed, and might afford us a valuable lesson. Do you not agree with me, that these buildings are "History in Brick and Stone?" They tell of the people who erected them in a manner not to be questioned or falsified. We have here thoughts, creeds, and manners made tangible and clear.

In turning over any illustrations of Egyptian antiquities you will not fail to notice the elegance of many of their vases and ornaments, and you will find the capitals of some of their columns very closely resembling both the "Ionic" and the "Corinthian" capitals of the Greeks, concerning which I shall have to speak presently. The *lotus* flower, typifying the Nile, is, as you know, a constantly recurring ornament on Egyptian buildings. When you next walk through the Egyptian sculpture gallery at the British Museum, notice some of the interesting wall-paintings brought from the tombs and other structures, and there set up, little changed, notwithstanding the time which has elapsed since the limner produced them, and Rhamses looked on. You may notice, too, here many sepulchral tablets which have the characteristics of a temple-front in miniature; the pyramidising outline, the large hollow for a cornice, and the mimic reeds at the angles to which I directed your attention in the fourth letter. In some the hollow is ornamented with upright stripes of red and yellow colour. Near these is the column of which I gave a rough representation (Fig. 12), and if you will compare this with the columns forming the entrance to the Egyptian Hall in Piccadilly, when you are passing, you will see how difficult it is even to copy new forms correctly before principles are mastered. For example, in the sketch, you will observe where the reeds are imitated in stone as bound together at a short distance from the top, small wedges are inserted in the hollows which the circular faces of the reeds coming together form, *in order to make the binding more secure*: whereas, in the London copy, these wedges are made to take the shape of an ornament occurring indifferently in the spaces and *over the face of each reed*. Thus it is that by mere imitation, the spirit, truth, and completeness of a real architecture are lost, and a medley of sham, lifeless, and unmeaning forms is substituted.

As we are at the Egyptian Hall it would be unjust if I did not refer to the charming diorama of "The Nile," painted from Mr. Bonomi's sketches by Mr. Henry Warren, who has dipped his pencil into eastern light, and Mr. Fahey, which was recently exhibited there, and gave all who saw it so clear a notion of the aspect of the country, the character of the buildings, and the genius of Egyptian art. I would fain hope that this work may not have the usual fate of such productions, but be preserved for use in some educational institution.

Let us now look at another country. In Mexico, probably at a remote, certainly an unknown date, buildings were erected of an extraordinary size and character, so closely approximating in some respects to many Egyptian structures as to induce some writers to attribute them to a common or at all events connected origin. The pyramidal forms prevail universally. One of the pyramids, namely that of Cholula, is nearly twice as large at the base as the largest of the Egyptian pyramids (1,440 feet,) though the height, however, is considerably less (177 feet); and the outline is not that of a continuous pyramid, but consists of eight stories or steps, similar to the Temple of Belus. Each of these stories inclines slightly, so that the structure consists in fact of eight truncated pyramids standing one upon the other. One of the Egyptian pyramids, as I have already said, is formed in the same manner. At Teotihuacan there are hundreds of pyramids both in steps and of continuous outline. They agree curiously with the Egyptian pyramids in this particular, that the sides face the cardinal points of the compass, and the triangular arch, if it may be so termed, found in the Egyptian pyramids and in the early structures of other nations, occurs constantly. Some of the temples were of enormous size, and exhibit remains which defy

inquiry as to their origin. The front of the temple at Copan is 620 feet in length.

At Palenque, there are enormous remains of a building termed conjecturally the palace, the front of which contained fourteen doorways (no windows), and was covered with stucco and painted.

The Mexican, if not the more ancient nations which preceded them, and to whom these structures are attributed, used stones of very large size,—in fact, some of the buildings are constructed of rocks rather than stones,—and were able stone cutters, and well acquainted with the use of colours. Lord Kingsborough investigated the Mexican antiquities, and produced a book at a great personal sacrifice, which is honourable to his memory and his country. It is understood to have been his ruin: he died a prisoner for debt. More recently, Mr. Stephens has explored eight cities, and in his work, "Incidents of Travel in Central America, Chiapas, and Yucatan," has given much interesting and valuable information. He speaks of no less than forty-four ancient cities, long buried and unknown, which rise "like skeletons from their graves, wrapped in their burial shrouds."

The effect produced on a traveller when he first stumbles over these wonderful monuments in the wilderness (tenantless ruins, overgrown by enormous trees), relics, probably, of a nation which has passed away and left no other record, must be startling and intense. How trifling seem all the squabbles, the struggles, the heart-burnings, of to-day, when we reflect on such a phenomenon as this. How foolish to grieve;—how childish to grumble!

Until very lately nothing was known of these ruins, and even now great doubt is felt as to their age. The buildings are of great size, and are approached by high flights of steps, as at Persepolis. The fronts are covered with rude carving, in which the representation of a serpent often forms a prominent feature. It has been said that the ruins of Palenque cover an area three times as large as London, but this is more than doubtful. Some of their carved single stones set up as monuments are very curious. How universal, you will say, was the practice of setting up stones amongst the early people. Colonel Dupaix attempted to claim for these Mexican cities an antediluvian age, on the evidence afforded by the accumulation of earth over them. Mr. Stephens, however, at once disposed of this assumption by showing that during the thirty years only which elapsed between Dupaix's visit and his own, the accumulation of earth over the parts the former had cleared was nearly as great as before. Mr. Stephens does not see any connection between these and the Egyptian structures or those of Hindu. No excavated structures are found, although the country offers inducements for such works; nor are columns used, although, by the way, some were found at Oaxaca. The pyramids, he says, do not contain chambers as in Egypt (Lord Kingsborough, if I remember rightly, shows that there is a small chamber *under* each of them, approached by a subterranean passage), and that while there is in Egypt no pyramid with a palace or temple upon it, in Mexico there is no pyramidal structure without such an accompaniment. He is himself disposed to consider these cities comparatively modern, and gives his reasons for believing that they were flourishing at the time of the invasion by the Spaniards. In the convents of the country documents probably exist which would throw light on this interesting question. In a century hence, it is feared, there will be little left of these ruins. The organic is fighting against the inorganic world. The woods are destroying the stones. Vegetation is there most luxuriant, and the roots of the trees penetrating the joints of the stones, rend the walls asunder: in some cases the growing branches bear up high in air huge masses of the structure, and stand as if armed to repel all invaders of their solemn and mysterious quiet.

Just imagine an old tree with a mass of stone in its arms weighing 4 or 5 tons, waiting to throw it at the first intruder! The notion is rather a *striking* one.

The ancient HINDU architecture, to which I just now alluded, offers some striking points of similarity to that of Egypt both in the wonderful rock-cut temples at Elephanta and Ellora, and in the pagodas. As regards the antiquity of the buildings found in India there is, as in Mexico, great difference of opinion, while there are few circumstances to prove which is right. Some of the best informed travellers consider that the cavern temples, at all events, must be of remote antiquity, coeval with the earliest works of the Egyptians, while others maintain that these are but imitations of constructed buildings, and not of great age. The excavations at Ellora are the most important, and have been described by many writers as wonderful results of human labour and ingenuity. The living rock is here hollowed into temples for an extent of more than two miles. The principal excavation called "Paradise" is 247 feet long, 150 broad, and 100 high. This contains the great temple carved out of a single piece of rock 103 feet long, and rising externally in a pyramidal form 100 feet. The roof is carved to represent beams or cross stones; human figures, elephants, columns, and minutely-sculptured decorations of all sorts increase the wonder which the extent and mysterious appearance of these surprising excavations excite in the mind of the beholder. The late Lord Munster, when Col. Fitzclarence, visited these caverns, and published an account of them. In conversation with him a short time before his unhappy death he told me that he was so overwhelmed by the gigantic and extraordinary nature of this work as to be unable to exercise a calm judgment upon it, and that his astonishment and admiration, far from wearing off, increased on reflection.

In the Island of Elephanta, about 7 miles from Bombay, there is another singular excavation, the origin of which is equally obscure. Along the sides of this temple (which, shall I say, for, perhaps, dimensions worry you, is 130 feet by 123 feet, and from 15 feet to 17½ feet high) are sculptured forty or fifty colossal figures. The roof is supported by twenty-six pillars on square pedestals.

Robertson, speaking of these stupendous works, says,—"They are of such high antiquity, that as the natives cannot, either from history or tradition, give any information concerning the time in which they were executed, they universally ascribe the formation of them to superior beings." It seems certain, however, that they are not by centuries so old as the Egyptian monuments,—the date of the oldest, perhaps, is not earlier than 300 B.C.

The island, you know, has its name from a figure of an elephant cut out of the solid rock on the acclivity of a hill, and which is itself a very curious monument.

The form of the earliest Indian temples was pyramidal. Pagodas, of an early date, are found in different parts of Hindostan, covered with sculpture to such an extent, that the general form is lost in the ornaments which decompose it. As Gwilt remarks, quoting the *Encyclopédie Méthodique*,—"In the Egyptian architecture, even the smallest edifices are grand; in that of India, the infinite subdivision into parts gives an air of littleness to the largest buildings. In Egypt solidity is carried to the extreme; in India, there is not the slightest appearance of it."

There are inclosures in India, which very closely resemble Stonehenge, so much so, that some writers conceive the latter to be a Buddhist structure. And if it be that the Woden of the Scandinavians, from whom our Wednesday takes its name, is the Buddha of the Indians, the connection does not seem impossible.

The course of my rapid narrative now leads us to Greece,—

"Immortal, tho' no more; though fallen, great!"—

to that extraordinary country which has afforded models to the whole world, and is made holy by great names and wonderful events. All our earliest and noblest emotions are associated with its history,—by that has patriotism been warmed, emulation excited, high thoughts induced. The words of her orators and the writings of her sages, yet hang over the nations and influence mankind: the works of her artists,—the most perfect productions of human intellect of which we have any knowledge, yet remain to extort universal admiration, instruct the world, and defy rivalry.

The present state of this country affords a sad contrast to its former greatness. "And yet," as my amiable friend's favourite "Childe Harold" sings,—

"And yet how lovely in thine age of woe,
Land of lost gods and god-like men, art thou!
Thy vales of ever-green, thy hills of snow,
Proclaim thee Nature's varied favourite now:
Thy fanes, thy temples to thy surface bow,
Commingling slowly with heroic earth,
Broke by the share of every rustic plough:
So perish monuments of mortal birth,
So perish all in turn, save well-recorded worth."

I may not begin to talk of Grecian work, however, at the end of a letter. Adieu!

Reggeo.

BURIALS IN TOWNS.

FEVER-STILLS AND LEGAL POISONINGS.

THE heats and steams of another summer are at hand, and fever-stills in towns and cities are as fully charged as ever they were with the rich material of pestilence. Our Legislature has taken care to grant security to the extent of about 40,000*l.* per annum in perpetuity to the Church, "not for the care of the living flock, but for permission to inter elsewhere its inanimate carcass;"* but in their care for vested interests in physical corruption, they have so imperfectly provided for the carrying out of the very purpose for which compensation was to be granted, that this purpose still remains a perfect dead letter. The agitation of the question subsided in imagined security; and now the fight has to be fought over again. The public mind, lately familiarized with the horrid details, has sunk into its previous fatuous indifference, and must have the loathsome picture set before its eyes once more in vivid outline, ere it can be brought again to insist, with adequate energy and determination, on the subject being again taken up by its law-making representatives, and "settled"—to some more effectual purpose, it is to be hoped, than heretofore. It is a sickening task to repeat the previous delineations of our intramural graveyard horrors. Yet we fear this must be done, if the force of public opinion is again to be brought actively and efficiently to bear upon the question.

The annual mortality of London is about 56,000, or 154 per day, and all this enormous mass of dead and putrifying flesh, with slight exception, is deposited—we cannot say buried—in the very midst of the survivors. Nevertheless, the sacred feelings and affections mixed up with even the empty shells or tabernacles once inhabited by those nearest and dearest to us, blind the mind to the abominations and the horrors of these intramural deposits. Were half the number of the bodies of dead horses, or double the number of those of dead cats and dogs, allowed to rot amongst them in heaps, such as the metropolitan vaults and graveyards now contain of not less rotting, not less pestiferous abomination, we believe there would be little difficulty in arousing a periodical resolution to get rid of such an evil, could it have ever existed. As it is, the most salutary mode of procedure we can think of is reiteratedly to disabuse the public mind from the notion that their dead are treated in their intramural deposits one whit more decently or reverently than if they had been so many dead dogs or horses. And in the meantime we cannot do better than quote Mr. Walker's most recent reminder of the facts which confirm this assertion.

"The bodies of the dead are crowded into every inch of available space, and when room no longer exists, it is made by an unceremonious expulsion of the former occupants. In plain words—the dead are 'committed' to the earth, but they do not remain there. In the eye of the law, violation of the grave is a *felony*. In the opinion of medical judges on this question, a conclave of evil spirits

* Vide a pamphlet lately issued by Mr. G. A. Walker, "On the Past and Present State of Intramural Burying-places, with Practical Suggestions for the Establishment of National Extramural Cemeteries." Longman and Co.

leagued together to destroy the spiritual by depraving the physical man, could not, in the exercise of their utmost cunning and malignity, compound more subtle or more sure poisons than those elaborated day and night in the vaults, cellars, and receptacles for the dead in this metropolis. In order to render the work of poisoning more sure, myriads of bodies, in every stage of decomposition, have been, and continue to be, stowed away in subterranean receptacles in the streets, lanes, and blind alleys in this metropolis, situated in the very midst of the habitations of two millions and a half of people. . . . . But even in those saturated and disgusting depositories—disgusting both to sight and smell—the dead are not allowed to remain for any length of time. Money is to be procured—space *must* be found for successive new tenants, whilst the late ones, often years before their right of tenancy has expired, are ejected by processes which, though I have elsewhere fully exposed, I will here very briefly indicate. Sometimes the clearing-out is wholesale. At the 'Cross-Bones' burying-ground, in Southwark, the 'Irish Corner' was cleared of 1,000 bodies at one sweep. Generally speaking, the nefarious work goes on more gradually, though not always silently; for during many years, persons, whose necessities have compelled them to reside in the neighbourhood of such places, have been aroused from sleep in the dead of night by the noise occasioned by breaking up coffins recently deposited.

In other localities the remains of the dead have been carted out in loads, and shot down as 'rubbish' upon waste grounds, or used for 'filling in.' Some of our viaducts have been constructed on rubbish obtained by this unchristian process.

The more usual method, however, consists in simply cutting through the half-decomposed bodies and coffins with instruments made for the purpose. The grave is dug *through* the corpses of the predeceased. This horrible violation of the dead body takes place more or less in all the London graveyards, and often gives rise to the most distressing scenes. The ends of justice have been defeated by it, the coroner being unable to find a recently-interred body; while, on the contrary, relatives and friends have found on the surface, or have witnessed the exposure in the so-called grave, of portions of the bodies of those whom, but a short time previously, they had followed in sorrow to their 'last home.' Other circumstances prove that the violation is systematic—constant. The coffin-wood often serves as fuel for, and is given away to, the poor in large quantities by grave-yard officials; and from the horrible stench which sometimes accompanies the combustion, there is no doubt that *fire* is one of the means employed for effectually removing incumbrances. In one notorious place, indeed, the fire was kept up with very brief and accidental interruptions—day and night—for more than a quarter of a century. Each man's coffin was employed to consume the contents of his neighbour's. A minor degree of violation consists in clearing out what are called 'bone-holes.' The fleshy portion of the human body, or the greater part thereof, is, as I have proved, rapidly destroyed by artificial agencies, after which, in some instances, the bones are disposed of to 'bone-crushers,' or stowed away in large pits.

The latter are evacuated from time to time. An eye-witness counted 500 skulls, which were thus 'cleared out' in a single day.

Every sense of religion, as well as of decency, seems extinct in the persons engaged in this degrading occupation. They often assume the outer garb of clergymen, and 'perform' the funeral service—thus outraging religion, and collecting money under false pretences. A traffic in second-hand wooden coffins, coffin handles, plates, cloth, &c. is often carried on by those to whom the care of the receptacles for the dead is intrusted, under the present system. Nay, more, the leaden coffins of the more wealthy classes have not escaped. In one memorable case it was proved that ten tons of lead from the vaults of a certain church had been sold, and the proceeds handed over to the churchwardens. How low must moral feeling have fallen when such conduct remains unreproved?

Finally, a strong suspicion exists that in many cases the dead never reach their last home. This must be considered as the *acme* of the system. It saves not only the cost of interment, but it prevents the necessity of 'clearing out.'"

Cholera, typhus fever, consumptions, apoplexies, sudden deaths, measles, scarlet fevers, small-pox, and last, though most important of all, perhaps, that slower poisoning which lowers the vitality and impairs the stamina of the entire nation,—such are the fruits reaped from sowing in corruption such as this. That the plague in Egypt uniformly arises first in the close vicinity of the graveyards of the towns, has been fully established. And can we wonder that disease and pestilence are engendered and life destroyed by noxious emanations such as these? "We make for ourselves the poison which we breathe: in our perverse blindness, we sow decay, and we reap death." Nay, to complete the circle of iniquity, we sow death, and reap decay,—we infuse a leaven of mortality in the midst of the mortal mass, and leaven the mass of mortals slowly but surely thereby into masses of mortality.

In order to put an end at once and for ever to all this criminal and most fatal and reckless fatuity and abomination, Mr. Walker proposes—

"1. That a general system of extramural sepulture shall be forthwith organized throughout Great Britain; and that the management be placed under the municipal authorities, or committees chosen by the rate-payers, controlled by a superintending authority appointed by Government.

2. That medical men be appointed to fill the ancient office of 'searcher,' and that no body be removed for interment without a certificate of the cause and fact of death.

3. That interment of the dead during the summer quarters within a period of — days be compulsory.

4. That for London, common (and, if possible, Crown) lands in the neighbourhood of railways should be appropriated for GENERAL CEMETERIAL purposes—sidings or branch lines conveying the funeral trains into the ground itself, as proposed by me to the Select Committee on Interment in Towns in 1842.

5. That the afternoons of Tuesday, Thursday, and Sunday in each week be appropriated for the purpose. That on the alternate days, special trains may, if required, be provided.

6. That a central administration be appointed to undertake every service (except the religious) connected with the burial of the dead *at fixed and specified charges*, which latter, however, shall not exceed certain *maxima* laid down therein.

7. That the duty of providing for the interment of the dead be exclusively confined to the aforementioned administration."

Mr. Walker's pamphlet comes opportunely, and it will serve to strengthen the strong claim he has on the gratitude of his fellow-citizens.

NOTES IN THE PROVINCES.

Yarmouth.—It is proposed to erect a new jetty or pier, to extend 800 feet from the sea wall of the Esplanade, opposite the Victoria Hotel, to be 26 feet wide, and made convenient for safe debarkation. The estimated cost is 10,000*l.* to be raised in 1,000 10*l.* shares, under an Act of Parliament to be applied for.

Kingham.—A monument has been raised to the memory of the late Lieutenant-Colonel Davis, 52nd regiment, at Kingham Church, Oxfordshire, representing a soldier of the regiment mourning over his departed commander.

Reading.—New schools (St. Mary's national) erected in Hosier-street, were opened on Thursday in last week. The building, which has been designed by Mr. J. B. Clacy, architect, comprises school-rooms for boys and girls, with class-room to each; an infant school, and dwelling for master and mistress. The schools for boys and girls are divided by moveable partitions. The style is Early Pointed, of the simplest character. The walls are of flint with Bath stone angles. A staircase tower, of chequered work, between the infant school and dwelling-house serves to identify the building with the ancient parish church, the tower of which is of chequer work. Internally, the roofs are open. The boys' and girls' schools are partly lighted from the roof through sheets of rough glass, laid level across the upper part of the roof between the rafters. The ventilation has been studied, fresh air being admitted through valved ventilators around the base of the rooms, the vitiated air escaping at the open space of roof above the glass. The contracts were taken by Messrs. Wheeler and Biggs, at 1,412*l.* and, according to the *Reading Mercury*, there is a considerable deficit still to be met.

Margate.—The sappers and miners are here making a survey for the drainage of the town. They have a crow's nest on the top of Trinity Church. The plans for the new jetty are shortly expected.

Ramsgate.—Extensive alterations have recently been made in the works of the Ramsgate Water Company, at South Wood, and additions made to ensure a good supply to the increased consumption.——The local commissioners of pavement have been paying attention to the lettering of the streets. The promenade has been improved. A high iron fence on a dwarf wall has been erected at the end nearest the Paragon, which has an approach to it from the road, and egress for Bath chairs through a pair of light iron gates.

Isle of Wight.—A fort is to be erected in the Isle of Wight, for the purpose of defending the Needles passage, at an outlay of 40,000*l.* The works at Hurst Castle are to be repaired.

Bilston.—The inhabitants of this town are determined not to be behind in forming a joint-stock company with the intention of erecting public baths and wash-houses. In connection therewith it is also proposed to erect a town-hall and reading-rooms.

Bridgewater.—The restoration of St. Mary's church is now nearly completed. On application to the council to vote a sum of 15*l.* to put the carved screen and sittings in the Mayor's aisle into a state of repair, the request was refused.

Swansea.—Mr. Pickering, the contractor, is completing arrangements for progressing with the new docks here. Most of the plant has arrived from Birkenhead, and the workshops are being erected. On Monday week, the foundation-stone of a new dry dock, to be called the "Phœnix Dock," was laid nearly opposite the Swansea pottery.

Cardiff.—On Thursday, last week, a meeting was called very suddenly, to consider the drainage of this town. It seems, according to our correspondent, that there are two or three gentlemen in the board of health who evidently do not belong to the progress party, and are very anxious to have the town drained by the old brick drains. The idea of 9 inch pipes seems to confuse them. There was much said at this meeting against Mr. Rammell which appeared quite uncalled for, and proved to be of no avail, as the local board have, since this meeting, confirmed their decision, stated some weeks since in THE BUILDER, in favour of Mr. Rammell's plan.

Holyhead.—In a recent quarrying explosion at Holyhead, five tons of gunpowder were used to detach a part of the mountain to form a portion of the new breakwater. The shot was successful, though, as in similar instances, the noise was not so great as might have been anticipated. A small cottage roof at some distance was protected with thick balks of timber placed over it by the superintendent of the works, Mr. Radford, to satisfy the proprietor, who was afraid of destruction to his slender domicile.

Chester.—The people of Chester appear to be much in the same predicament as the metropolitans are in with regard to their river, their drainage, and their water-supply. They are now in a ferment, and not unreasonably, as the local *Chronicle* observes, at a proposal to discharge the sewerage of Boughton into the Dee below the causeway. They seem to have had Mr. Moffat down last year to report on the solidification of the sewage matter of the town; but the town council did not consider the plan feasible. The *Chronicle* thinks that surely a main drain could be so formed as only to discharge its contents during ebb tide, when the current would sweep away all impurities; and that if the present water company cannot devise a plan of water supply from sources above or beyond the tidal and the sewage influences, perhaps a new company might succeed in giving the citizens a purer supply.

Liverpool.—The dock trustees, says the *Liverpool Times*, have decided to erect the warehouses around the Stanley Dock with vaults, but not to raise them a story higher. The additional cost of the vaults for one stack would be 15,000*l.* and the cost of altering the heights of the warehouses would be 2,200*l.* increasing the entire cost of the warehouses, north and south stacks, to 162,378*l.*——The first contract for putting in the main pipes for conveying water from Rivington to Liverpool

is now being proceeded with, on the line of road from the vicinity of Liverpool towards Stanley. The contract has been entered into by Mr. Cromp, from Derbyshire, the distance taken being a mile and a half. The necessary cutting has been made, and the tubes, which average 2 tons' weight each, are raised and lowered to their beds by means of a crane, running on a railway above the cutting. They are afterwards soldered at the joinings, and rendered water-tight. The pipes are 4 yards in length, and 3 feet in diameter inside.

Stafford.—The new chapel at the gaol was opened for Divine service on Tuesday week. It is calculated to hold 740 prisoners, and is built in the Norman style, having open seats, convicts, and those under sentence for long imprisonment, being confined within an iron railing. The chapel is cruciform, having a gallery in the south for female prisoners, shut out from sight of the men. The foundation stone was laid only on 14th July last. The contractors were Messrs. Holme, of Liverpool. The female prison is approaching completion, and it is anticipated will be ready at least a month before the expiration of the contract on 1st July next. The whole has been carried out from designs and under the superintendence of Mr. C. Trubshaw, the county surveyor.

Birmingham.—The erection of St. Paul's Church, Balsall Heath, designed by Mr. J. L. Pedley, architect, is about to be commenced. The material will be brick, with Bath-stone dressings. The church will contain 1,113 seats for adults, 613 free. There will be a western gallery running into the tower. The height of the nave will be 51 feet; its length 77 feet 3 inches, and its breadth 54 feet 4 inches. The height of the tower will be 82 feet, and with highest spire the total height 94 feet. The following tenders for the erection were lodged:—

Davis	£4,000	0	0
Upton	3,965	7	11
Nowell	3,698	0	0
Horton	3,650	0	0
Wilson	3,585	0	0
Hardwick and Son	3,442	5	0
Briggs	3,414	0	0
Webb	3,307	0	0
Watson	2,805	0	0

The work tendered for includes 45 yards of boundary walling with low iron fence and pair of folding gates. Mr. Briggs's tender was accepted.

Preston.—The enlargement of Cannon-street chapel having been resolved on, and a premium of 10*l.* offered for the best plan of enlargement, various plans were submitted, and one selected by which it is intended to take out the gable end and fill up a vacant piece of land in Cross-street; to raise the roof, and occupy the area in front of the chapel in Cannon-street, with two staircases to the galleries, and a large open portico. The school-room underneath the chapel will also be improved. Upwards of 1,000*l.* have been promised towards the cost.——We have been informed, says the *Preston Guardian*, that the tenders of the following persons have been accepted for the additions to Christ Church:—For the masonry, Messrs. Ellis and Hinchliff, Hulme, near Manchester; for the carpenter's work, Mr. Ladyman, Preston; for the plastering and slating, Messrs. Jones and Grundy; and for the plumbing, glazing, and painting, Mr. L. J. Hodgson.

Carlisle.—Contracts are about to be entered into for building a new bridge over the river Caldew at the end of Mill-street, thus connecting Botchergate with Caldewgate by "a short cut." It will prove of the greatest convenience to the public.—*Carlisle Journal.*

Banff.—The harbour here, according to the local *Journal*, has been repaired at a cost of about 225*l.* About 850 tons of material had been displaced in a recent storm, and about a third of the quantity again displaced while the work was in progress. The repairs were completed under the superintendence of Mr. Watson, inspector of works for the harbour trustees.

Darlington.—The survey of Darlington for the Local Board of Health has just been completed by Messrs. Barker and Fawcett, and delivered at the office of the Board according to arrangement.

OBSERVATIONS ON TEACHING DRAWING,

ESPECIALLY TO CHILDREN AND UNEDUCATED BEGINNERS.

THE following remarks by the author of "Drawing for Young Children," have been submitted to the council of the Society of Arts, Manufactures, and Commerce:—

There are two very common mistakes in education.

1st. The supposition that the most thoroughly logical and abstract arrangement of a subject for the purposes of science must be the best arrangement of that subject for tuition.

2nd. The supposition that some one method of treating a subject is abstractedly the best for the tuition of all persons, whether children, youths, or adults; whether male or female: whatever degree of knowledge and capacity they possess; whatever the purpose of their learning the subject may be, as artists, artisans, or for general improvement; whatever amount of time they may be able to devote to it; the expense they can afford and the qualifications of their teachers. But these points must all be taken into the account before we can act for the best in any individual case.

The child has extraordinary powers of imitation and imagination; his memory, attention, and other faculties are quick, pliant, but extremely unsteady, his demand for novelty unceasing, his hand, eye, judgment, or reasoning, and knowledge extremely defective: but all are greatly modified by the favourable or unfavourable circumstances under which he has been placed.

The youth is more steady and attentive, but less pliant and versatile than the child; his love of imitation and powers of imagination are weaker unless they have been specially cultivated. His hand, eye, judgment, and knowledge are necessarily improved by his greater age; but good or bad education or habits must have made a greater difference between youths of the same age than is found between children of equal years.

In an adult the habits of mind and body are often so fixed and rigid that he does not readily take up a new subject, especially one intimately connected with minute appreciation of objects by the external senses, and extremely delicate muscular movements and manipulations. But he may be expected to be superior in all that depends mainly on judgment, knowledge, and power of attention. The differences between adults must be greater than those of earlier ages. The artisan, whose hand and eye are engaged constantly on correct forms, will take up with elementary drawing more readily than the highly educated man, whose hand and eye have had no particular training.

The great secret of teaching any class or age quickly and efficiently, is to teach such things only as that class can thoroughly understand and relish; and to teach them in such a manner as that they shall be thoroughly understood and liked, fixed firmly in the mind by varied repetition, and rendered available for the common purposes of life.

It must be obvious that no one plan can meet these requirements without great modifications.

The abstract plan of teaching drawing always recommended, and usually adopted, by masters who profess to teach the subject thoroughly and systematically, commences with single lines, proceeds to mathematical figures, and goes on to copies of outline drawings, from beautiful Grecian abstractions, which complete the first stage. The second stage includes drawing from more complicated Grecian models, both in outline and with shading; and explains, and enforces by practice, the laws of light and shade. "Colour, (which is rarely taught systematically), invention, composition, and the highest branches do not appear to form part of elementary tuition."

The recommendations of this plan are alleged to be

1st. Its simplicity and logical propriety: proceeding from the easiest and most elementary to the most complex and difficult.

2nd. Its analytical propriety: each part or process being separated from the rest, and taken for separate examination, study, and practice in the order of its difficulty.

3rd. It is the process of the artist in a finished picture.

4th. It is the only sure and safe plan of instruction for all persons who desire to attain a mastery of art.

The following considerations are offered with regard to this plan, viewed as the sole proper plan of teaching drawing:—

1st. The abstraction or pulling to pieces of what is naturally united, is not necessarily and indisputably a good under all circumstances of tuition, as is usually supposed.

2nd. Nature always proceeds by the concrete, or opposite method, in teaching the young of all animals all that they require, or do not know instinctively: as, for example, the perception of external objects, the acquisition of language, the management of the body in standing, walking, &c. Every trade and the greater part of every profession is learned by the concrete or general, or practical method, where all essentials work together gradually towards a desired result. True theory, *i.e.* science, can only be a comparatively small and late branch of tuition for the furtherance of any practical art, used for the purpose of setting to rights or perfecting that knowledge and those processes which must be acquired previously in a thousand other ways, and thus made part of ourselves. The concrete method, pursued alone, tends to low narrow views and practice, and should be elevated and systematised by what may be termed the scientific or theoretical, or philosophical or abstract. But these terms merely signify refined abstractions, which necessarily overlook (or omit) a vast number of particulars which are quite essential to the acquisition or practice of any art, profession, or trade.

3rd. Perfect lines, mathematical figures, exquisite abstract Grecian forms, &c. according to the above plan, cannot be drawn by the young beginner, or by any beginner in any assignable reasonable time, and would take long even for the cleverest.

A clear decided line is not an elementary subject. The beginner is undecided in every thing he does: his lines and his drawing generally must, therefore, partake of this indecision. A round-about, clumsy imitation is all that he can understand, and all that should be at first required of him. Correctness of line implies correctness of eye, steadiness of hand, and entire appreciation of the work that is to be done, and the manner of accomplishing it. This must be the result of previous training and tolerably matured powers, and is surely not work for a young beginner, whose drawing should be all of a piece, the representative of his rude, unsettled state of mind; without finery in one part and rags in the rest, like a May-day chimney-sweep.

4th. It would be unnecessary in the first stage of Art, even if it were possible, to have perfection in one part while the rest is neglected, unknown, or imperfect. It is best that the progress in acquisition and mental and bodily training should take place equably, until the pupil shall be fit for artistic education.

5th. This plan, if begun too soon, would check the general progress of the pupil as a rational being, for the chance of giving some amount of mechanical dexterity before it is wanted.

6th. It would tend to benumb or contract the higher faculties, which would thus be kept so long in abeyance as to be unable to act when the late period for attending to them shall have arrived.

7th. It would soon tire and disgust the pupil.

8th. It is unreal, that is, it has little immediate connection with such nature or such external objects as the pupil understands.

9th. It would consume much time even of

those few beginners who could manage it: and if the pupil has but a very limited time (which is the case with the great majority of those for whom elementary drawing is desirable), all is consumed in what is of no practical use, unless he goes much further. The brief period of instruction which can generally be afforded had better be restricted to the rude but intelligible imitation of such realities as can be thoroughly understood, and intelligibly imitated by such a pupil, and are of direct use. By commencing in a general and practical way, all the faculties, the hand and the eye get a little equable training together; they learn to work together. Six lessons on this plan would be of some practical use; and a twelvemonth's instruction, twice a week, would be of real service to every artisan: whereas, the same time spent in lines and mathematical figures alone would be of very small service to the workman.

When rude, clumsy representation will suffice, and there is not time for anything higher (which must be the case with nine-tenths of the people), give that power, and do not try to make a foundation when there is not time to construct even a cellar. A straw hut is better than an incipient palace.*

THE CRYPT OF GERRARD'S HALL, BASING-LANE, CITY.

At a time when London merchants were not so numerous as at the present day, and when strength of hand and strength of walls were necessary to guard their goods and honest gains, it is recorded that in A.D. 1244 and 1245 Johan Gysors filled the office of lord mayor of London; in 1259 John Gysors, and in 1311 Johan Guysors filled the same important office. These names, although different in the spelling, refer no doubt to members of the same family, who with honour and dignity served the chief office of magistracy of London at the remote period alluded to, and are said to have erected a building on this spot, which most likely served as a residence and warehouse for the then scarce and valuable goods imported at intervals from the East. To this purpose it was applied for several centuries, and eventually was transformed into a hostelry. The beauty of proportion and careful construction of this crypt induce many of the present day to doubt if it was ever intended for other than ecclesiastical purposes: but we have no tradition of its being so used; and it must be remembered that this edifice was erected by a wealthy London merchant, at a time when English architects were remarkable for purity of design and decoration, which was undoubtedly applied to buildings intended for both religious and domestic purposes. In course of time the name of this hall has become changed from Gisors' to Gerrard's Hall—by no means a greater alteration than has happened to many places adjoining. Before the fire of London this ancient structure would undoubtedly possess many of its original features, and would even, when old buildings were more numerous than now, present an appearance which would attract attention. Here, as in connection with other old places, a tradition is attached which became more and more remarkable as time rolled on. In the days of Stowe it was by many believed that Gerrard's Hall was formerly the habitation of a giant, who used a pole in the wars 40 feet long and 15 inches round, and whose skull being found would hold five pecks, and that his thigh bone was 6 feet long; and one of his teeth weighed ten pounds Troy. Respecting this staff, which was probably the parish may-pole, Stowe says: "On the south side of this lane is one great house of old time, builded upon arched vaults, and with arched gate of stone brought from Cane, in Normandy. The same is now a common ostery, for receit of travellers, commonly and corruptly called Gerrard's Hall, of a giant said to have dwelled there. In the high roofed hall of this house sometime stoud a large firepole, which reached to the roof thereof, and by some said to be one of the staves used by Gerrard in the warres, near which there stood also a ladder of the same length, which (as they said) served to ascend to the top of the staffe. Of later years this hall is altered in building, and divers rooms are made in it; notwithstanding the pole is removed to one corner of the hall, and the ladder hanged broken upon a wall of the yard, the hostler of that house said to me the pole lacked half a foot of 40 feet in length. I measured the circumference, and found it 15 inches. Reason of the pole could the master of the hostlery give me none, but bade me read the great Chronicles, for there he heard of it." "This," continues the honest historian, "seemed to me insufficient, for he meant the description of Britain, for the most part drawne out of John Leyland (*borrowed of myself*), and placed before 'Reyne Wolf's Chronicle.'" The Great Fire of 1666 destroyed all the ancient "ostery," except the crypt, and about 8 or 9 feet of the wall at the part next the stable yard. The Basing-lane front was built soon after the fire, and presented no remarkable feature, except the effigy of Gerrard, the giant, which was until the last few days stationed in a niche above the entrance. This figure may be the work of the same artist who carved Gog and Magog, in Guildhall. The crypt, which is one of the few remains in London of the architecture of the thirteenth century, has a modern entrance in the passage of the tavern. The original doorway is in Basing-lane. On the left wall of the steps leading to the crypt are several merchants' brands cut in the wall, a cross of Calvary, and a portion of an unfinished legend in black letter. The adjoining engraving is a copy, on a reduced scale, of a selection from them. The crypt, notwithstanding its great antiquity, is so remarkably perfect, and so elegant and picturesque, that its demolition, if unavoidable, cannot fail to be regretted hereafter. The crypt is formed by six centre and eleven side columns and arches of Caen stone; the roof is beautifully filled in with small squares of chalk. The side columns, as will be seen by referring to engravings, are much narrower than the centre ones, and have been worked in oblong stones, a portion of which is inserted in the wall: at the south-west corner of the crypt is a window and door, of about the date of the fifteenth century, which look into an arched chamber adjoining the vaults of the church of St. Mildred. During the occupation of Gerrard's Hall by Mr. Younghusband the crypt was used as a wine cellar; it has now been entirely cleared out, and 3 or 4 feet of rubbish taken away by direction of Mr. Bunning, the city architect, who has, since our drawing was taken, also opened the original windows, and enabled the curious to take a last peep at this interesting relic. The crypt is in the line of the new street from the Monument to St. Paul's. Mr. Bunning was anxious to save it, but by what he now says we fear he finds it impossible to do so.

* To be continued.

THE NEW DEPARTMENT OF PRACTICAL ART.

The superintendents of the Government Department of Practical Art, Messrs. Cole and Redgrave, have addressed a letter to the new President of the Board of Trade (Mr. Henley, M.P.) on the duties of the "Department of Practical Art," lately established; and the Board of Trade have directed that the same should be communicated to the managing committees of the local branch schools of design for their information.

The art-superintendents, in this initiative letter, submit that a leading principle of its future management should be the endeavour to make the department, as far as practicable, self-supporting in all its branches.

On the subject of "elementary instruction in drawing and modelling"—the education of the eye and hand—they say, as we have often said, that drawing, being in fact an indispensable branch of good general education, if mechanics' institutes, schools in connection with the Committee of Privy Council for Education, and other educational institutions for various classes of the community, were to extend elementary instruction in the knowledge of form, a certain amount of such elementary training might also usefully be given in the schools of design without necessarily creating a separate institution for the purpose. That the successful establishment of elementary schools, however, is the only sure basis in founding future schools of design, or higher schools of ornamental art, and that the extension of such elementary schools may become a very important branch of this new department; for that, unless the public itself, as consumers, are sufficiently educated to appreciate improved art in manufactures, it will not be the interest of manufacturers to aim at its production, and the labours of this department must be in some measure fruitless.

On the subject of higher instruction in ornamental art, the art superintendents present a table, showing, for the first time, the general statistics of the schools of design; and very curious these are.

They recommend a decrease of central and an increase of local authority in the management of the provincial schools of design, the influence of which the local managers might extend, especially by connecting elementary schools with them. The number of schools of design or branch schools for ornamental art, supported by the Government grant system, they think, has reached its extreme limits, but it is not intended to act strictly on this conclusion in the grants of next year. To promote self-reliance and increase local interest, they recommend moderate local taxation in connection with that for art-museums, with which the schools of design should be associated.

Attention is then pointed to the development of the third or highest division of the new department, namely, that of the "practical improvement of manufactures," or the practical application of the artistic powers acquired by the pupil to the exigencies of manufacture by a study of the various processes of manufacture and the practice of design for individual branches of industry, and of decorative art in its various branches.

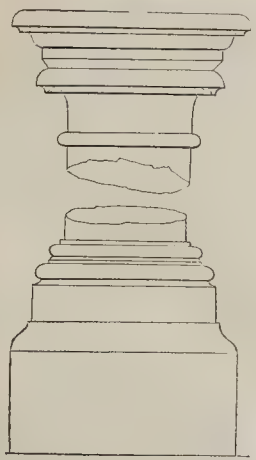
The first step towards this, they remark, is to place before the student fine examples of what has been already accomplished in his art, and to instruct him in their principles, their beauties, and their imperfections. The formation of classes of competent students for actual practice is suggested; and in organising these, it is recommended that deference should be paid to the practical experience of manufacturers, and pains taken to induce them to contribute their indispensable practical knowledge to aid the development of this branch of the institution.

The Works engaged in by the Viceroy of Egypt.—The present Viceroy has spent 70,000*l.* in making a carriage-road across the Desert to Suez, and large sums in improving the Nile navigation. His new undertaking, the construction of a railroad from Alexandria to Cairo, will, it is said, probably cost a million sterling. The works are progressing rapidly: nearly 14 miles of the embankments have been completed, and about 10,000 men are at present employed along the line. It is probable the Pacha will insist on a distribution of the labour along the entire distance, as he is desirous Cairo should equally share with Alexandria the advantage of early communication with the interior. Through the Delta to Bennah, and thence to Cairo, a distance of about 70 miles, the labour required in formation will be comparatively light, owing to the existence of a well-formed macadamized road for most of the way, and a great portion of which, with slight alterations, will serve to lay the "permanent way" on. The works are being pressed on with great vigour, and 3,000 men, drafted from the ships of war in harbour (which have been laid up), have been sent to aid in and to hasten their completion.

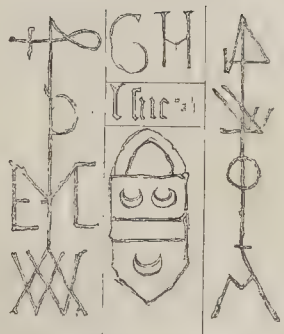
British Museum.—The annual accounts have been printed by order of the Commons. The estimate for year ending 31st March, 1853, is 52,343*l.* The sum granted for the year expiring was 46,824*l.* In course of last year the number of readers to the reading-rooms was 78,419,—on an average 269 per diem. Each reader had consulted on an average five vols. per diem.

THE CRYPT OF GERRARD'S HALL, BASING-LANE, CITY.

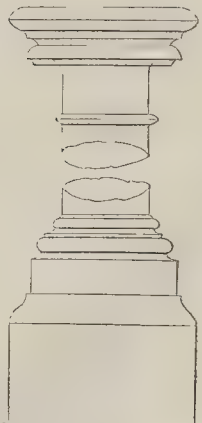




CAP AND BASE, CENTRE COLUMNS.



MARKS NEAR ENTRANCE.



CAP AND BASE, SIDE COLUMNS.

THE BATHS AT BUXTON.

The builders have commenced their work here. The old buildings have been cleared away, and the "Natural Wing" (so called from the waters famed for their medical properties issuing from the limestone in the immediate vicinity of the Crescent, at an unvarying temperature a little above 84 degrees of Fahrenheit) is rapidly progressing. The baths are being erected in two distinct buildings, the "Natural Wing" and the "Hot Wing," separated by the crescent and St. Ann's Hotel, and comprising, on the ground floor of the buildings, private and public hot medicated baths, cold plunging baths, douche bathe, men and women's charity baths,—the latter specially devoted gratuitously to the accommodation of the afflicted poor by the desire of the owner of Buxton—the Duke of Devonshire. The style of architecture selected is Italian: fountains and sculpture are promised. In the rear of the "Hot Wing" building a garden of considerable extent is provided. Two different modes of construction have been recommended by the architect, Mr. Henry Currey, involving the use of different materials; the "Natural Wing," of the stone of the neighbourhood; the "Hot Wing," of iron and glass. Both buildings will be covered with the ridge and furrow roof. The houses in the crescent are undergoing alterations, and the approaches to the new park have been commenced. Messrs. Sanders and Woolcott, of London, are the contractors for the works. The laying out of the park is in the hands of Sir Joseph Paxton; and commodious villa residences are to be erected on the site with a view of affording additional accommodation to those gentry who resort to Buxton, not only on account of the virtues of its hot springs, but the surrounding country. This enterprise is being carried out at the cost of the Duke of Devonshire.

THE ARTISTS' BENEVOLENT INSTITUTION DINNER.

The anniversary dinner of the Artists' Benevolent Institution, held on the 3rd inst. at the Freemasons' Tavern, was presided over by Lord Carlisle, and was eminently successful: the muster, too, was larger than usual, and included many leading painters, sculptors, and architects. We made no list at the time, but may mention as occurring to us Sir Charles L. Eastlake, Sir Walter James, Sir W. Ross, Sir C. Barry, Messrs. Cockerell, Uwins, Roberts, Leslie, Hardwick, Fowler, R. Chambers of Edinburgh, Angell, Creswick, S. Lahee, E. W. Cooke, Mann, Penrose, Weekes, D. Wyatt, Denham, Godwin, Evan Thomas, F. Pickersgill, Bellamy. Lord Carlisle's address was polished and elegant, as his addresses always are. In the course of it he said,—

"Not to mention the changes of taste and the caprices of fashion, you must know well that it comes within the range of probability, nay, often within the range of your own experience, that the cold grasp of disease will palsy the fingers that have shed their witcheries over the glowing landscape, and handed down to distant ages the lineaments and features of those who are most renowned and most endeared to us—the fingers that have fixed the fleeting traits of character, worked out the mysterious treasury of passion and feeling, breathed life into the glowing marble, and in the service of our solemn temples, our glittering palaces, and stately halls, have rendered architecture the fitting framework and sister of the other arts. You know well that time when age dims the eye, and dulls the fancy at the sudden touch of disease—when the failure of the nerves, and all the other incidents to which flesh is heir, have prevented the cunning of the hand from giving any longer effect to the glowing conceptions of the brain. I take up the paper which has been placed in my hands today, and I find among the dry details of this institution, many items calculated to impart to it a deep and affecting interest. I find that during the year just past, the society has relieved 63 cases, involving an expenditure of upwards of 800*l*. Among the recipients of your bounty I find "a distinguished artist," "a highly talented artist," "the widow of a miniature painter," "the widow of a landscape painter," "an architect and draughtsman," "the widow of a portrait painter," "the daughter of an historical engraver," and many others of the same class, who have been relieved as far as the means of the institution would permit. As to the toast which I last proposed, "The Army and Navy," you are aware that for the shattered limbs and declining years of our naval and military veterans this country has provided noble and costly receptacles to shield their declining years; but you are also aware, and I say it not as a matter of complaint, but of fact, that for the votaries of art, the peaceful votaries of the fine arts, no such provision is made. Painting has not her Chelsea, sculpture and architecture have not their Greenwich. They may be employed during their years of health and vigour in commemorating deeds of valour, and in transmitting the lineaments and forms of successful conquerors to distant ages. Alexanders may still draw after them their Apelles in their train; but with respect to the fine arts, for sheltering their broken fortunes they must rely, not on nations, but individuals,—not on the public, but on their patrons,—not on England, but on you."

The appeal was not made in vain: the subscriptions amounted to about 550*l*. It is an admirable charity, well deserving extensive support.

THE PARIS EXHIBITION OF MODERN ART.

The jury of selection have this year exercised great strictness in the examination of works sent for admission, a sort of reaction on the proceeding of the preceding year. The result is most serious to individuals, but will probably be useful to art. Out of 3,500 works of art sent in, 1757 (half) have been admitted. These consist of 1,280 pictures, 270 statues, busts, &c. 66 architectural works, 98 engravings, and the remainder are lithographs. Foremost amongst the pictures stands one by Horace Vernet, an episode in the last expedition against Rome. The sky is dark and cloudy, with a single band of light on the edge of the horizon. About the middle of the picture, a small fort, half ruined by the bombardment, reflects the last rays of that sun which so many men will never see again. On the right, flashes of flame and masses of smoke show the combat raging. In the foreground are a number of groups full of animation. *Tibère dans l'île de Caprée*, by M. Gendron; *Les Honneurs rendus aux Comtes d'Egmont et de Horn*, by M. Gallait; two pictures from the New Testament, by M. Landelle; *L'Inondation*, by M. Antigua; and *Un Ange Déchu*, by M. Yvon, are amongst the pictures which are well spoken of. Amongst the architectural works, few as they are, there are four more designs for the completion of the Louvre. The determination of this question, by the appointment of M. Visconti to carry out his design, will be quite a loss to the architects of France, who have been exercising themselves upon it for several years past. The *Revue des Beaux Arts* says that the Government propose to set up a representation of the intended constructions, full size, at a cost of about 80,000 francs (3,200*l*.), in carpentry and painted canvas, so that the effect may be judged of. The president has made purchases at the exhibition to the extent of 30,000 francs (1,200*l*.).

Prevention of Sand Deposits.—Mr. W. Cole, of Birkenhead, and Mr. A. Holt, have patented an improved method of preventing and removing the deposit of sand, mud, or silt, in tidal rivers, in certain cases, and also in harbours, docks, basins, guts, or other channels, communicating with the sea through tidal rivers, or otherwise, the same being applicable in certain cases to other rivers or moving waters.

Westminster New Bridge.—The report of the Westminster Bridge Commission has been published. Having already informed our readers of its resolutions and conclusions, however, it is unnecessary now to repeat them.

ST. JOHN'S GATE, CLERKENWELL.

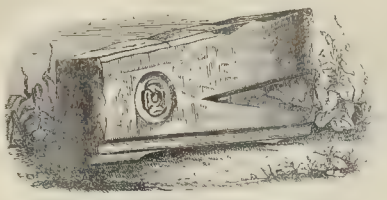
The history of this gate, and the priory to which it belonged, has been recently set forth by Mr. B. Foster, the present occupant of the building.* It is the last remaining portal of the monastic buildings once so numerous in the metropolis and its vicinity, and originally formed the grand south entrance to the chief seat in England of the Knights of St. John of Jerusalem.

The writer sketches that movement which brought into existence bodies of persons, humble in their origin, who yet attained a position, and wielded a power, which the church itself bowed to, and royalty readily respected. Following the order from its first formation as early as the year 1048, when a hospital was instituted in Jerusalem by some pious Italian merchants, and (a monastery having been attached to it) dedicated to Saint John, not, as Hallam tells us, either the Evangelist, or the Baptist; but a certain Cypriot, surnamed "The Charitable," who, in the 7th century, when Jerusalem first fell into the hands of the Saracens, sent money and provisions to the afflicted Christians; but whom, subsequently on the order becoming military, the knights renounced, placing themselves under the tutelage of St. John the Baptist. The monks made it their business at first to devote themselves to ministering to the sick and needy, but through the Crusades, when the profession of the soldier became amalgamated with that of the ecclesiastic, the hospital of St. John became rich and famous, wealth pouring in upon them. No less than 19,000 lordships or manors were in their possession in Christendom alone, and monastic institutions bearing their name were founded in various cities throughout Europe. Their final extinction as the Knights of Malta did not occur till 1798. Consequent on the wide spreading of this order was the establishment by Jordan Brisset and his wife Muriel, about the year 1100, of this hospital at Clerkenwell, which speedily became one of the largest and most important in the metropolis or its environs. The Priory Church was dedicated by Heraclius, patriarch of Jerusalem, in the year 1185, and from this a steady augmentation of wealth seems to have attended it, the importance of the body being greatly increased by the downfall of the Templars, all the lands and revenues of that order being, at a council held at Vienna, 1324, given to the Knights Hospitaliers of St. John the Baptist, called St. John of Jerusalem. But in 1381 Wat Tyler's insurrection broke out, and was attended with disastrous consequences to this wealthy and powerful body. An immense assemblage of persons, on the 13th of June, attacked the Priory, which they fired, and at the same time beheaded the prior, together with the Archbishop of Canterbury and two others on Tower-hill. The work of restoration was, however, soon commenced, but the house was not fully rebuilt till 123 years after, the completion being effected, 1504, by Sir Thomas Docwra, the then prior. It enjoyed its consequence until the year 1540, when the king, Henry VIII. having already destroyed many similar establishments, prompted by the wealth of the order, doomed this to destruction.

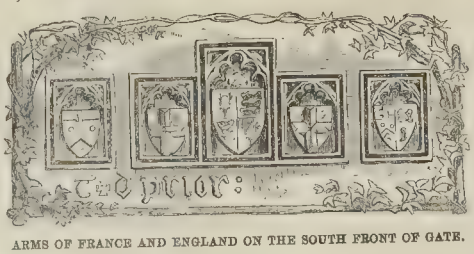
Five years subsequent to its suppression the site and precinct of the Priory were granted to John Lord Lisle, for his service as high admiral, the building being preserved so long as the king required, "to be used as a storehouse for his toils and tents for hunting, and for the wars." After his death the Priory Church fell a sacrifice to the Duke of Somerset, the Lord Protector to the king, Edward VI. who, for the purpose of erecting a magnificent palace for himself in the Strand, which he called Somerset House (alluded to in a recent number of this journal), destroyed the greater portion of the buildings, by undermining and blowing them up with gunpowder. It is probable the gate, now standing, would have shared the same fate but from its serving to define the property. Upon the death of Edward VI. and the accession of Mary, the

* The History of the Priory and Gate of St. John, Clerkenwell. Pickering, Piccadilly.

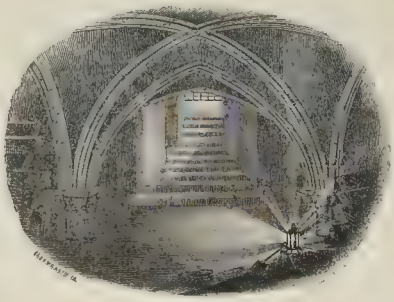
ST. JOHN'S GATE, CLERKENWELL.



STONE DISCOVERED IN VAULT, EAST SIDE OF GATE.



ARMS OF FRANCE AND ENGLAND ON THE SOUTH FRONT OF GATE.



CRYPT BENEATH ST. JOHN'S CHURCH.

Priory experienced some slight return to its former greatness. Part of the choir which remained, with some side chapels, was closed up at the west end by Cardinal Pool (or Pole) and otherwise repaired, Sir Thomas Gresham being made prior. Its existence, however, was but short-lived, as in the first year of Elizabeth the order was again suppressed. In 1604 a grant was made by James I. to Sir Roger Wilbraham for his life of the south gate of the Priory; and by letters patent of the same monarch, dated May 9th, 1607, the site or house of the late hospital, with all the precincts of the same, containing about five acres, was granted to Ralph Freeman and his heirs, the choir passing by deed into the hands of Sir William Cecil, Lord Burleigh, son of the Earl of Exeter. In the reign of Charles I. it became the property of Robert Bruce, Earl of Elgin, by virtue of his marriage with the daughter of Thomas Earl of Exeter, and by whom it was converted into a private chapel, for many years after known as the Aylesbury Chapel (the title of their eldest son), the estates remaining in the hands of this family for upwards of a century. In the year 1721 they were purchased by Simon Michell, who, in 1723, repaired and enlarged the chapel, building the present west front, and reroofing the whole, then disposed of the church, vaults, vestry-room, the ground adjacent, and two messuages in St. John-street, for the sum of 2,950*l.* to the Commissioners for Building Fifty New Churches; and the structure, after enrolment in Chancery, and consecration by Edmund Gibson, Lord Bishop of London, was declared to be a parish church for ever, styled The Church of St. John, Clerkenwell, in the county of Middlesex.

We have now come to that period when "The pen does truly supersede the sword." Edward Cave, occupying St. John's Gate as a residence and printing-house, thence issued, January 1731, that first, more worthy, crusade made by our serial literature against ignorance and vice, in the shape of *The Gentleman's Magazine*, which still maintains its position among our monthly publications, and from which the word "magazine," as applied to periodical literature, originated. From Cave's connection with the Gate, it became the meeting-place of the literati of the time, Savage, Goldsmith, Garrick, Lauder, Boswell, and Johnson, being continually found there; but soon after his death, in January 1754, it was converted into a tavern, and as such is still used.

Mr. Foster gives some description of the remains which time and *modern improvement in unqualified hands* have yet left of this ancient land-mark in the history of our country. It appears such was its condition when the Metropolitan Buildings Act came into operation, that a survey was made by the district surveyor, and notice given to repair it, as being dangerous. Through the instrumentality of Mr. W. P. Griffith, to whom, by the way, the work is very properly dedicated, for his praiseworthy exertions in endeavouring to preserve this monument of past ages, a committee was formed, and a sufficiency of funds raised to put the exterior, at least, into a safe state; and it is in hopes of drawing the public attention generally to the structure, that means may be found for completing the restoration under proper advice, that Mr. Foster has published this, his "Labour of Love."

We annex engravings of the crypt beneath St. John's Church, part of the ancient priory; and of some fragments connected with the gate.

Notices of Books.

A Treatise on Arithmetic. By J. R. Young, late Professor of Mathematics in Belfast College. Weale, 1852.

The Elements of Euclid for Beginners. By Jacob Lowres. Longman, Brown, and Green, 1852.

The first of these is one of the 105 rudimentary works by good authorities in their respective arts or sciences published by Mr. Weale for the public instruction. It is a worthy addition to its precursors, being clear, comprehensive, and to the point. It may well supersede in schools some of the more costly and cumbersome books there used.

Mr. Lowres's "Euclid," too, has our welcome. Geometry has been justly termed "the very handle of philosophy," but we fear it is a handle not so often laid hold of as it ought to be from its *supposed* roughness. Here, then, is the first book of that involved mystery reduced into a simple, concise, yet correct form: the substitution of words for the signs more ordinarily used serves further to simplify it.

Miscellanea.

Architectural Congress at Northampton.—The invitations for the 14th, sent by order of the Architectural Committee to the various societies which are in union with the Northampton society, have been in almost every instance cordially responded to. The Oxford Architectural, the Bedfordshire, the Sussex, the Ecclesiological, and the Yorkshire society will all send representatives. The Institute of Scottish Architects have, as we mentioned, deputed two of their members to attend. Professor Willis, who was expected to deliver a lecture at the evening meeting, is prevented going; but the subject of Round Churches, for the English and foreign, will be taken up by Mr. E. Sharpe. Mr. Poole has also promised a paper on the Restoration of Churches, with reference to St. Sepulchre's. Mr. Franklin Hudson will probably read a notice on the Memorial Brasses of Northamptonshire.

Upton-on-Severn Bridge Competition, Worcestershire.—Nineteen plans have been sent in competition for the rebuilding of this bridge, in accordance with the advertisement which appeared in our pages; but the committee appointed by the county magistrates have not yet reported upon them. At the Quarter Sessions, on Monday, the 5th inst. it was agreed, that, to avoid the inconvenience to the town and neighbourhood of Upton, a temporary wooden bridge should be erected over the river, a little above the present old stone one, which is being taken down.

Defective Reservoirs.—Near Alvechurch, according to a Worcester paper, one of the sluices of a series of reservoirs, formed partly for supply of the canal and also for the water-mills on the upper part of the Arrow, was lately found defective, and caused much alarm at Alvechurch. Fortunately a discovery of the part out of repair was made in time to prevent any accident. It is to be hoped, adds our authority, that all similar works will be thoroughly examined by competent authorities.

GAS.—The Folkestone Gas Company have decided to reduce the price of their gas 1s. a thousand cubic feet, and to erect another gasometer forthwith.——The Newbury Company, according to a local correspondent of the *Reading Mercury*, have resolved to reduce their price 20 per cent. to all consumers to the extent of 20*l.* per annum; 10 per cent. to all consumers to the amount of 10*l.*; and 5 per cent. to 5*l.* consumers, and so on—an arrangement which may satisfy the *few*, but will be contemptible in the estimation of the *many*—the really "large" consumers, whose interest the company would do well to consult. Even on this new sliding scale, it is their own chairman almost exclusively, it appears, who will get his gas so *low* as 8s. per 1000 feet, a price not only exorbitant in itself, but beyond that charged in surrounding towns. If the company would increase their 5 per cent. dividend, they must slide considerably farther downwards on their new scale of prices——The Hartlepool Gas and Water Company has declared a dividend at the rate of 10 per cent. per annum. "After leather," adds a commentator, "commend us to gas and water!"——The Over-Darwen Gas Company have recently announced a dividend of 7 per cent.——At the Grantham gas-works a new gas-holder of a capacity of 50,000 feet, has been erected. The old one, which will contain only 20,000 is also retained. A new main pipe of 10 inches in diameter is being laid down.——At a large meeting of gas consumers at Gravesend lately, it was resolved to request the local commissioners of lamps and pavements to grant permission to the Northfleet Gas Company to lay down mains, &c. The towns people, it appears, complain both of the dearness and the badness of the gas supplied to them.——At the annual meeting of the Rotherham gas company, on Thursday week, a dividend of ten per cent. was declared on the paid-up capital of 6,100*l.* and a further dividend of five per cent. on the 800*l.* called up about six months ago.——A joint-stock company has been formed in Whitborn for lighting that town with gas. The required capital has been subscribed.

THE LATE MR. ARCHBUTT'S PICTURES.—In another column an advertisment will be found of the sale by auction by Mr. Frederick Godwin (Halkin-terrace), of the pictures and works of art belonging to the late Mr. Archbutt. As the pictures deserve attention, and he was well known to many of our readers, they may be glad to have their attention drawn to the circumstance.

THE PUBLIC HEALTH ACT AT RYDE.—The rate-payers have voted 265 against to 224 in favour of the introduction of the Act at Ryde. The minority are the majority in amount of assessment, and are supported by the medical profession, the clergy, gentry, majority of town commissioners, and principal tradesmen. Is not something like a *central* authority requisite here to counteract the local influence and "self-government" of a majority in favour of dirt and disease? Mr. Ranger is to hold a further inquiry in a short time, after which the General Board will decide upon the necessity or otherwise of the application of the Act to this town.

FIRE IN A ROYAL DWELLING.—The palace of Rheinardsbrunn, the favourite residence of the Duke of Saxe Coburg Gotha, brother of his Royal Highness Prince Albert, was accidentally burned to the ground on the night of 14th ult. The edifice was situated in one of the most charming spots of the Thuringian Forest, and occupied the site of an ancient monastery. It was not long since built at a great cost, in the old German style, and contained treasures of art and antiquity of untold value.

NEW VESTRY HALL FOR LAMBETH.—The ratepayers have resolved, by a majority of 2,365 to 1,610, to erect a new vestry hall.

EXTENSION OF BLACKWALL RAILWAY TO HAYDON-SQUARE.—With some exception, we hear, the passage of the new extension line of rail from the Blackwall line to Haydon-square is already opened up, and in little more than a month it is thought the whole will be ready for traffic.

THE KENILWORTH BUFFET, designed by Messrs. Cookes and Son, of Warwick, for the Great Exhibition, has been presented to Lord Brooke in commemoration of his lordship's marriage, and "as a token of the respect and esteem of his friends in the town and county of Warwick." The buffet was purchased for 1,200*l.*

GIFT TO AN ARCHITECT.—The members of the Lord-street Reading-oom at Carlisle invited the architect of their new building, Mr. Hogg, to a supper-party under the auspices of the building committee, and presented him with a handsome chased silver snuff-box, as a memorial of their estimation of his services.

MRS. DAMER, THE SCULPTOR.—We inadvertently admitted a note of a correspondent (G. W. B.), in a recent number, stating that the statue of Sir Joseph Banks in the British Museum was by Mrs. Damer. The statue in question is by Chantrey. There is a statue of Mrs. Damer in the British Museum, which probably led to the mistake.

ART-UNION OF LONDON DISTRIBUTION.—The annual distribution of the London Art-Union will take place on Tuesday, the 27th inst. in the Lyceum Theatre, Strand, very kindly placed at the council's disposal by Mr. Charles Mathews. Lord Monteagle will preside. The subscription, we are glad to hear, is satisfactory.

MOTIVE POWER.—A method of obtaining and applying motive power by counterbalance weights, so arranged as to counterbalance each other during the return stroke of the engine, and thereby to require little or no expenditure of power in returning to their original working positions, has been patented by Mr. Faulkener, of Cheadle.

METROPOLITAN SEWERS COMMISSION.—On Saturday last a meeting was held at Greek-street, Soho, when tenders for work for the drainage of Croom's-hill, London-street, Greenwich, were received. The estimate of the surveyor was 796*l.* 2s. There were two parties who offered tenders, Mr. Hill and Mr. Denton. The latter's tender amounted to 871*l.*; that of Mr. Hill was 378*l.* higher. Mr. Denton's was accepted. Orders for the filling up of a filthy place called Bunker's Pond were then given, and several applications, memorials, communications, and reports were read and considered.

THE ANTWERP "BOURSE."—The *Art-Journal* says:—By command of the municipality, the principal architect of the city has been requested to offer a plan for covering the area of the "Bourse" with a roof. This has accordingly been prepared, and the design has been engraved and published. The idea is of a cast-iron frame-work to a splendid dome, filled with glass. The architectural forms of the iron-work are analagous to the mediæval character of the Bourse, which is known to have been the original model of the Royal Exchange, built by Sir Thomas Gresham, in the city of London. The design bears a considerable degree of beauty, and is evidently the offspring of our Crystal Palace. The estimate for this proposed addition to the Bourse was 16,000*l.* and was about being adopted, when the architect sent in a new estimate for the entire re-erection of the edifice at an expense of more than 40,000*l.* proposing to replace the various sculptured columns of the arcade by similar ones in cast iron, and erecting on them an entirely new building; therefore the intention is for the present abandoned, on account of the great cost.

A GOODLY PLANK.—The *Emigrant* arrived at Portsmouth lately with a gumwood-tree plank, from New Zealand, 144½ feet long, 19 feet broad at the narrow end, 6 inches thick, and perfect throughout.

BRASS TUBING.—Mr. C. Green, of Birmingham, has patented some improvements having reference to the manufacture of brass tubes, made without seam or joint, for boilers, &c. It appears to be mainly in peculiar annealing processes that the improvements consist. By these means a tube is said to be produced stiff, strong, and smooth on the outside, and which, by acting as a stay to the boiler in which it is introduced, contributes materially to its durability and power of resisting internal pressure of steam.

CHESTER BATHS AND WASH-HOUSES.—From the opening of this establishment on 21st June, 1849, to 21st June, 1851, inclusive, according to the *Chester Chronicle*, there had been taken 35,515 swimming baths; and from 23rd June, 1851, to 27th March last inclusive, 9,562—making a total of 45,077 without accident. Of shower baths there have been taken during same periods 1,302; and of vapour baths (provided in August last) 218. There have been at same time 8,422 washers accommodated at the public wash-house. But this latter department has been closed by the town council. 220 of the citizens subscribed 1,190*l.* for the erection of these baths. The establishment, however, is incomplete without private baths for females. Most of the baths hitherto taken were penny ones.

TENDERS

Received for rebuilding Culham Church, Oxon, by Mr. Joseph Clarke, on Quantities prepared by Mr. R. Yeldham.

	Church.	Chancel.	Total.
Castle	£1,489 5 3	£519 6 4	£2,008 11 7
Wyatt	1,067 0 0	392 0 0	1,459 0 0
Hook	1,000 0 0	380 0 0	1,380 0 0
White	1,540 0 0	510 0 0	2,050 0 0
Thomas	1,234 0 0	470 0 0	1,704 0 0
Rigby	1,617 0 0	461 0 0	2,078 0 0
Plowman	1,136 0 0	463 0 0	1,599 0 0

For a new Baptist Chapel, for the Rev. Wm. G. Lewis, Kensington; Mr. Searle, Architect.

Bird, Hammersmith	£4,160
Cowland	3,700
Locke and Nesham	3,680
Sissons and Robinson (accepted)	3,230

TO CORRESPONDENTS.

"T. P. W." (under our mark), "P. P." (ditto), "T. and C." (ditto), "M. W.," "J. H. C.," "W. H. V. S.," "H. W.," "G. W." (we must decline advising in private disputes unless applied to professionally), "R. S. N." (ditto), "R. R." (we inserted a similar statement some time ago), "Quondam," "M. A. A." (will appear), "M. S. B." (ditto), "T. T.," "J. B. D.," "B. D.," "Pan," "M. J. B.," "An Insurance Clerk," "J. W.," "H. T. E.," "R. A.," "A. H. P.," "W. A." (will appear), "S. and W.," "Messrs. W. and D.," "J. C.," "E. W.," "X. Y." (the Bank of England covers, we believe, about 4 acres).

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS, Incorporated 7th William IV.
16 Grosvenor-street, Grosvenor-square, London.

At the Ordinary General Meeting, held on Monday, 22nd March, 1852, the following Recommendations of the Council, with reference to the Medals for the year 1852, were read and agreed to:—

ROYAL MEDAL.

Her Majesty having been pleased to grant her gracious permission for the Royal Medal to be conferred on such distinguished Architect or Man of Science, of any Country, as may have designed or executed any building of high merit, or produced a work tending to promote or facilitate the knowledge of Architecture, or the various branches of science connected therewith.

That the Royal Medal for this year be awarded to such Architect, of any Country, as may have executed any building of high merit.

That the Council do proceed in January, 1853, to take into consideration the appropriation of the Royal Medal accordingly.

INSTITUTE MEDAL.

That the Silver Medals of the Institute be awarded to the Authors of the best Essays on any of the following subjects:—

1. On the Introduction of Colour, including Paintings in Fresco, to promote or heighten the effect of Architectural Composition generally.
2. On the Use of Bricks (now that the manufacture is unrestricted by law) in respect to utility, durability, and economy, as well as for the purpose of producing ornamental details in the various styles of Architecture; with suggestions as to the Improvement of their present Manufacture in connection with any of these qualities.
3. On the various kinds of Construction of Walls, as influenced by local circumstances and the materials most readily available.
4. On the advantage to Architecture which has resulted, and what further advantage may be derived, from the use of Iron, both as to construction and embellishment.

Essays on any other subjects connected with Architecture, besides the above, that may be submitted, will also be entertained and considered by the Council.

The Essays to be accompanied by suitable Illustrations.

N.B. Each Essay to be written in a clear and distinct hand, on alternate pages.

SOANE MEDALLION.

That the Soane Medallion be awarded for the best design among those sent in for any of the following subjects:—

A Metropolitan Railway Station for a Main Line on the Ground Level; a General Cemetery; or a Town Hall for a large Municipality.

The Buildings respectively to be adapted for an isolated position.

The plans, elevations, and sections of the buildings to be drawn to a scale of ⅛ of an inch to a foot. Perspective views, and such other drawings to a larger scale as the Candidate may consider necessary for the perfect development of his design. The drawings to be tinted with Indian ink or Sepia.

The successful Competitor, if he go abroad, will be entitled to the sum of 50*l.* at the end of one year's absence, on sending satisfactory evidence of his progress and his studies.

N.B. The competition for the Soane Medallion is open to all Members of the Profession under the age of 30 years.

Each Essay and set of Drawings to be delivered at the Rooms of the Institute, on or before the 31st of December, 1852, by 12 o'clock at noon.

Further directions and information may be had on application to the Secretaries, by letter, prepaid.

J. J. SCOLES,
C. C. NELSON, } Honorary Secretaries.

A GENTLEMAN, well acquainted with business and the management of machinery, wishes to INVEST about 1,200*l.* in a business in the country, to which he could give the whole of his time. The Advertiser would not be very particular as to the nature of the occupation, provided it be an established concern an I carried on away from London.—Address, B 372, Post-office, Croydon.

PARTNERSHIP.—An Architect in good practice in the country, and with excellent private connection, is desirous of meeting with a gentleman who has business, and would co-operate with him in Partnership, where a much extended business could be carried on, and with energetic means and a moderate capital, establish a high position in the Profession. References would be given and required. In the first instance apply in letter, stating name and address, with full particulars, to LLWYD, Office of "The Builder," 2, York-street, Covent-garden

AN ENGINEER WANTED, at the KENT COUNTY LUNATIC ASYLUM, Barming Heath, near Maidstone, to undertake the management of the steam engine and the cooking and washing apparatus and pumping, and to perf rm any other work in an engineer's department who may be required of him under the direction of the surveyor. He will be required to have charge also of the principal entrance-gate. Persons desirous of becoming candidates are to transmit their applications at this establishment not later than Saturday, the 24th April, addressed to Mr BEALE, Clerk to the Visitors, King street, Maidstone. Candidates must be under 35 years of age, and married. The salary will be 30*l.* a year, with a house at the entrance-gate, and milk for himself and family, and two pints of beer daily. The duties are to commence on the 8th of May, and the appointment is to cease in either party giving to the other one calendar month's notice. Should further information be required, application must be made to Mr. WHICHCORD, County Surveyor, Week-street, Maidstone. The candidates whose qualifications are not approved, will be informed thereof immediately; whilst those from whom the Visitors would wish to select are to attend a meeting at the Asylum for the purpose on Saturday, the 8th of May, at their own expense, of which information will be given them.

By order of the Committee of Visitors.
WILLIAM BEALE, Clerk to the Visitors.

Maidstone, April 7th, 1852.

A PUPIL WANTED, by an ARCHITECT in the country, in good practice; he must be a well-educated, intelligent youth, and a knowledge of drawing indispensable.—Apply by letter to Q. Y. care of Mr. Henry Sotheran, Cursy-street, York.

TO PARENTS.

AN Architect, in Town, with an increasing practice, is desirous of meeting with a PUPIL, who has a decided taste for drawing. Premium, 100 guineas.—Apply by letter, to M. at the Office of "The Builder," 1, York-street, Covent Garden.

TO PARENTS AND GUARDIANS.

AN Architect and Surveyor of good practice in the City has a VACANCY in his office for a PUPIL, who will possess every advantage of thoroughly learning the profession, theoretically and practically. Premium moderate.—Address, Y. Z. 9, Old Broad-street, City. N.B. An Improver wanted.

AN OUT-DOOR APPRENTICE WANTED, by a Carpenter and Builder, at the West-end of London. Any respectable youth will find every facility afforded for a perfect knowledge of the business; the Master's personal attention to the shop insures comfort and regularity. A small premium required. For further particulars apply by letter, or otherwise, to A. Z. at the Office of "The Builder," 1, York-street, Covent-garden

GENERAL FOREMAN in an ENGINE MANUFACTORY.—WANTED, a FOREMAN, to take the superintendence of fitters, turners, smiths, and pattern makers. Wages, 2*l.* per week. He will be required to sign the declaration issued by the Central Association of Employers of Operative Engineers, &c.—Apply, either personally or by letter, stating age and qualifications, to Messrs. SIMPSON, Belgrave-road, Pimlico, London.

WANTED, a good GRAINER and WRITER.—Apply No. 5, Great Suffolk-street, Southwark.

WANTED, a Young Man, who understands the Plumbing and Painting, &c. to assist in the COUNTING-HOUSE, and make himself otherwise useful. Address, A. C. 19, Bridge House-place, Newington, Surrey.

WANTED, an experienced CLERK of WORKS to superintend building a house in the country. Application to be made by letter to A. B. Newby Wiske, Thirsk, stating amount of salary, and ability to furnish testimonials of character.

TO BUILDERS, PLUMBERS, AND OTHERS.

WANTED, by a Young Man, a SITUATION as PLUMBER, GLAZIER, and PAINTER.—Address to A. B. No. 23, Charlotte-street, Caledonian-road, Pentonville.

WANTED, a SITUATION as a BUILDER'S CLERK, by a Young Man, who has been in the Office of a Surveyor. No objection to the Country.—Address, A. P. 40, Maddox-street, Regent-street

WANTED, by a respectable Youth, to board with the family, a SITUATION, as an APPRENTICE to a BUILDER. References given and required.—Apply to Mr. SALTER, Solicitor, Ellesmere

WANTED, by a Manufacturing Firm, a TOWN TRAVELLER, on Commission, and who has a good connexion amongst Builders and Ironmongers.—Apply by letter (prepaid) to Z. A. care of Mr. Everett, Finch-lane, Cornhill.

WANTED, by a Man well versed in all the building branches, and of considerable experience, by trade a carpenter and joiner, a SITUATION as GENERAL or WORKING FOREMAN, certificates of character can be given. No objection to the country. Satisfactory references as to ability, &c. —Address, stating salary, A. Z, Mr. Dunford's, Printer, Nottinghill.

TO CARPENTERS, BUILDERS, &c.

WANTED, a SITUATION in the above business, for a Youth, who has worked three years at the trade. Wages not so much a consideration as a situation where he would be able to improve in the trade. Address to T. at Mr. Rice's, 97, St. Martin's-lane.

TO IRONMONGERS, STOVE GRATE MANUFACTURERS, SMITHS, FOUNDERS, &c.

WANTED, by a middle-aged, active Person, who has a general knowledge of the businesses, a SITUATION in a Warehouse, Shop, Counting-house, or as a Builder's Ironmongery Department. Letters (post paid, to Y. Z. 2, Northumberland-terrace, Bonnage-well-road.

WANTED, EMPLOYMENT, by an experienced hand, as a PLUMBER, GLAZIER, and PAINTER. He is fully competent to take the management of a glass-cutter's shop. Satisfactory reference can be given as to ability and honesty. Apply by letter to H. L. Mr. Linton's, Window Glass Merchant, Bath-place, New-road

ASSISTANT FOREMAN, GENERAL FOREMAN, or CLERK of WORKS. The Advertiser, having just completed his engagement as general foreman, is open for a RE-ENGAGEMENT in either of the above capacities. Satisfactory reference can be given in point of honesty, activity, and ability.—Address, pre-paid, to X. Y. Office of "The Builder," 1, York-street, Covent Garden.

TO RAILWAY OR BUILDING CONTRACTORS, AND OTHERS.

A PERSON, who has been engaged, since 1846, as contractor's agent, in carrying out most extensive works, is desirous of obtaining another ENGAGEMENT. He holds certificates from all his employers, and the different engineers under whom he has acted, and can refer to the contractors whose works he has just completed, and where he has been engaged for four years.—Address, A. Z. Post-office, Lupus-street, Pimlico.

TO ARCHITECTS AND SURVEYORS.

A GENTLEMAN, aged 27, having a good theoretical and practical knowledge of all branches of the profession, wishes for an ENGAGEMENT. Address, K. G. at Mr. Bunting's, Manor-place, North Chelsea.

TO CARPENTERS AND BUILDERS.

A RESPECTABLE YOUNG MAN (son of a country builder) wishes to place himself in a good shop for improvement. Wages not so much an object as improvement.—Apply, by letter, to P. V. 43, Wells-street, Oxford-street.

TO BUILDERS, HOUSE AGENTS, AND OTHERS.

A YOUNG MARRIED MAN, aged 24, a Bricklayer, who has had the management of a small business, but having met with great misfortune latterly, is in want of EMPLOYMENT, Can be highly recommended. Wages not so much a consideration as constant work. Willing to assist in an office if required. The country not objected to.—Address, to Charles, 8, George's-place, Upper Marsh, Lambeth.

TO ARCHITECTS

THE Advertiser, who has served a portion of his Articleship with an Architect of considerable practice in Liverpool, is desirous to enter an Office in London as IMPROVER, where he will have an opportunity of gaining further information in the Profession, and be in the receipt of a moderate salary, which, however, he is willing to make the last consideration. He is an excellent Draughtsman, and can speak the French language fluently.—Address W. W 2, Lower Grosvenor-place, Pimlico.

TO BUILDERS,

THE ADVERTISER, who has had great experience in all matters relating to Building, and has a good connexion with London architects, is desirous of taking the MANAGEMENT of a BUILDING BUSINESS, in town or country, either to assist a person or wholly for a widow or trustees, and would not object to take part profits as remuneration: or he would like to undertake the management of a large building speculation. Address, post paid, J. P. R. Office of "The Builder," York-street, Covent-garden.

TO DRAUGHTSMEN AND CIVIL ENGINEERS.

H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.
These Pencils are prepared in various degrees of hardness and shades.

H H H H for drawing on wood.	F F light and shading.
H H H for architectural use.	F for general use.
H H for engineering.	B black for shading.
H for sketching.	B B ditto ditto.
H B hard and black for drawing.	B B B ditto ditto.
	B B B B ditto ditto.
Medium.	

Sold by all the principal Stationers in town or country.

TO ARCHITECTS.

COMPETITION and other DRAWINGS.—Mr. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen," &c. and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he feels aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 18, Albany-street, Regent's-park.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishments of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval or Modern Styles.—Apply to F. SANG, Decorative Artist, 38, Pall-mall, London.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied, lithographed, or printed.
PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved
BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS ditto, mounted and continuous. TRACING PAPER and CLOTH; ditto in lengths.
GENERAL STATIONERY for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.
WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament street, London
Contracts for the supply of large establishments.

BILLS of QUANTITIES.—DAY and SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.
Perspectives set up from Geometrical Drawings, either in Outline or Water Colours.
17, GATE-STREET, LINCOLN'S-INN-FIELDS.

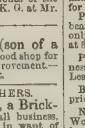
MARTIN and HOOD, Architectural, Mechanical, Engineering, Map, and Plan Draughtsmen, Plain and Ornamental Writers, Engravers, and General Lithographers, respectfully intimate to their patrons and the public, that they are prepared to undertake WORKS OF ANY MAGNITUDE, in the above branches, on the most reasonable terms.
WORKING and TINTED DRAWINGS of every description of MACHINERY.
8, GREAT NEWPORT-STREET, LEICESTER-SQUARE.

THE CO-OPERATIVE SOCIETY of ENGINEERS are now prepared to execute Orders in every department of the Trade. Plans, estimates and surveys in any part of the country on the shortest notice.—East London Iron Works, Cambridge-road, Mile-end.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 84, Commercial-road, Lambeth.



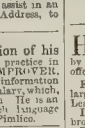
CHARLES WM. WATERLOW, Manufacturer of Sashes and Frames, and Joiner to the Trade, 121, Bunhill row, Finsbury-square.
Well seasoned materials, superior workmanship, lowest prices.
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes and Frames, always on sale.
Glazed goods securely packed for the country. Steam struck mouldings in any quantity.
N.B. This Establishment is worth the notice of all engaged in building.





NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade, beg to inform their Customers and the Public generally, that they have removed to more extensive premises in
CHESTER-STREET, BAGNIGGE WELLS-ROAD, where they have convenience for carrying on a larger business.

N.B. By inclosing a postage-stamp, a full list of prices may be had by return of post.



DAMP WALLS.—NEW PATENT PAINT, as applied on the THAMES TUNNEL, guaranteed effective and permanent inside or out, in quantities to finish 36 square yards for 10*s.*
PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8*s.*, 16*s.*, and 32*s.* each.
PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 5*s.*, Greens and Blues, 6*s.* per gallon.
BLACK MINERAL PAINT, very permanent, half the usual price; only 2*s.* per Gallon.
NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14*s.*
G. BELL and CO., Steam Mills, 2, Wellington-street, Goswell-street.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead paint.
Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.
Its confessed superiority over every other paint hitherto known brought forward various imitations.
These inferior preparations frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original is so justly esteemed.
In justice to the proprietors these should not be confounded with the original, even though sold under the pretence, that it is all the same.
HUBBUCK'S Paint is entirely free from any injurious properties whatever, it is healthful in the manufacture, healthful in use, and healthful to occupants of houses newly painted with it.
As a guard to the painter against the substitution of the inferior paints, each cask is stamped
"HUBBUCK, LONDON, PATENT;"
and if the cask has not been so marked, the reason is obvious.
A Circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This PAINT is superior in every respect to white lead; it is unequalled in whiteness, and grows very hard after it is applied, and is, therefore, for interior work, susceptible of a high polish. Besides, it is entirely free from all injurious influences, is unaffected by sea-water, sulphurated hydrogen, or any gases, and preserves its original colour, which white lead does not do.
WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's colic, nor paralysis, &c. &c to which dangerous complaints the workmen and manufacturers who use it are subject, are to which persons who inhabit newly-painted apartments are also liable. Since its introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over any other paint. The public is cautioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.
The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the same ground in oil. Both these WHITES are only to be procured of the sole Patentees, the mark, VM, are only to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agents, residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Leeds, Manchester, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.
The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from their Agents, Messrs. C. DEVAUX and Co. 62, King William-street, City. London; and Messrs ROBT. ANDERSON and CO. 7, Timber Bush, Leith, Scotland.
For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits it must make its way, and finally take the place as one of the important manufactures of this country.
Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride paint will cover as much surface in all respects is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.
But the chief and by far the most important advantage it possesses is its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Paint Grinders. The extent of the discoverer of this valuable property in this circumstance, and since that time, the Washington Chemical Company have had abundant opportunities of fully appreciating this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed in a larger way, by machine practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 50 to 100, that is, 50 lbs. of Oxichloride paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both as and out of doors, as the Oxichloride dries into a hard tenacious layer, more like an Enamel than Paint.
In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Pressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly discovered substance to the notice of consumers, both on account of its economy, and its valuable properties as a paint.
OFFICE IN LONDON.—Mr. R. COOKE, No. 7, Size-lane.
Office of the Washington Chemical Company,
73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

LONDON and SOUTH-WESTERN RAILWAY. RESIDENTIAL TICKETS.—In order to encourage the Erection of Houses at Surbiton, Esher, and Weybridge, adapted to the wants of clerks, and of similar classes of society, on the Suburban Lines of this Company, which traverse the most healthy and advantageous parts of the neighbourhood of London, the Directors are prepared to arrange terms for the issue, at a reduced rate, and for a given number of years, of Residential Tickets (1st or 2nd class), with persons erecting Twenty Houses or more, of the class referred to, on specified conditions, for the use of the occupiers of such Houses, and their families. A late train will run on the Windsor line daily on and after the 1st April, leaving Waterloo at eleven o'clock, p.m and calling at the principal intermediate stations, and will continue to run permanently during summer and winter.—By order of the Court of Directors.
WYNDHAM HARDING, Secretary
York-road Offices, March 27th, 1852.

BRITISH ASSURANCE COMPANY, 2, King-street, Cheapside.
Chairman—SYDNEY SMIRKE, Esq. A.R.A.
The rates for both Fire and Life Assurance are as low as can with safety be taken. The Premiums for Life Assurance made payable to suit the convenience of the assured. Prospectuses and all particulars may be had at the head office, or of any of the agents. JOHN REDDISH, Manager.

LONDON ASSURANCE CORPORATION, established by Royal Charter, A.D. 1720.
FOR LIFE, FIRE, AND MARINE INSURANCES.
Head Office, 7, Royal Exchange, Cornhill.
Branch Office, 10, Regent-street.
Actuary, Peter Hardy, esq. F.R.S.
This Corporation has effected Assurances for a period exceeding One Hundred and Thirty Years, on the most favourable Terms.
JOHN LAURENCE, Secretary.

PROVISION FOR FAMILIES IN CASE OF DEATH; ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.
THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.
CAPITAL, £500,000.
This Company assures diseased as well as healthy lives for sums of from 5l. to 5,000l.
The annual income is nearly 4,000l.
Lives declined by other offices accepted at equitable rates.
Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.
M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING-CLASSES.
BRANCH OFFICE—2, EXETER 'CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo-bridge), STRAND.
Open every Evening from Six till Eight o'clock.
Subscription for securing payments of 5l. and up to 50l. payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—
Weekly Contributions for payment of 5l. at death.
Healthy persons whose age on becoming subscribers shall be—
From 10 to 35 years, to pay One Penny per Week.
" 35 to 45 " " Twopence "
" 45 to 55 " " Threepence "
Collectors call at the houses of Subscribers for these weekly subscriptions.
The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.
Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.
N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to Mr. JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.
TRUSTEES.
Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robt. Swann, esq. York.
BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY.—Mr. W. L. Newman, York.
The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.
Extract from the Table of Premiums for Insuring 100l.

Age next birth-day.	A MALE.	A FEMALE.	Age next birth-day.	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
	1 7 6	1 13 4	45	3 13 6	4 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 3	1 11 6	56	5 4 6	4 14 10
23	1 17 0	1 13 8	60	6 6 0	5 12 6
26	2 0 1	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 0	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l payable on his decease, for an annual payment of 25l. 10s. 0d., and a lady of the same age can secure the same sum, for an annual payment of 19l. 17s. 6d.
Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.
FIRE INSURANCES
are also effected by this Company, on the most moderate terms.
Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to
Mr. RICH. WOOD, Solicitor, 19, John-street, Bedford-row, Agent for London.

PROVIDENT LIFE OFFICE, 50, REGENT-STREET; CITY BRANCH: 2, ROYAL EXCHANGE BUILDINGS. Established 1806.
Invested Capital, £1,311,761.
Annual Income, £153,000. Bonuses Declared, £743,000.
Claims paid since the establishments of the Office, £2,087,738.
PRESIDENT.
The Right Honourable Earl GREY.
DIRECTORS.
William Henry Stone, esq. Chairman.
Henry B. Alexander, esq. Deputy-Chairman.

Henry Blencoe Churchill, esq.	Benjamin Oliviera, esq. F.R.S.
George Dacre, esq.	William Ostler, esq.
William Judd, esq.	Apsley Pellatt, esq.
Sir Richard D. King, bart.	George Round, esq.
The Hon. Arthur Kinnaird	The Rev. James Sherman.
Thomas Maugham, esq.	Frederick Squire, esq.

J. A. Beaumont, esq. Managing Director.
PHYSICIAN—John Maclean, M.D. F.R.S. 29, Upper Montague-street, Montague-square.
Nineteen-twentieths of the profits are divided among the assured.
EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£. s. d.	£. s. d.
1806	2,500	79 10 10 extinguished.	1,229 2 0
1811	1,000	33 19 2 ditto	231 17 8
1818	1,000	34 16 10 ditto	114 18 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
261	1807	900	982 12 6	1,882 12 6
1174	1810	1,200	1,160 5 6	2,360 5 6
3382	1820	5,000	3,558 17 8	8,558 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.
JOHN MACGREGOR, Esq. M.P. Chairman.
The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

LONDON and PROVINCIAL JOINT-STOCK LIFE ASSURANCE COMPANY.
Established, 1837.—Offices, 17, Gracechurch-street.
The Company effect every description of Life Insurance, both on the participating and non-participating scales.
They also lend money on the security of freehold and long leasehold property, reversions absolute or contingent, life interests, and incomes legally assignable. And on personal security, accompanied by at least three unquestionable sureties, and a policy of insurance effected with the Company for not less than double the amount borrowed. In cases of personal security, the loan is made for periods of from one to five years, repayable by annual, half-yearly, or quarterly instalments, with interest at 5 per cent.
C. INGALL, Actuary and Secretary.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.
7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON; AND 56, PALL-MALL, MANCHESTER.
Established May, 1844.
INVESTMENT OF CAPITAL AND SAVINGS.
The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the accumulated capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.
Interest payable in January and July.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.
CAPITAL STOCK, £100,000.
The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.
IMPORTANT NOTICE TO POLICY-HOLDERS.
Policies absolutely INDISPUTABLE; and made PAYABLE TO THE HOLDER BY SPECIAL ENDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.
FOR SECURING LOANS OR DEBTS.
Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.
MUTUAL ASSURANCE:—
Assurances may be effected from 50l. to 10,000l. on a Single Life.
Entire profits belong to the Assured, and divided annually.
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence, greatly extended.
COLLEGE EDUCATION.
A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 25, or an equivalent amount in money.
Other useful and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.
The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.
Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.
PETER MORRISON, Managing Director.
Applications for Agencies may be made to the Managing Director.

GUARANTEE OF RENTS.—TO LANDLORDS, OWNERS OF PROPERTY, TRUSTEES, and OTHERS. Owners of Property can have their Rents and Incomes guaranteed to them on a day certain, whether the same shall then have been collected or not; or a certain income from property for a fixed period, whether wholly occupied or not.
Rents collected without guarantee, the amount being paid over immediately it is collected.
Owners of property travelling or residing abroad, or in the country, can have the amounts of their rents remitted to them, or paid to their bankers, or other direction; thus enabling them to draw upon their accounts without fear of disappointment.
Particulars and forms of proposal to be obtained at the office of THE RENT GUARANTEE SOCIETY, 3, Charlotte-row, Mansion-house, London.
Rates of commission are moderate.
No charge made for policies or preliminary expenses of any kind.
FREDERICK TWYNAM, Resident Director.

LOANS.—Persons desirous of obtaining ADVANCES from 50l. to 200l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3l. per Cent. per Annum. ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100l. is to bear interest after the rate of 3l. per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.
By orders, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.
NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

TO BUILDERS AND OTHERS.
TO BE LET on Hire, the whole of the BRICK-MAKING IMPLEMENTS sufficient for one stool, including pug-mill and pug-horse. For particulars inquire of Mr. THOMAS WILLCOX, Star and Garter, New-cross-road, Deptford.

TO SURVEYORS AND OTHERS.
TO BE DISPOSED OF, a very superior SURVEYING LEVEL, in perfect condition; can be examined or tested, and terms, &c. forwarded upon application to N. M. (prepaid) 1a, Wimbourne-street, New North-road, Hoxton.

PATRON—H. R. H. PRINCE ALBERT.
ROYAL POLYTECHNIC INSTITUTION.—Prevention of Forgery: a Lecture by J. H. Pepper, esq. on Glynn and Appelt's Patent Paper for the Prevention of Piracy and Forgery by the Anastatic Process, daily at Two o'clock, and on Monday, Wednesday, and Friday Evenings at Nine. The talented Vocalist, Krauss de Feher, who possesses the extraordinary compass of four octaves, and sings in thirty-six different foreign dialects, will give his musical illustrations every Evening, except Saturday, at Eight o'clock.—Lecture on Voltaic Electricity, with brilliant experiments, by Dr. Bachhoffner.—An Explanatory Description, by Mr. Crispe, of the various kinds of Muskets, Rifles, &c.—A splendid New Series of Dissolving Views.—Exhibition of the Microscope.—Diver and Diving Bell, &c. &c.—Admission, 1s.; Schools and Children under ten years of age, half-price. A new edition of the Catalogue.

ROYAL COLOSSEUM.—NOW OPEN, DAY and EVENING. The whole of this magnificent establishment has been re-decorated, many additions have been made, a new room opened, containing a skeleton of the Gigantic Mastodon, Gothic Aviary entirely rebuilt, the Saloon of Sculpture now forming the most splendid Coup d'Œil in Europe. The original PANORAMA of LONDON is exhibited daily, from Half-past Ten till Five; and PARIS by NIGHT, every evening (except Saturday), from Seven till Ten. Admission, day or evening, 2s.; children and schools half-price. A Series of Tableaux of the CRYSTAL PALACE has been some months in preparation for the CYCLORAMA Building, and will be exhibited in a few weeks.

CARPETS.—BRIGHT'S SPLENDID VELVET TAPESTRIES.—These goods being woven by steam power, are at least one-fourth cheaper than handwoven goods, the patterns more elaborate, and the quality equal to any Brussels carpets, of old patterns, at a great reduction. French, silk, and worsted, damask, warranted 54 inches wide, from 3s. 6d. per yard Turkey carpets. Floorcloths, &c.—LUCK, KENT, and CUMMING, 4, Regent-street, Waterloo-place (opposite Howell and James's).
AWARDED A PRIZE MEDAL UNDER CLASS XIX. CARPETS.
ROYAL VICTORIA FELT CARPETING.—The present period being peculiarly one of economy, the public should purchase this description of carpeting, the advantages being durability, beauty, and novelty of design, inasmuch as it is produced in endless variety, style equal to Brussels, and at one-third the price. Purchasers are cautioned against spurious imitations, the Felt Carpeting being always stamped "Royal Victoria Carpeting." It can be procured at all the respectable carpet houses in London and its vicinity, and in all the principal towns of the United Kingdom. The Patent Wooden Cloth Company also manufacture Table Covers, embossed and printed, of the latest possible designs, and in every variety of style and colour; thick Felt, for polishing plate glass, steel, marble, tortoiseshell, &c. likewise for veterinary purposes; cloths for billiard tables, upholsterers, &c.—Manufactories, Elmwood Mills, Leeds, and Borough-road, London. Wholesale Warehouses at 8, Love-lane, Wood-street, Cheapside.

RIDGWAY and CO.'S SANITARY VESSELS.—Under the sanction of the General Board of Health.—JOHN RIDGWAY and CO respectfully announce that in consequence of the retirement of Mr. Grove from town to conduct another part of their business, they have appointed Mr. THOMAS BEGGS, of 13, Fleet-street, as their agent for London and its vicinity. They have the fullest confidence that the business will be conducted by him to the entire satisfaction of those who may favour him with their orders. They have also to intimate that Mr. BEGGS is prepared with suitable fittings to the various vessels, and to recommend proper persons to fix them up.—Apply to Mr. THOMAS BEGGS, Sanitary Depôt, 13, Fleet-street, London, where articles for drainage, sewage, and waterworks purposes, are kept on hand.

THE PATENT GLAZED, VENEERED, and COLOURED BRICKS, &c. manufactured by JOHN RIDGWAY and CO. Cauldon-place, Staffordshire Potteries, and recently exhibited at the Portland Galleries, Regent-street, having been taken away on the 1st April without the authority of the Patentees, a REWARD will be given to any one who will give information of the same, leading to the detection of the offender, on application to Mr. R. H. GROVE, 13, Fleet-street, London.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Copings for Gates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 9, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

MAW'S ENCAUSTIC TILES.—Prices and Samples (Plain or Glazed) of this beautiful and durable production of ancient art, and Patterns appropriate for the floors or walls of public and private edifices, in every style of design forwarded on application to MAW and CO. at their Works, Worcester, N.B. Plans of spaces to be paved covered with arrangements of Tile Patterns, without charge.

PAN TILES, 48s. per 1000; PLAIN ditto, 32s. 6d. per 1000; FIRE BRICKS, 65s. per 1000.—MARD and CO. Honduras Wharf, Bankside, are now offering their Fire Goods being about to make a considerable alteration in their Premises at very reduced prices. Dutch Clinkers, Windsor Loam, Tiles, and Bricks; Fire-clay, superior, 12 inches and 9 inches; Paving Tiles, of a rich colour, at a very low price. Gas Bricks and shaped Tiles.

ONE HUNDRED THOUSAND superior BRIMSTONE and other PAVIORS, for Stables, &c. &c. at 20 per cent. under the usual prices. Apply to W. and S. WRIGHT'S White Brick and Tile Works, Stanwell, Middlesex.

BRICKS.—Good Stock and Place Bricks to be had at RAWLINS'S LIME WHARF, King's-road, Camden New-town; also, all kinds of Building Materials. A One-horse Builder's Cart for Sale.

BRICKS.—Messrs. EDMONDS and CO. of Lamb-lane, London-fields, Hackney, have 600,000 STOCK BRICKS, of superior quality, for immediate sale, at 35s. per thousand. Cash on the field.—Application to be made to Mr. MARTIN, No. 1, Ash-grove, Hackney; or to Mr. BUNDY, on the field.

BRICKS.—H. DODD is enabled to offer his BRICKS, which are of good quality, at the following low prices; and as his fields are only a quarter of an hour's walk from the City, H. D. earnestly requests purchasers will favour him with a visit, in order to inspect his stock and to judge for themselves:—

Marle cutters	34s. Per Thousand.
Yellow seconds	30s. "
Pale seconds	26s. "
Paviors	42s. "
Pickings	23s. "

Delivered within two miles of the fields.
Marle place, half-washed stocks, and place bricks, at equally low prices. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing. Apply to HENRY DODD and CO. at the Counting House, Hoxton Brickfields, Grange-walk, near the Mary Branch, Hoxton. N.B.—Red pit sand of approved quality constantly on sale, upon reasonable terms; this sand, from its not containing any saline matter, is acknowledged to be preferable to river sand.

AUSTIN'S REGISTERED BRICKS for BRITISH BOND.—TO ARCHITECTS, ENGINEERS, BUILDERS, BRICKMAKERS, and OTHERS.—W. AUSTIN respectfully solicits patronage for his improved-shaped Bricks, which are calculated for walls of varied heights and thicknesses, and will be found to have the advantages of increased strength by their dovetail keying into each other (called British Bond), affording facilities of leaving cavities for drainage of damps from walls, vertically, and allowing a passage of pipes through vertical apertures for heating Public Buildings, Churches, Conservatories, Museums, Picture Galleries, &c. &c. without risk of fire.—Prospectuses sent on application to Mr. W. AUSTIN, Architect, Farnham, Surrey. Licenses granted to Brickmakers. Specimens of Bricks may be seen at Harth's Brick Machine Manufactory, Atlas Works, Borough-road, Southwark.

BARROW LIME.—This celebrated hydraulic Lime, from the Blue Lias Stone, can now be forwarded by railway fresh from the kilns to any part of the kingdom. It is becoming much more generally used for Concrete, and can be supplied ready ground for that purpose. Price, &c may be obtained on application to JOHN ELLIS and SONS, Leicester.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.
Gobbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.
ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality
SECONDS, PAVIORS', STOCKS, and other Bricks.
CHARLES RICHARDSON, 6, South Wharf, Paddington.

GREY-STONE LIME.—HALL, BROTHERS, Merstham Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery.

Grey-Stone Lime	6s. 0d. per Yard, or 32 Bushels.	
Ditto, for Manure.....	4s. 0d.	ditto ditto
Ditto, Ashes	1s. 6d.	ditto ditto
Black ditto	3s. 0d.	ditto ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the London and Brighton and South-Eastern Railways, or lines connecting with them. A Depôt is supply me from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.
Prices for Cash on delivery :—7s. per yard at the stations or works; 8s. per yard delivered within five miles; in not less than 3-yard quantities. Booking, 2s. per yard; if per yard off, if paid monthly. Collecting charged for. The quality is warranted to be the best. Address, Merstham, near Reigate, Croydon; or Youl's place, Old Kent-road.

THOMAS FREEN and CO. LIME BURNERS, Wouldham-on-the-Medway. Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal-road, Kingsland-road; Queen's Wharf Great Cambridge-street, Haggerstone; or King's Wharf, New Wharf-road, Battlebridge. N.B. Laths, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c.

THOMAS FREEN and CO. REGENT'S CANAL, KINGSLAND-ROAD, beg to inform their friends and the public that, since the late fire on their premises, they have entirely REBUILT THEIR MANUFACTORY, and are now prepared to supply ROMAN CEMENT and PLASTER OF PARIS in any quantities, direct from their mills. T. F. and Co. further beg to state, that having made great improvements in their machinery, these articles, their trade will be found fully to support the high character they have always hitherto borne in the trade.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses. These well known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use Contractors and Builders will find that these two important qualities may be depended on with certainty in every barrel of this Cement.—Sold by C. J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharf, London-st, Upper Thames street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent

PORTLAND CEMENT, in Casks of Four Imperial Bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality as desideratum never before attained in Portland Cements. It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack, combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the property manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Barnard's-bridge, Blackfriars; or Middle Scotland-yard, Westminster, Manufacturer of Roman, Lias, and Mnatic Cements. French and English Plaster, &c.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders receive at the Works, and at Great Scotland-yard, Whitehall.
March, 1852.

PATENT PORTLAND and ROMAN CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed new works, are now prepared to execute orders to any extent for either of the above Cements, which they are quite prepared to prove exceed any others in their cementitious qualities at present manufacturing. Many highly respectable references can be given where their Cements have been successfully used. Orders addressed to their Works will be punctually attended to, and terms sent. Where quantities are used a corresponding price will be made.—Agent at Southampton, Mr GEORGE SHARPE, Union Wharf.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS, AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but in much better adapted for concreting work, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover new pier, as the mason's cement. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 900 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture
CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight
Agent for Southampton, R. I. FLUDER, American Wharf.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.
As used at St. George's Hospital, Hyde Park Corner.
JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.
JOHNS and CO'S STUCCO CEMENT This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it is as caustic qualities may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.
The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

GEORGE and THOMAS EARLE, CEMENT MANUFACTURERS, HULL.
Light and Dark cements may be made
Also, Manufacturers of PLASTER, MASTIC, &c.
Importers of MARBLE and POZZOLANA.
Dealers in Slates, Lime, Hair, Whiting, &c

ROMAN and OTHER CEMENTS, Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.
Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

WILLIAM THOMAS, HULL, Manufacturer of Roman and Portland Cements, Plaster, Mastic, and Paints, begs to return his thanks to his numerous friends for their favours during the last forty years, and to assure them that he continues to use "only the best materials" in his various manufactures. He holds many testimonials of the highest respectability as to the quality of his Roman Cement, which has been used in the principal tunnels and public works in the kingdom, &c and been found to give entire satisfaction. A Cargo of Parker's, direct from Civita Vecchia, of first-rate quality, on sale on moderate terms.—Works on the "River Hull;" Town Office, 2, High-street, Hull. March 17, 1852.

TO ARCHITECTS, BUILDERS, &c.
W. RENTMORE, Plasterer, Little Lant-street, Borough, having had many years' experience in the PATENT PORTLAND CEMENT for the firm of Messrs. Aspdin and Co., the original patentees, begs to state that he will engage to execute Plastering, in every style and design, in the above material, at the same price as Roman Cement, and will guarantee to produce one uniform colour and natural state without the aid of colouring as generally adopted by the trade.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post-paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates

THE PIMLICO SLATE WORKS.
Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that have attempted) continues to grow in favour with the Public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Urinals, Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—49 and 5, Upper Belgrave-place

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Hertfordshire and Hertfordshire, Breweries, the Race Stand at Brighton Pens in both Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABYS, Belvedere-road, where terms may be obtained.

TO ARCHITECTS, SCULPTORS, BUILDERS, STONE and MARBLE MASONS, &c. &c. ALABASTER QUARRIES, CHELLASTON, near DERBY.—Alabaster in blocks of almost any size, and of very superior quality, may now be obtained from these quarries on application to
Messrs. JOSEPH SMITH and SONS,
HORNINGLOW, near BURTON-ON-TRENT.
This Stone was extensively used during the Middle Ages for Monuments and other Ecclesiastical Decorations and from that period until now has not been obtained in blocks of any size. Its colour is white, and beautifully variegated. It is easily worked, and capable of taking a high polish, which renders it suitable for every kind of internal House Decoration.
Agent in London, Mr. WILLIAM FIELD, 88, Holywell-street, Millbank; Depôt, 34, Wharf, Paddington, where a stock is always on hand.

MARBLE and STONE TRADE.—To QUARRY OWNERS, CAPITALISTS, and others interested.—The disadvantages of machinery in the marble and stone trade have been sincerely felt by almost all who have attempted it in Britain up to the present time, for want of an individual mind as would otherwise lead to success, and, in many instances, princely fortunes, which information may be obtained on application, by letter, to H. H. R., "The Builder," 1, York-street, Westminster, Covent Garden, with real name, address, and amount of capital to spare for the object. If to engage in London, or other large towns, from 2l. to 3,000l. or 5,000l. in the country, convenient to water power, from 100l. to 1,000l. or upwards.

ITALIAN and GALWAY MARBLE QUARRIES.
Depot, Whitehall-wharf, Parliament-street, Westminster,
Arrived, from Galway, per *Margaret*, 87 blocks of Black, and 3,000 feet of slabs.
Arrived, from Leghorn, per *Mermaid*, *Robert*, and *Pehr*, 100 tons of various Marbles, Statuary, Veined, Sicilian, Dove, Sienna, Bardilla, Black and Gold, Brocatello, Levante, and Biassi.
Also, St. Anne's, Rouge Royal, Alabaster, and all descriptions in Slabs, Irish Flagging, &c.
The following vessels expected daily :—
Lady Lisle, Galway, 113 Black and Green, 120 tons.
Marsella, Leghorn, 6 Blocks, 80 tons.
Rapid, Leghorn, 47 Blocks, 100 tons.
Reduced prices. Terms, six months.
Mr. FRANKLIN, Proprietor. Office hours, Eleven until Three.

TO BUILDERS, MASONS, AND CONTRACTORS.
OBSERVE!!! the Cheapest Depôt in England for MARBLE CHIMNEY-PIECES of superior quality and workmanship is the London and Provincial Marble Works, Earl-street, Holywell-street, Millbank. An inspection of their superior stock of statuary, Sienna, black and gold, vein, and other chimney-pieces, tombs, monuments, tablets, &c. is earnestly solicited.

MARBLE.—Mr. J. FABBRICOTTI, Proprietor of Marble Quarries at Carrara, Italy, begs to inform the Gentlemen connected with the Marble Trade, that he has established in London the most extensive Depôt in the United Kingdom of STATUARY, Veined, Sicilian, Dove, and Black and Gold MARBLES, the produce of his own Quarries.
CARRARA-WHARF, Thames-bank, Pimlico, at the foot of Vauxhall-bridge. Office, 8, Crescent-terrace, Millbank.
Mr. THOS. THOMPSON, Agent.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.
SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.
MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.
A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.
A liberal discount to the Trade.
MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.
Circulars sent on application.
N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

VEINED MARBLE.—TO MASONS, BUILDERS, &c.—NOW ON SALE, at the Marble and Wood Sawing Mills, Commercial-road, Pimlico, the LARGEST STOCK in London of VEINED MARBLE, in SLABS, at the following low prices for cash :
½ inch, 1s. 3d. per foot super.; 1 inch, 1s. 6d.
Slabs carefully packed and forwarded to any part of England.
Sawing, 1d. per foot super.; cartage included; Marbles, Dove, Black, Black and Gold, Statuary, and all other Marbles in general use, in slab and block, equally low.
PORTLAND STONE, from the best Quarry, Hare Hill, Wingerworth. York, and other stone in general use, either in BLOCK, LANDINGS, or SLABS. SINKS, GRANITE CURB, &c.
JOHN HOLMES, Agent.

BATH STONE OF BEST QUALITY.
RANDELL and SAUNDERS, QUARRYMEN and STONEMERCHANTS, BATH.
(DEPOTS.)

Great Western Railway Station....	PADDINGTON.
Great Western Railway Station....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN

BATH WEATHER-STONE.—For Combe Down and Box Hill Ground Stone of the best quality, apply to HENRY STONE, Stone Merchant, and Stone Quarry Master, Widcombe, Bath. N.B. Cargoes shipped and delivered to any part round the coast on the most reasonable terms.

BATH STONE DEPOT, Great Western Railway, Paddington. EDWARD FLUESTER respectfully informs Builders, Masons, and others that he continues to supply the Box-hill Ground Stone, Corsham-down, Combe-down, and Farleighdown Stone, of the best quality, and at the lowest prices. Paviours' and Forest of Dean Stone in blocks, steps, landings, or slabs of any thickness. N.B. Stone and other goods landed and carted!

CAEN and AUBIGNY STONE.—F. FOUCARD, Stone Merchant and Quarry Proprietor, Quai aux Abattoirs, Caen, and 39, Stoney-street, Borough-market. Contracts taken for any quantities. Cargoes shipped to order from Caen to any port.

PORTLAND STONE.—P. DODSON and CO. STONE MERCHANTS, PORTLAND.
Mr. GEORGE FAWN, 11, Elizabeth-street, Eaton-square, Pimlico.

TO BUILDERS, MASONS, AND OTHERS.
BUILDERS, MASONS, and others are informed that they can now be supplied with YORK BLOCK, SAWN STEPS, SLABS, &c. at unprecedented prices, from the Caen Wharf, Rotherhithe.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAUX' BITUMEN PAVEMENT OFFICE, NOUNSEARCH CHAMBERS, 16, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

PAVING, SINKS, COPING, SILLS, STEPS, Selfaced Slab, Harehill, Robin Hood, Rubbed Paving, Selfaced Paving, Brick, Stone, Tiles (red, plain, and fossil), Chimney Pots (large or small sizes), Stone or Clay Pipes, Bends, Junctions, &c. Builders are invited to inspect the goods, the quality of which will be found to give every satisfaction, and the prices such as must ensure general approval, a list of which will be sent free on application.—E. and W. STURGE, Bridge Wharf, City-road.

ASPHALTE for RAILWAY ARCHES, Bridges, Platforms, and every description of Basement Flooring, 60s. per ton. Tools and experienced workmen sent to any part as per special agreement.—GERVASE FOOTIT, Asphalte Works, Rotherhithe. Established 1834. Importer of Trinidad Asphalte.

WHITE AND ORNAMENTAL BROWN LAVA.

PATENT METALLIC LAVA, Manufactured only by Messrs. ORSI and ARMANI, MODELLERS OF CHURCHES, MUSEUMS, HALLS, VESTIBULES, CONSERVATORIES, &c. &c.; for Foot Pavement, Flooring, Covering Railway Arches, Terraces, Roofs, &c. &c.
SAMPLES LAY FOR INSPECTION. List of Prices, and every Particular, may be obtained at the Office, 6, Guildhall-Chambers, Basinghall-street, City; and at the Office of "The Builder."

TERRA COTTA and SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs, and sold at No. 1 Wharf, Praed-street, Paddington.
Vases, tazzas, friezes, capitals, coats of arms, chimney shafts, trusses, flower pots, and all ornamental work required to stand heat and frost without cracking or changing colour, may be had at nearly the same cost as casting in cement.
Terra Cotta is more durable than iron, granite, marble, or stone, and may be made of black, red, and light cream colours of every shade. It can be more undercut and delicately wrought than either stone or marble and architects can have their own designs modelled and fired in this material (without moulding and the chance of copying) fresh from the hands of the artist.

The Builder.

No. CCCCLXXX.

SATURDAY, APRIL 17, 1852.

MAN is said to be a "social animal," writes Addison, "and as an instance of it we may observe, that we take all occasions and pretences of forming ourselves into those little nocturnal assemblies which are commonly known by the name of CLUBS. When a set of men find themselves agree in any particular, though never so trivial, they establish themselves into a kind of fraternity, and meet once or twice a week upon the account of such a fantastic resemblance." These clubs were very different from those of the present day, the rise of which is quite recent. They were mostly of a humble character, and moderate in their terms of membership, though leading to expenses and bad habits. In the Essex-street Club, founded by Dr. Johnson, it was stipulated that each member should spend not less than sixpence; that each absentee should forfeit threepence; and every person present give a penny to the waiter! The ordinary clubs of this kind were apparently very stupid, and promoted drinking and revelry rather than wit or intellectual conversation. Steel, in "The Tatler," gives an account of a prosy one, and moralizes at the close, in his manner, on the worthless conversation of some of the old men composing it. "The only way of avoiding such a trifling and frivolous old age," says he (and the advice is not out of date), "is to lay up in our way to it such stores of knowledge and observation as may make us useful and agreeable in our declining years. The mind of man in a long life will become a magazine of wisdom or folly, and will consequently discharge itself in something impertinent or improving. For which reason, as there is nothing more ridiculous than an old terrifying story-teller, so there is nothing more venerable than one who has turned his experience to the entertainment and advantage of mankind."

The Beef-steak Club was founded in the reign of Queen Anne:—

> "He that of honour, wit, and mirth partakes,
> May be a fit companion o'er beef-steaks."

The Beef-steak Society, a different association, was commenced in 1735, and in apartments of their own, at the Lyceum Theatre, the members still enjoy beef and conviviality one day in the week during the season.

The "Literary Club," founded by Reynolds and Johnson, in 1763, and which is still maintained, must be known by all readers. It met at first at the "Turk's Head," in Gerrard-street, Soho, and, besides the founders, included Goldsmith, Burke, Garrick, Boswell, Beauclerc, and Sir John Hawkins.

The "Wednesday Club," at the Globe Tavern, in Fleet-street, was another of those to which Goldsmith belonged. The position of the parties forming such clubs may be gathered from Derrick's anecdote of Goldsmith's introduction to the "Robin Hood Club." Goldy was struck by the important appearance of the chairman in his gilt chair, and said, "This must be the Lord Chancellor at least." "No," said Derrick, "He's only master of the *rolls*." He was a baker.

A few years ago we made the circuit of the London taverns, and were surprised to find how many merely convivial clubs (thought by some to have been "put down" by the popular Literary Institutions of the day) then existed, and indeed still exist.

Of the "chocolate houses" and coffee-houses, which took an associative character, White's, of St. James's-street, was, perhaps, the earliest. As White's Chocolate House, on the site of what is now "Arthur's Club House," it was established between 1690 and 1700; and as *White's Club House*, 38, St. James's-street, opposite to what used to be "Crockford's," it is known at this day. White's, Boodle's, the Grecian, the Cocoa Tree, are all historical: each of them symbolised certain opinions or habits. As Defoe writes (1722), "A Whig will no more go to the Cocoa Tree or Ozinda's than a Tory will be seen at the coffee-house of St. James's." The character which formerly attached to those who belonged to White's was that of men of pleasure and desperate gamblers. The Earl of Oxford cursed it as "the bane of half the English nobility;" and a story is mentioned by Walpole to the effect that a man dropping down dead at the door of the club, bets were made by the members whether he was dead or not, and they would not permit his being bled because it would affect the fairness of the bet.* The first house was burnt 1773, when it was kept by a Mr. Arthur. There is a book containing the "Rules of the old Club at White's," dated 1736, with a list of the members which includes the names of many leading men. The original front of the building now occupied by the club, and where it has been since 1755, was designed by James Wyatt. From time to time the house underwent various alterations and additions; and several architects have been employed to carry these into effect: among those of later date were Mr. Higgins, the late Mr. Goldicut, and the late Mr. Papworth. In the autumn of 1850, certain improvements being thought necessary, it came to be considered that the front was of too plain a character, when contrasted with the many elegant buildings which had risen up around it. Mr. Lockyer was consulted by Mr. Raggett as to the possibility of improving the façade; and under his direction it has been made to take the appearance represented by our engraving.†

The four bas-reliefs, representing the four seasons, which occupy the place of four sashes, were designed by Mr. George Scharf, jun. The works were executed in a very short space of time by Messrs. W. Cubitt and Co. and the interior was redecorated by Mr. Morant.

The club, which is at this time limited to 500 members, was formerly composed of the high Tory party, but though Conservative principles may probably prevail, it has now ceased to be a political club, and may rather be termed "Aristocratic." Several of the present members have belonged to the club upwards of half a century, and the ancestors of most of the noblemen and men of fashion of the present day who belong to the club were formerly members of it. It may be gathered, from what we have said, that the management of the club is quite different from that of others of recent date, Mr. Raggett being individually the proprietor. The freehold was purchased by his late father in 1812.

Of some of the other London clubs, and of the expediency of extending their advantages, we shall find another opportunity to speak. The simple fact that from a published account of 17,323 dinners at the "Athenæum," the average cost was 2s. 9¾d. each, and that the average quantity of wine for each person was a small fraction more than half a pint, speaks volumes.

* Quoted in "The Handbook for London," where there is an account of the club; but rather, as Mr. Raggett, the present proprietor, informs us, of what it was than what it now is.

† See p. 249.

THE LATE MR. THOMAS ALLASON, ARCHITECT.

WE record, with regret, the death of an accomplished architect, and an esteemed friend, Mr. Thomas Allason, which took place on Friday, the 9th, after a few hours' illness, in the 62nd year of his age. The lives of artists and architects are best written in their works, but a few biographical incidents may always be gleaned from those who have gained eminence and success in their profession, which may serve as guides, and encourage emulation in others who are embarking on a similar voyage of life. Mr. Allason earned his prosperity by an untiring devotedness to his professional duties: he was strictly "*faber fortunæ suæ*," and accumulated during a practice of nearly forty years a handsome independence. Brought up in the office of Mr. Atkinson, an architect of some celebrity, he distinguished himself at a very early period by the neatness and elegance of his drawings, and obtained the gold and silver medals from the Royal Academy. At that time "Stuart's Athens," and "The Antiquities of Attica," were the class-books of an architect's office, while the works of Soane, Wilkins, and Smirke gave the tone of architectural design to the student. Mr. Allason carefully studied Greek architecture, and appreciated its beauty. All his own designs are strongly impressed with the delicacy of feeling and carefulness of finish which such studies inevitably produce upon an educated mind.

His taste for Greek architecture was still further confirmed by a tour which he made on the continent and through Greece, as draughtsman to Messrs. John and Edward Stanhope, whom he assisted in their examination and publications on the remains at Olympia and Platæa. On his return from this tour, he published in folio a work on the antiquities of Pola, and a clever etching of Milan Cathedral.

Established in London in the year 1817, he was extensively engaged as an assistant architect, and his pencil supplied numerous designs, not only for buildings, but also for furniture decorations and landscape gardening. In this latter branch he was very successful, and was retained for some years by the late Earl of Shrewsbury, in laying out the gardens at Alton Towers and in designing additions to the mansion.

When the members of the Stock Exchange founded the Alliance Fire Assurance Company, Mr. Allason (having obtained experience as an assistant in a similar office) was appointed their surveyor. This introduction to the moneyed interest of London gave him many opportunities of developing his talents. The Rothschilds, the Montefiores, and Ricardos, were his clients, and brought him also a valuable city and private connection. He erected many villas and mansions. The Alliance Fire Office, in Bartholomew-lane, is perhaps his chief architectural public edifice; but it is only necessary to refer to the other appointments which he held, such as surveyor to the Stock Exchange, the Pollen estate in London, the D'Este estate at Ramsgate, &c. to appreciate the labours of his life. Unlike many of the profession, who have the credit of designs which their pencil could not delineate, Mr. Allason worked out all his buildings by his own hand, from the rough plan down to the minutest detail of a working drawing. He never had but one pupil, and but one clerk. He began life dependant on

his own exertions, and pursued his course throughout with a stern independence of mind.

Though fond of the arts and well known to the artists, he never enrolled himself as a member of any of the societies connected with architecture or the arts. He placed himself, notwithstanding, in a good position in the profession, and on a late occasion, when the Board of Metropolitan Sewers was remodelled, he was appointed one of the commissioners.

Private friendship incites us to proceed further, but enough has been said to indicate the sources of success in an architectural career.

THE TEMPLES AND ROSES OF PÆSTUM.

NOTES OF A LADY'S VISIT.

You wished to have some particulars of our excursion to Pæstum, but before giving you them, I must warn you to arm yourself with all your patience, for I intend to be minute in my descriptions.

To commence, then, at the beginning: We left Naples in the afternoon of the 29th of October, proceeding to Nocera by railway: it extends no farther, but its sudden termination is not much to be regretted, for the distance from Naples—which is only 18 miles—occupies an hour and a half, exclusive of detentions at starting and on arriving. The hedges of China roses in full bloom, which bordered the railroad, looked fresh and lovely, but somehow their beauty only made me the more melancholy from the contrast it presented to the hideousness of the marvellous masses of lava through which the line is, for some distance, cut. It is quite depressing to think of the desolation that has been everywhere produced by such overwhelming floods of fire. These beds of lava still serve, as they have done for centuries, in the stead of stone quarries. Arrived at Nocera, all the passengers and the luggage of the train just arrived, and of that about to depart, have to struggle through one only gateway, mingled with loathsome beggars and revolting cripples; and if you shrink on one side to avoid contact with these distressingly unclean objects, it is at the certain peril of your head from the close proximity of a luggage-laden porter.

At last a carriage was procured to convey us to Salerno, a distance of about nine miles, and a drive of from an hour and a half to two hours. The road must be very romantic and pretty, from the occasional glimpses we had of it through the windows of the carriage; but the rain unfortunately compelled us to shut both itself and the view out at the same time. At Salerno, during the evening, we fortified our courage by reading the Strangers' Book of the Hotel Vittoria, which is half filled with accounts of the robberies committed on travellers to Pæstum: one party especially stated they had been met by fourteen armed men, who took from them seven gold watches, and all the money they had with them. On inquiring of the landlord the truth of these accounts, he admitted such had actually been the case, but added, "that was during the Constitution, and there is now, I assure you, nothing to fear." If required, the landlord will accompany any party to Pæstum, and the testimony of ladies to his kindness and attention on such occasions is most eloquent.

During the night the rain continued to descend in torrents, but, though proceeding on our journey seemed hopeless, we nevertheless rose at four o'clock, for we wished to start at five, so as, if possible, to return to Naples the same evening. However, it was deemed prudent to await the daylight, so we left the hotel only a little before seven, with a good luncheon prepared for us by our invaluable courier, he and the driver in front of the carriage, and a nice active lad as a sort of footman, who packed himself away behind, underneath, or somewhere, but where I never could make out: I only knew that in any emergency, such as the horses kicking over the traces, the harness breaking, &c. &c. he was always at hand, and always most efficient and most good-tempered. This is the Neapolitan method of learning the business of coachman, and not until a young man has attended a carriage in this manner for four years is he allowed to turn driver. Twice during the journey we came to a halt to hold a council as to the propriety of relinquishing the expedition, for danger began to be talked of from the roads being so bad, and from a certain river, the Sele, which is four miles from Pæstum, being impassable after heavy rains; but each time the casting vote was given to, or was appropriated by, the lady of the party and—on we went. Every passenger, and especially every thing on wheels, that we met, was stopped with the anxious inquiry, "Is the Sele open?" and the answer was always, "It is still, but make haste, for in two hours you will not be able to come back." The alternative was, we knew, sleeping in the midst of malaria, and in a horrible little wayside inn, which we afterwards found was too dirty even to lunch in; but nevertheless, on we went. When we reached this redoubtable torrent we had to descend from the carriage, which was wheeled down an inclined plane of mud three or four inches thick (and through which we had to wade on foot) into an equally muddy barge, which is towed across by means of a fixed rope. The great danger in stormy weather arises not only from the strength of the stream, but also from the large trees and masses of earth which are whirled along by the torrent, and which, if the rope broke, would hurry barge, carriage, mud and all along with them into the sea. While the carriage was being wheeled up again on to the road on the opposite side we took refuge from the pitiless rain in the bargeman's hut, and when he came in, seeing the condition of our mud-begrimed shoes, he immediately took his handkerchief from his pocket, and with it wiped them tolerably dry and clean. An Italian always carries a handkerchief, whatever else he may lack.

We proceeded on our journey, and as we neared the Temples purposely avoided looking out for them, in order that they might burst suddenly upon us in all their magnificent proportions, and their solitary grandeur. Just as we alighted from the carriage, the rain ceased, and the sun shone brightly forth, as if to add a new charm to this interesting spot.

The Temples stand at a little distance from the road on the right hand side, and on a grassy and wild-thyme-perfumed plain: they are all *three* within a few yards of each other. Idle boys are kept off by a rough railing, in which is a locked up gate; but, in spite of this wise precaution on the part of the king of Naples, the custodian himself is the great marauder, for he deliberately broke off a large piece of the beautiful sharp flute of a column, and brought it to us, saying, "Every visitor likes to take home a piece of the stone:" the offer was indignantly rejected, but on being sharply remonstrated with for committing such wanton destruction, he only laughed aloud at the absurdity of the idea.

I have heard, or read, somewhere, that Augustus was taken when a youth to Pæstum, to see these even-then-considered marvellous erections. I fancied it was in Gibbon, but I have consulted him in vain.

In the tenth century the Saracens invaded this part of the country, and formed a settlement in the neighbourhood of Pæstum, where they long resisted all the efforts of the Dukes of Beneventum and the Greeks to expel them. This was the period in which they devastated Beneventum, Bari, Matera, and other towns; and it seems that Pæstum was ruined about the same time. In the following century, after the expulsion of the Saracens, King Roger the Norman ransacked the Temples and other buildings of their marble and ornaments, to adorn the cathedral which he raised at Salerno. During the middle ages the remains of Pæstum lay unnoticed, but not unknown, for the Temples are conspicuous objects from almost every part of the Gulf of Salerno; but the country had become unwholesome, and was also infested by outlaws, and therefore strangers did not venture into it. When Don Carlos Bourbon conquered Naples, towards the middle of the last century, and became the resident sovereign, he revived the taste for the arts and antiquities. In 1758 Winkelman visited Pæstum; and in 1767 appeared in London the first description of Pæstum.

The Temples are now almost the sole evidence of the opulence of *Poseidonia* or Pæstum. They are three in number, and two of them are in tolerably perfect preservation. According to Paoli, the architecture is to be considered rather as Etruscan than Grecian; yet, whatever may be the country of the architects, there is no disputing that the buildings themselves essentially belong to the Doric style.

In the great temple, called the Temple of Neptune, the height of the column with the capital is said to be 29 feet 10 inches; the lower diameter, 7 feet; the upper, 4 feet 9 inches.

The first temple visited by us, and the smallest, is called the Temple of Ceres: the columns are all standing, thirteen on each side, and six at each end: they are about 20 feet high and 4 in diameter, and rest on the lowest of three steps. Above the columns is an entablature, and over this rises the pediment, perfect at one end, but at the other only a fragment, and that rebuilt just to preserve the general effect.

The Temple of Neptune has fourteen columns on each side, and six at each end: they are not so suddenly tapered as those of Ceres, and have a much more pleasing appearance: in other respects they are similar, excepting that they are placed on the highest instead of the lowest of the three steps. In the interior is a second inclosure of columns, above which is part of a row of smaller ones, and at each end is a vestibule formed by two enormous square pillars, and the two end columns of the inner row.

Near this is the Basilica, which has on each side eighteen, and at each end nine columns. The interior is divided into two equal parts, by a row of similar columns down the centre.

The stone of which the Temple of Neptune is built is darker in colour than that of the Basilica and of Ceres, but it all presents the same peculiar species of decay as if it had been eaten out by insects: it looks, indeed, very much like the dried mud from Terni. The Neptune Temple is in colour exactly like freshly cut cork, and at a distance it might be fancied a gigantic model of this material.

Part of the wall of the town is still very sharp and perfect: there is a Porta, too, which we did not see, for the grass was so terribly wet with the rain. Of the amphitheatre I believe nothing now remains but traces of its form, and curious vaults.

In fine weather visitors take their luncheon in one of the temples, but we were obliged to have ours in the carriage while the horses were resting: the horrible little inn was far too dirty, too beset with beggars, and too filled with tobacco smoke to render the idea of *eating* there endurable. We afterwards amused ourselves with feeding three hungry and famished-looking dogs, and the eagerness with which they swallowed the fare we bestowed, made us imagine that Salerno viands were—and perhaps even food at all was—a rarity at Pæstum. We were scarcely again *en route* before the rain once more descended, and it most pertinaciously accompanied us all the way back to Salerno, where we arrived about six o'clock, and returned the next morning to Naples. The time occupied by us was, in all, two days, and in actual travelling, nineteen hours. The distance from Naples to Pæstum is 102 Italian miles.

Thus terminated our journey to Pæstum, an excursion to which I had always looked forward with vague dreamy longing, since the school-days in which I used to read of the exquisite Pæstum roses, still freshly blooming amidst ruined temples and prostrate columns. Unfortunately it was too late in the year for my floral anticipations to be realized, but the sublimely grand erections which stood before us, more than compensated for the absence of lesser, if sweeter, beauties.

No doubt if I had waited until a few more of the interesting "Letters to Sorillah," had appeared in your journal, I could have sent you a more correct description of these stupendous temples, but as these letters are

only bestowed upon your readers once in a fortnight, my natural impetuousness of disposition conquers my better judgment, and compels me to send you this note at once.

ON METALLIC CONSTRUCTIONS.

Mr. W. Fairbairn, C.E. and F.R.S. of Manchester, has been lecturing to the Mechanics' Institution there on metallic constructions. The subject of his lecture, on Friday, in last week, related chiefly to ship building, but contained various important tables indicative of the strength of materials, which we prefer selecting, as the pith of the lecture, to any attempt to report at length what may be found in the local papers of 10th inst.

Resisting Powers of Cast-iron.—From a number of carefully conducted experiments on cast-iron, I have selected the following results. They are the highest in the order of their powers of resistance to a transverse strain, and as in each instance the bar is reduced to exactly 1 inch square, the results may fairly be estimated as a criterion of the resisting powers of the different irons of Great Britain :—

Transverse Strength of Cast-iron Bars, 1 inch square, 4 feet 6 inches between the supports :—

	Name and number of iron.	Breaking weight in lbs.	Deflection in inches.	Power to resist impact.
Welsh.	Ponkey..... 3 C ...	531	1·747	992
	Beaufort ..... 3 H	517	1·699	807
	,, ... 3 C .	448	1·726	747
	Mean.....	515	1·691	848·6
English.	Low Moor..... 2 C ...	472	1·852	855
	Butterly ..... H ...	502	1 815	899
	Elsecar ..... 2 C ...	427	2·224	992
	Old Park ..... 2 C ...	485	1·621	718
	Mean.....	471	1 778	863·5
Scotch.	Muirkirk ..... 1 C ..	418	1·570	656
	Carron ..... 3 C ..	443	1·336	593
	Monkland ... 2 H .	403	1 762	709
	Gartsherrie... 3 H ...	447	1·557	998
	Mean	428	1·556	739

The letters C signify cold blast. H, hot blast.

From the above it will be perceived that the average transverse strength of eleven specimens of English, Welsh, and Scotch iron is 471 lb. on 1-inch square bars, 4 feet 6 inches between the supports. These again give a mean deflection of 1·675 inch, and a power to resist impact of 817. Similar irons will resist a tensile strain and a crushing force per square inch as follows :—

Experimental results to determine the ultimate powers of resistance to a tensile and crushing strain :—

Description of iron.	Tensile strength per square inch of section.	Height of specimen.	Crushing strength per square inch of section.	Ratio of tension to compression.
	Tons.	Inches.	Tons.	
Low Moor, No. 2...	6·901	1½	41·219	1 : 5·973
Clyde, No. 2...	7·949	1½	45·549	1 : 5·729
Blenarvon, No. 2...	7·468	1½	45·717	1 : 6·123
Brymbo, No. 2...	6·923	1½	34·356	1 : 4·963
Mean	7·309	1½	41·710	1 : 5·707

In addition to the irons given above, which are those in common use, Mr. Stirling's mixed or toughened iron exhibits considerably increased powers of resistance to every description of strain when compared with the unmixed irons. Mr. Stirling has patented a process for mixing a certain portion of malleable with cast-iron, and when carefully fused in the crucible the product is equal to resist a tensile strain of nearly 11 tons per square inch, and a compressive one of upwards of 60 tons, the specimens being 1½ inch long and 1 inch square. This mixture, when judiciously managed and duly proportioned, increases the strength about one-third above that of ordinary cast-iron.

Resistance of Wrought-iron Plates to a Tensile Strain.—In these experiments, which were made on five different sorts of iron, the tensile strengths in tons per square inch are as follow :—

	Torn asunder in direction of the fibre. Tons.		Torn asunder across the fibre. Tons.
Yorkshire plates	25 770	...	27·490
,, ,, ...	22·760	...	26 037
Derbyshire ,, ...	21·680	...	18·650
Shropshire ,, ...	22·826	...	20 000
Staffordshire ,, ...	19 563	...	21·010
Mean	22·519		23·037

Or, as 22·5 : 23, equal to about $\frac{1}{45}$ in favour of those torn across the fibre. In following up the same investigation on timber, I found, according to Professor Barlow, of Woolwich, that the cohesive strength of different kinds of hard wood were—

	lb.		lb.
Box.....	20,000	Beech.....	11,500
Ash.....	17,000	Oak.....	10,000
Teak	15,000	Pear	9,800
Fir	12,000	Mahogany.....	8,000

Assuming Mr. Barlow to be correct, and taking the main strength of iron plates, as given in the experiments, at 49,656 lbs. to the square inch, or say 50,000 lbs. we have this comparison between wood and iron :—

	Timber. lb.		Ratio. Iron. lb.	Ratio Timber representing unity.
Ash.....	17·000	:	50·000 ..... or as 1	: 2·94
Teak	15·000	:	50·000 ..... or as 1	: 3·33
Fir	12·000	:	50·000 ..... or as 1	: 4·16
Beech.....	11·500	:	50·000 ..... or as 1	: 4·34
Oak.....	10·000	:	50·000 ..... or as 1	: 5·00

Hence it appears that malleable iron plates are five times stronger than oak, or, in other words, their powers of resistance to a force applied to tear them asunder is as 5 to 1, making an iron plate ¼-inch thick equal to an oak plank 2¼ inches thick.

The results obtained from forty-seven experiments on double and single rivetting are here recorded :—

Cohesive strength of plates; breaking weight in lbs. per square-inch.	Strength of single-rivetted joints of equal section to the plates, taken through the line of the rivets, in lbs. per square inch.	Strength of double-rivetted joints of equal section to the plates, taken through the line of rivets, in lbs. per square inch.
57 724	45·743	52 352
61·579	36 606	48 821
58 322	43·141	58 286
50 983	43·515	54 594
51·130	40 249	53·879
49·281	44·715	53 879
43·805	37·161	
47·062		
Mean 52·486	41·590	53·635

The relative strengths will, therefore, be,—for the plate, 1,000 ; double-rivetted joint, 1,021 ; single-rivetted joint, 791 ; which shows that the single-rivetted joints have lost one-fifth of the actual strength of the plates, whilst the double-rivetted joints have retained their resisting powers unimpaired. These are convincing proofs of the superior value of the double-rivetted joints. . . . Having established correct data as respects the strengths of materials, either singly or in combination, we shall have less difficulty in their application to the construction of vessels exposed to severe strains, such as boilers, bridges, or an iron ship.

OBSERVATIONS ON TEACHING DRAWING,

ESPECIALLY TO CHILDREN AND UNEDUCATED BEGINNERS.

With whatever view we educate a beginner, and however high may be his future destination, we may be assured that refined lines, exquisite forms, perfect *chiaro scuro*, and harmoniously blended colouring, are not the commencement of art, and the beginner will not profit by mocking these. The beggar's appearance is nowise improved by an array of silken tatters; nor does the child become a warrior by getting a sword of lath and a wooden gun.

If it be desirable to educate the young human being into the adult comprehensive artist, all his faculties must be exercised, and, as a general rule, together : he must not be a thing of threads and patches. However correct and beautiful these are, chance will not jumble them into a harmonious, natural whole, fitted to act (as all high art should) on the entire being of the competent observer. This union is the most difficult thing of all, even under the most favourable circumstances, and it is the highest of all ; and by most who strive it is rarely attained. Does the French plan of devoting many years to the sole copying of the finest lines ever produced and the most accurate shadows in neutral colour create real artists? What they do belongs not to this world—it is lifeless, repulsive ; while the delay of colour to a late period of a life previously spent on black chalk and grey paper, destroys all feeling for colour. The colouring of many of these artists is disagreeable, and frequently disgusting. If an eye for colour be not got early in life, it will probably never be attained.

So also of the higher mental faculties connected with art, especially the invention or imagination. If these be disregarded until late in life, mere imitators, mere clever machines are the usual results. No beings are so imaginative and inventive as young children, and why should their faculties be smothered in unfathomable strata of mathematical diagrams? In our zeal for the hand we must not forget the head.

Let the understanding go first, above all things, and rule the hand and eye. By inverting this order, and allowing the hand and eye to take precedence, and rule over the higher powers, good mechanical draughtsmanship may be attained, but the most valuable purposes of drawing are lost sight of.

More than one instance has been observed of children unusually slow and incorrect in imitative drawing ; who have exhibited at least the average powers in exercises for the invention. Renewed exertion is likely to take the place of despondency on finding that they are not always below their fellows. Exclusive attention to single parts is apt to distort the mind by the very success attained in such partial operations. Hence many of the common mannerisms and tricks into which artists are so apt to settle down.

No one was ever a great artist who was not a great man : and yet we try to make great artists by preventing our pupils from becoming even little men. A human being is not an anatomical preparation, nor a thing of dry bones, be they bleached ever so whitely, nor a walking rule and compasses. It is a painful sight to witness youths set to copy from morning to night,—their general education neglected, and even their art-faculties of the higher kind uncared for. The true artist is made of other stuff. Universal powers are wanted for his high future calling. Like the young of every other kind, he tries his powers in every way, in mimic action certainly, but they all act, and act together rather than apart : thus, in time, all attain adult proportions. He copies, not for the sake of copying, but to show him how he may be a better original. Of himself he does what he can, and then copies to find out how he can do better ; but he never gives up working for himself. He makes lines, the best he can, and bad they are : in time he does better and better, for perfect lines betoken high art. He copies lines occasionally, and mathematical figures, not for their own sake, but because he has made such general advance as to feel his imperfections and to desire to remedy them. He wishes to learn all art, and not merely a few tricks of the hand ; to imitate nature with refinement and feeling, not to make a staring likeness of petty details. Hence his work is an endless variety of trials and experiments in all directions : outline, shade, colour, composition perpetually recur from beginning to end, but not as things apart ; and less as things in themselves than as the sensuous exponents of thought and emotion. Above all, he will not willingly do anything that he does not understand ; not through the vain belief that he has arrived at perfection, and that there is not much that is true and good and great that he will never reach ; or that there is not much hard work still before him to attain even a slender portion of these ; but because he is assured that if he once lose his firm footing on the earth he will be tripped up and tossed about in the ocean of distraction and error.

The admirers of the abstract method contend that bad habits must be guarded against, and none but good habits permitted and enforced from the beginning of the youngest pupil's instruction. There appears to be a fallacy here. If good habits only are permitted, nothing can be learned or executed. The novice must inevitably begin with bad habits : if he did not, he would not be a beginner, and would not require to be taught. He begins with bad habits, and goes on slowly and progressively improving them, until at last he acquires good habits, or habits as nearly good as are compatible with his own capacity and his master's skill. If he and his instructor

* See p. 332, *ante*.

expect good habits at once in any one point, they will be grievously disappointed. And if the master thinks that effectual tuition is not a slow transit from what is bad, through what is less and less bad, to what is positively good, —if he expects the distance to be cleared by a single leap,—he will be no less disappointed.

If there be any truth in these views, it will follow that the highest and most refined stages of form, light and shadow, and colour, are unfit for the beginner because they are unintelligible and inimitable in his crude state; and that comparatively clumsy objects of imitation prepared to meet him half way are far preferable. The child can understand the form of an article in daily use and will have some chance of imitating it, when a recondite and an exquisitely-formed Greek vase would be quite out of the question; and he may seize the points and character of one of George Morland's rude but natural and expressive husbandmen, though he would be bewildered before the Laocoon or the Apollo.

NOTES IN THE PROVINCES.

Over Darwen.—A new Independent chapel is about to be erected in this place from the designs of Mr. Raffles Brown, of Liverpool. It will be in the Early Decorated style, built of stone from the neighbouring quarries, and will consist of nave and transept, with vestries and organ-gallery in the rear. The roofs will be open-timbered of equilateral pitch, that of the nave having dormer windows. The west elevation will have a six-light window, with arcaded porch, and be crowned with a lofty crocketted and canopied bell turret rising to the height of 90 feet. The accommodation is for eleven hundred adults and three hundred children. The estimated cost is 3,000*l.* It is intended to erect schools adjoining. The present chapel, which is in close proximity to St. James's Episcopal chapel, reported as unsafe in our columns some weeks since, has been so undermined by the working of the neighbouring coal mines, that it has been found necessary entirely to close it. Many of the cottages and houses surrounding it are in a most precarious condition, but so infatuated are the inhabitants that it has been found impossible to induce a family to remove from a house showing frightful cracks and rents in the walls, and of which the hind part absolutely fell in a few weeks since.

Yarmouth.—The new bridge is progressing. The pile-driving of the coffer-dam is completed for the western pier. The washers and eye-bolts for the tie-rods have been put in, by means of a diving dress, 20 feet under water, and the first course of landings on the bed of concrete has been put down. The pumps and two steam engines will be ready shortly to pump the water out of the dam. The river has been widened 80 feet, and the abutments finished on each side. The girders and iron parts of the bridge are ready in London, and will be put up when the piers are finished.

Lincoln.—The local *Chronicle* states that gas is being introduced into private houses, and that the late reductions in price are likely to produce a greatly increased consumption.

Norwich.—A few weeks since, a new window, for the south aisle of the cathedral, was executed by Mrs. Wa'son, under the direction and design of Mr. J. Brown, of this city, architect. It is in memory of the late Mr. and Mrs. Hales, through the instructions of the Rev. Hales Tooke. The artist is Mr. W. W. Wailes, of Newcastle-on-Tyne.—*Norfolk Chronicle.*

Cottenham.—A small piece of copyhold ground in this village has been knocked down at auction for 232 guineas. It contains a frontage of 78½ feet, with a depth of 158 feet. The sum realised is rather more than 1,000*l.* per acre.

Horsepath (Oxford).—The corner stone of a new north transept to Horsepath Church was laid on Saturday week. The architect is Mr. E. G. Bruton (appointed to succeed the late Mr. Underwood), and the builder, Mr. Cowley.

Winchester.—It is intended to erect a full-length statue of Lady Mildmay in the broad space where three roads intersect, near the site of her former residence at Eastgate. It is to stand on a pedestal 6 feet in height, and is to be larger than life.——Some one has suggested the erection of a fountain in the Cathedral-close.——Improvements are to be made on the brow of St. Giles's-hill by the council.

Evesham.—Arrangements are being made between the town council and various turnpike trusts to erect a new bridge in the place of the present old and dilapidated one, at an estimated cost of 6,000*l.*

Aberystwith.—It is proposed to build a new Welsh church in this town; and sums are already subscribed. A piece of ground, part of the corporation property, is fixed upon; and the necessary steps were lately taken to advertise for tenders.

Swansea.—An estate called Danygraig, near Swansea, with about 100 acres of land, has just been purchased of the Earl of Jersey for the purpose of erecting a joint lunatic asylum for the counties of Glamorgan, Carmarthen, Pembroke, and Cardigan. Plans and specifications are to be advertised for forthwith.

Birmingham.—The local *Journal* states that indirect means are at work for the removal of the market-hall fountain.

Warwick.—"It will be recollected," says *Aris's Gazette*, "that a short time ago the inhabitants of Warwick assembled in vestry and decided on the thorough restoration of St. Mary's Church, in that town. At a meeting held on Tuesday last, however, it was decided that although the church should be restored, the galleries should not be removed. The restoration of the chancel is nearly completed. The groining is freed from plaster and whitewash, and the stonework resumes nearly its original appearance. The stone screen accidentally discovered to be imbedded in the sacristy wall has been cleansed and repaired, and the upper portion of it filled with stained glass by Mr. Holland, of Warwick. The former unsightly door leading into the chancel has been replaced by one in new oak.

Gaydon.—The foundation-stone of a new church, to replace the dilapidated old one, was laid at Gaydon, on Thursday week, by Miss Bolton King. Mr. E. B. King is a donor of 500*l.* to the building fund. The edifice will be in the Early English style, and will consist of nave, chancel, north aisle, and engaged tower, with spire, and will be built of stone. The architect is Mr. Squirhill, of Leamington.

Liverpool.—The interior of the parish church of St. Nicholas, Chapel-street, has been repaired and renovated with open pews, new pulpit, improved organ, new stained glass in circular window, &c.

Manchester.—The engineer employed by the Manchester corporation to construct the immense reservoirs in the valley of the Etherow, near to Woodhead (nineteen miles from Manchester), from which the town is to be principally supplied with water, is said to have met with a serious check by a landslip extending over nearly 30 acres of ground. These reservoirs are three in number, one below the other, in the same valley, and are formed on the principle of that at Holmfirth—by throwing embankments across at the most eligible points to dam up the water. The first is the Woodhead reservoir, calculated to contain 188,000,000 cubic feet of water, and covering 131 acres of ground. The next is the Tor-side reservoir, calculated to contain 240,000,000 cubic feet of water, and covering 158 acres. The third is the Rhodes Wood reservoir, calculated to contain nearly 80,000,000 cubic feet of water, and covering 54 acres. The corporation, it appears, have agreed with Mr. Stephenson and Mr. Brunel to make a survey and advise with Mr. Bateman as to any re-arrangement or modification of the works which may be necessary in consequence of the land-slips referred to.

Cudworth (Barnsley).—The foundation-stone of a new school was laid at Upper Cudworth, on Monday in last week. The design is Gothic: architects, Messrs. Lockwood and Mawson, of Bradford; builders, Messrs. Wilson and Son, of Hull, the contractors for the masonwork of the new workhouse at Barnsley. The school consists of a large room for school and chapel, and a class-room adjoining, both on the ground-floor.

Doncaster.—A committee has been appointed by the local board of health to carry out a project for a new cemetery.

Glasgow.—The Gorbals parish church, it seems, was built on ground supposed to have been purchased by the then heritors, but only feud, and arrears of feu having lately been demanded by the ground landlord and refused, the church was lately sold by auction for 2,860*l.* (upset price 2,700*l.*) to the Free Church people, after being bid for by the Unitarians.

Edinburgh.—Model dwellings for the working classes at the head of Canongate, named Ashley-buildings, are nearly ready for occupation. The entire block is divided into three tenements, each with a common stair and separate entrance. The two western are four stories in height, and the eastern five. Each floor or flat comprises three "houses" with outer doors opening on a common landing-place in the stair, and each domicile is "self-contained," and independent of every other; as much so as if it opened on a street pavement. The staircases are wide, open, and well lighted both by night and by day, gas supplying the place of daylight after dark. Each "house" consists of two rooms; or kitchen, and parlour or bed-room, with large windows, some of them commanding fine views of the Calton-hill and its monuments, &c. Each is fitted up with its own scullery, water-closet, washing-room, coal-press, &c.—and in short, is an Englishman's house in miniature, and is much more a fortified and impregnable "castle" than many thousands of Londoners' dwellings are. The rent charged for each dwelling amounts, in this case, it is said, to not more, on an average, than one penny per day for each member of a family. Nearly the whole were let before the roof was up. The contractors are Messrs. Beattie. Though the principle on which the model dwellings are based has long been adopted in Scotland, it must, of course, be understood that the Edinburgh working classes have seldom or never had such advantages as now offered on Lord Ashley's plan.

CHEPSTOW RAILWAY BRIDGE.
RAISING THE TUBE.

THE singular railway bridge over the Wye, at Chepstow, was partly raised on Thursday, the 8th. The bridge, when completed, will be in length, from bank to bank, 610 feet. It will be of four spans, three of about 100 feet each, and one of 290 feet. The three smaller spans rest upon iron piers, filled with concrete, supporting cast-iron girders, on which the railway will be constructed. The fourth or principal span will be constructed upon the suspension principle, the great length of the girders requiring more support than that afforded by the piers alone at each extremity. Mr. Brunel therefore constructed a tube 309 feet in length, and 9 feet in diameter, which is being raised to the summit of piers erected on the east bank, and in the centre of the river, and from which massive chains depend, which will be fastened to the girders, and will hold them up in the centre. The girders on which the railway will run will be 50 feet above high-water mark at spring-tides. The tube, therefore, it will be understood, is over only half the bridge. There will be a second tube by the side of it, for a second line of rails. The weight of the tube, with the chains, is about 240 tons. We understand that the great difficulty in the construction of this work, and which has caused the delay in its completion, has been in the erection of the upright pillars or piers supporting the structure. It should be explained that these piers are formed by three groups of pillars formed of iron cylinders placed one upon another to the required height, and filled with concrete made of Portland cement. Of these pillars six are grouped together in the centre of the river, and the two other groups of three piers each are between the centre of the river and the west bank. Of these three pillars only two are at present erected—sufficient to support one set of rails: the third will be

added when the other set of rails, the down line, is completed. The six principal piers in the centre of the river are strengthend by four other shorter auxiliary pillars, which are not visible at high water. The whole of these piers were sunk into the bed of the river through different strata until they rested upon the solid rock, 49 feet below the surface of its bed. It seems that the borings which had been made when the line was laid out led to the belief that the solid rock would be reached at a depth of 37 feet below the bed of the river, but when it came to the actual work it was found that the stone indicated at that depth was nothing more than loose "boulders," or masses of stone and rock—specimens of all the different lapidary strata of the district—cemented together with red clay, there being beneath these boulders several other strata of sand, &c. before the solid rock was arrived at.

The tube was supported on a massive timber framework at each end resting upon iron rollers lying across a railway; and powerful crabs were used for drawing and pushing the tube along the stage, which projects 160 feet into the river. At the end of the stage three pontoons, braced together, were lying in the river, and these received the east end of the tube, which was made fast to it; and as the tube was projected forward the pontoons were moved across the river, and kept in their direct course by cables attached to strong moorings both up and down the river, worked by other crabs upon the pontoons.

To raise it, three sets of chain-lifting tackle are employed, the lower parts of these chains being of 3-inch iron, each tested to bear a weight of 80 tons without injury. Suspension rods at these points pass through the diameter of the tube. These chains extend from a timber framing at the top of the east pier, 180 feet above the railway level, and are worked by three double crabs of great power, worked by twelve men to each. It is to be regretted that the appearance of the bridge is singularly ugly.

SIGHTS AND SCENERY.

The Royal Lyceum Theatre.—The dramatic story in *eight* acts, which has been produced by Mr. Charles Mathews, under the title of "A Chain of Events," and occupies the whole evening, is an entire departure from what has been the custom here at Easter. It is very exciting, exceedingly well acted, beautifully put upon the stage, and completely successful with the audience. Still we have no desire to see such "lengthened sweetness" universal, and hope its success may not lead to any adoption of the style, in which case we might expect, on the next occasion, to hear the facile and clever lessee announcing, with one of his neatest bows, "to-morrow night this play will be—*continued.*" Mr. Mathews has himself the principal part, and one exceedingly well adapted to him, but Madame Vestris, Mr. F. Matthews, Miss Keene, Mr. Roxby, and Miss St. George, have all excellent parts, and make the most of them. There are eight scenes, all excellent. The most striking is, "The Market of the Innocents, Paris," by moonlight, which is the place itself,—the sky capitally painted. But there is equal ability shown in some simple interiors: "Bonneau's House," and a "Room at Theresa's." A storm at sea is managed with a truthfulness which is almost appalling.

The Royal Princess's Theatre was opened on the 12th for the first time since Mr. Kean's recovery from his late serious indisposition, with the reproduction of the "Corsican Brothers," in which that gentleman sustained his original character, we were glad to see, with unimpaired vigour. The production of a new extravaganza from the pen of Mr. Tom Taylor, "Wittikind and his Brothers," has given employment to the artists, either scenic or otherwise, connected with this establishment, and of the opportunity they take good advantage. Whether we speak of the scenery—which speaks strongly of the master under whom Messrs. Lloyd and Gordon practised—or of the dresses, or of the general stage arrangement, our commendation may fairly be without qualification.

Royal Adelphi Theatre.—For a new romantic vaudeville, called *Mephistophiles*, successfully produced at this theatre on the 14th, an excellent set scene has been provided, most creditable to the artists. It represents an Italian ornamented garden with hedge-walls and terrace, and a view over the country, which includes a ruined bridge or aqueduct. The piece, although slight, gives Miss Woolgar an opportunity for the delineation of four distinct and contrasting characters, which this lady effects with most artist-like discrimination and skill.

Burford's Panorama of Salzburg.—Salzburg, in Austria, has all the materials for an interesting panorama, picturesque buildings of antiquity, a castle on a towering rock, a river, a varied and fertile plain, and a chain of mountains to surround and frame the picture. Out of these Mr. Burford, with his able assistant, Mr. Henry Selous, has produced a charming work, careful in detail and effective as a whole, and none of it more so than the little piece of suburb, Edmonsberg, immediately to the left on entering, where the long shadows on the grassy slopes, and the two or three simple tree-embosomed residences, are positively soothing to the mind, after Fleet-street and the Strand. St. Peter's Church is made to form a bold foreground object, and the castle, of course, occupies a prominent position. A lady who came in fresh from a dip into—the geographical dictionary, was delighted to find that Mozart's-square (the great composer was born in Salzburg, and has a statue) and the bridge over the Salzach, had not been forgotten, though the latter certainly does not look 400 feet long.

MIDDLE CLASS DWELLINGS.

A CORRESPONDENT asks us despairingly if the poor are to have *all* the "model" dwellings—"lodging houses" as they are commonly but incorrectly called. "Is there no plan or means of erecting large houses for married people of the middle classes?" he adds. We can only say, as we have frequently said, that not only are there plans of such houses—not quite "model" ones, to be sure—and means and ways of erecting them with every convenience, but that there are thousands of them in Edinburgh, and tens of thousands of them in Paris, already erected, and in fact for centuries inhabited. Houses that are planted side by side along a street pavement are not called "lodging-houses"—why should just such "houses" only planted one above another along a rising up-hill pavement of spacious day-lit steps, be degraded with a name which we do believe tends more than anything else to prejudice the minds of Londoners against such a compaction of "houses" so suitable to the occupation of the valuable spaces within their mighty city? The middle-class Londoner has an utterly erroneous notion of such "houses," and the model dwellings "for the poor," unfortunately, are not likely, excellent as they are in their sphere, to diminish his prejudice. In Paris, even the nobility inhabit such "houses," or "flats." The Londoner confounds them with floors in "lodging-houses," such as those of London itself—that mighty conglomeration of lodgers and of lodging-house keepers. They are no such thing. A middle-class Parisian or Edinburgher, accustomed to the *isolation*, the *independence*, ay, and the modest dignity of his up-hill "house" at home, finds it a nuisance of the most intolerable description to be obliged to *herd amongst* whole families of strangers, as he must do in London, unless his means enable him to occupy a tenement probably far too large for himself and family. And yet the middle-class Londoner erroneously and absurdly imagines that it is only in the London style that a man's "house" can be his "castle," and that though the middle-class dwelling of the Parisian or the Edinburgher may do very well for them, it does not suit his independent and dignified taste. Strange subversion of truth! The fact is precisely the reverse; and many a Frank and Scot, doubtless, heartily returns him the compliment by saying that the London higgledy-piggledy style of middle-class dwelling may do very well for a Londoner, but does not suit their more really dignified and independent taste. If any city in the world demands a thorough reform in this respect—a transfer from "lodging-house" to "house"—it is London. Its vast dimensions, the value of its building sites, its commerce, trade, and manufactures, all demand it; and the time has now arrived when the expansion and growth of this leviathan must be *upward* in place of *outward*—when "houses" must be reared above each other, with all their paraphernalia of pavements, landings, outer doors and inner, lobbies, kitchens, and closets, instead of straggling miles on miles farther and farther away from the centre.

BELFAST.

THE rapid increase of the sewed muslin trade bids fair to give a palatial character to the street architecture of Belfast, in consequence of the size and elegance of the new stores and warehouses connected with that business. In one new street alone there are recently completed two large stone-faced buildings. The larger, a muslin warehouse, is of three stories above the basement in height, in the Italian style, with a range of thirteen windows in the principal front, those of the top story arched; the whole crowned with a console cornice, on which the eaves of the roof rest. The two lower stories are rusticated, and the architrave of the door, which is in the middle of the principal front, supports a balcony to the window above, forming a pleasing feature in a design otherwise without pretension. The builder is Mr. Byrne.

The new Protestant church to be erected under the bequest of the late Mr. Hamilton, will shortly be put in hand. The design was offered in competition, Mr. McNeil being the successful competitor; but some misunderstanding seems to have arisen between the trustees under the will and the committee appointed to superintend the building of the church.

A new town-hall is proposed, a large model of which was for some time exhibited in the council-chamber of the present town-hall. It is in the Corinthian style; and at a first glance reminds the observer of the National Gallery—a central portico forming the grand entrance, right and left of which are loggia; and at the northern end is a circular porch or portico, similar to those attached to the transept of St. Paul's Cathedral. Mr. Hastings, town-surveyor, is the architect. The intended site is on the west bank of the Lagan, above Queen's-bridge.

The Harbour Corporation are about to erect new offices. The design selected is in the Italian style, having a campanile 80 feet high, intended to contain a public clock. The principal front will be 102 feet long, and will face the river, the site chosen being on the quay. The foundations of the new Presbyterian College are being prepared. The design, by Mr. Lanyon, is in the Roman-Doric style, the first being divided into three nearly equal parts, the centre having attached columns, with an entablature breaking over them, and an attic above. The students will attend the classes of Queen's College for the secular portion of their education, the new college being for the purpose of supplying a theological faculty in accordance with the doctrines of the Presbyterian church. A new school in connection with the Magdalene Asylum Church is also commenced: Mr. Lanyon supplies the designs. The school of Design in this town progresses satisfactorily according to our correspondent. The local committee are making great exertions to erect a gallery for casts and statues at the rear of the school. Subscriptions to a considerable amount have been already promised.

The second annual Exhibition of Modern Paintings is now open, and the numbers who avail themselves of the opportunity of admiring the productions of some of our first-rate artists are a gratifying proof of the increasing love of art now becoming developed so generally throughout the Kingdom.

Lord Belfast has just concluded a course of

lectures on the "Poets of Great Britain and Ireland," delivered at the Music Hall, in aid of the library of the Working Classes' Association.

The scientific world of Belfast are preparing themselves for the approaching meeting of the British Association. The loss of Mr. Wm. Thompson, the eminent naturalist, a native of and resident in the town, will be most severely felt upon the occasion. It is proposed to erect a memorial to him, in the form of an additional room in the Belfast Museum, to which institution he has bequeathed his collection, to be called the Thompson Gallery. Subscriptions are bountifully flowing in.

VALUATION OF DILAPIDATION.

HOLBROOKE *v.* PIGGOTT.

This action was brought at the Wandsworth County Court to recover 50*l.* on contract for dilapidations of a house leased to defendant. The chief feature was the wide estimates of the surveyors; plaintiff's surveyor estimating the damages at 62*l.* 2s. whilst defendant's surveyor cut it down to 5*l.* 19s. 6d. Evidence having been given as to the covenant which bound defendant to keep Holbrooke House, Richmond, in proper repair, and to deliver it up in the same condition as when entered upon, Plaintiff's counsel called Mr. J. W. Ellis. Witness said he was a surveyor, residing at Richmond. Had had much practice in the office of Messrs. Musgrove and Gadsden. Was instructed to make a specification of the dilapidations of Holbrooke House. His estimate was 62*l.* 2s. Is acquainted with leases and dilapidation clauses.

Cross-examined.—Messrs. Musgrove and Gadsden are general surveyors, and whilst with them went through many specifications. Am not properly entered into business on my own account. It is common in dilapidations to specify minutely. Observed a clause in the counterpart of the lease binding the tenant to paint the house externally every three years. For the external painting he allowed 15*l.* Saw Mr. Piggott upon this, and told him if he could satisfy me the house had been externally painted a deduction might be made; but it was apparent a portion only had been done. The roof was in a bad state; and being informed there was, some years since, an iron railing in front of the house, I allowed for that. I found some ivy growing over the walls, and as ivy harbours wet and damp, and causes premature decay, besides making houses uncomfortable, I charged for its removal.

Mr. Swift said the case rested upon the sole evidence of Mr. Ellis, who admits that he has not been in practice for himself, and all his experience in surveying was obtained in his articleship to a firm more in the light of house agents than surveyors: indeed he would be bound Messrs. Musgrove and Gadsden could not measure a rod of brickwork. He should be able to prove that so good a state was the house in, that Mr. Holbrooke offered to renew the lease upon advanced terms. After some remarks, Mr. Swift called Mr. Richard Brewer, who said, I am a surveyor at Richmond. I could not make dilapidations more than 5*l.* 19s. 6d. in all. Have not allowed anything for the door, because I consider it so great an improvement; but if it were put in its former place 2s. would pay for it. Never took, as Mr. Ellis has, sweeping chimnies for dilapidations in my life. Should think the external walls had been painted within three years, but it is difficult to say.

Cross-examined: Drew the plans for the new sessions-house. Am parish and road surveyor. Also contract to build houses myself. Made calculations irrespective of parties, and to the best of my experience and judgment.

Mr. Piggott said he was a valuer, and accompanied the last witness over the house. The damage he estimated amounted to 6*l.* 1s. 6d. Had taken the house of his father. The boundary wall belonged to the adjoining house. In 1849 his father paid 13*l.* 14s. for painting the house externally. The lease expired in June 1851. In all 124*l.* had been lately expended in improving and repairing the house, and considered it in such a good state of repair that it is impossible to find any fair dilapidations.

The Judge.—It appears to me (without for one moment asserting that either of the witnesses are actuated by motives to make their estimates high or low to suit their friends) that surveyors are as bad as advocates,—they will not see: they enlist themselves, and adopt the feelings of those who employ them. Years ago I presided at a Petty Sessions, where the question of being over-rated or low-rated was constantly before me. The parochial surveyors made their valuations as high as they could, and the appellant's surveyor's is, perhaps, as much too low as the other's is too high. I often wished surveyors would not have acted so unconscientiously. With regard to this case, it is quite out of the question I can decide to my own satisfaction or the public's. It is a pity the case had not been settled by arbitration, or I had the assistance of the jury. However, as it is my duty to give a verdict one way or the other, without any scale to go by, taking all discrepancies into consideration, I must give a verdict for the plaintiff; damages reduced to 20*l.* and costs.

THE USE OF GAS AS FUEL.

THE ATMOPYRE AND POLYTECHNIC FIRE.

I SINCERELY thank you for the independent notice, taken in a recent number of your paper, of my little contrivance, the "Atmopyre," and for the clear and effective explanation you have given of the plagiarism of it, now paraded under the title of "The British Polytechnic Fire," and perpetrated under circumstances incredibly shabby.

As you are interested in the efforts now making to introduce gaseous bodies having an affinity for oxygen, as substitutes for common fuel, may I trouble you with a few facts acquired during my experience of the last three years?

1st. I do not claim any credit for scientific profundity: my invention is merely a "happy thought," which may be improved, and subserve many useful purposes. When first the idea occurred to me of converting the gas-burner into an artificial cinder, or reservoir of heat, I tried a great variety of materials—iron, brass, copper, platinum, and clay, mixed with metallic oxides, or pounded porcelain and glass, or plaster of Paris, and other substances, in different proportions. The majority of these bodies were rejected, for sufficient reasons, after a long series of experiments, and the exact mixture of argillaceous materials which is described in my specifications was adopted.

Your suggestion of employing the enamelled iron, as a material for the "tongues of fire," occurred also to Mr. Baily, but it was found impracticable to preserve free the holes for the transmission of the gas.

In taking out the patent, I could have secured the exclusive right of making the artificial embers, or "hoods," of *any material*, but, under the advice of Professor Cowper and my patent agent, I merely guarded the argillaceous material. Had I taken a wider protection, it would have saved Messrs. Bachhoffner and Defries, and a few others, some expense and disappointment in the vain attempt to produce equal effects with the rejected substances.

More than two years' experience of the "hoods" at very high temperature has shown their perfect indestructibility. So well known is this property, that a gentleman in the Potteries, not aware that I had used these "burners," both for lighting and heating, has incurred the expense of a patent for making "argands," "fish-tails," and other known forms of gas-burners, of this identical material.

Each of the burners at present used is a small cylinder, of which the surface measures 5 square inches: it is perforated at equal distances with ninety holes, each the fiftieth part of an inch in diameter. By this arrangement, the flame, or "incandescent cone," is literally stretched out like an elastic body, and consequently the points of contact between the air and the gaseous fuel are multiplied, and the blue flame, affording evidence of perfect combustion and intense heat, is produced. If, however, the superficial burning surface were simply a horizontal plane, the supply of air would be insufficient to maintain so vivid a fire.

2. The fuel which I have commonly employed, and that only which can be practically relied upon, is the common carburetted hydrogen, or coal gas; but if the apertures in the "hoods" be made smaller, hydrogen gas may be burnt, and made to produce a brilliant semblance of a coal fire. Price is, however, here an insurmountable obstacle, as this fluid cannot be produced at a cost sufficiently cheap to be used generally, even for light.

M. Gillard, late secretary to M. Guizot, has patented an ingenious method of generating hydrogen by the decomposition of steam in its passage over red-hot charcoal; but, notwithstanding the most persevering canvass, and the possession of undoubted merit, he did not succeed in inducing capitalists to take up his scheme. He proposed to supply his gas to the public at the rate of 2s. the 1000 cubic feet, but the quantity required to be consumed in order to make his beautiful cylinder of filligree platinum sufficiently incandescent to give light, made it much more expensive than the common coal gas. The light was most beautiful, and almost as pure as that of the sun, but this merit could not prevail against its defective economy.

Dr. Dalton compiled a valuable table of the comparative heat-generating properties of fuels, estimated by weight. The relative power of hydrogen is represented by the figures 24,000, and that of coal gas by 6,300; but as the specific gravity of the latter is ten times as great as that of the former, it would require nearly three volumes of hydrogen to produce the same effect as the volume of coal gas.

I have been greatly interested in the application of hydrogen as fuel. This result can only be produced by the use of argillaceous burners as solid intermedia. Could the decomposition of water, by the use of zinc and sulphuric acid, be made a step in the process of manufacturing zinc paint, hydrogen could be supplied to the public at a moderate rate; and I have faith that this great boon will be secured before long, though certainly not by means of the Polytechnic process.

3. As gas of whatever kind must always be, when compared with coals, an expensive fuel, the idea of heating apartments by simple radiation from surfaces heated with gas, and arranged like our present open grates, is a perfect delusion. By such arrangements *ninety per cent.* of the heat is lost. The desired effect can only be realised by the joint effect of radiation and convexion. The fire must be carefully included in proper media, and every ray of caloric appropriated as far as possible by introducing currents of pure air in contact with the heated sides of the stoves.

To procure a substance fitted to secure all the effects desired by the use of these vessels has proved a real labour. No known substance had the property of resisting the necessary variability of temperature without contaminating the purity of the air. This desideratum has, however, been found in an argillaceous mixture, which will bear to be heated to redness, and against which currents of air impinging in great quantity, but only for a moment, become warmed to bloodheat, and afterwards circulate in apartments without losing any of their virgin qualities. In fact, Mr. Copeland's beautiful porcelain stoves are now in successful operation in bed-rooms and other apartments having proper flues.

4. The application of the atmopyric stoves in small collateral rooms without flues has been a matter of difficulty, owing to the disinclination of the products of combustion to ascend in cold metallic tubes; but Mr. Henry Baily, by a philosophic contrivance, has succeeded in securing the escape of the vapour under all circumstances.

5. The main advantage belonging to the atmopyric principle is the solid medium it affords for the accumulation of heat; the sides of the "hoods" being made of any thickness, and heaps of fictile fragments placed in juxtaposition. Hence a mass of solid fire is produced, which possesses a sharpness indispensable in many culinary operations; and that may be made to *cumulate* to an intensity sufficient to smelt the precious metals.

This is an effect which it is obvious thin leaves of platinum can never produce.

6. The atmopyre is now applied to the generation of steam: a foot of gas will evaporate a pound of water. Consequently, sixty feet of gas consumed will equal a horse power. The expense is absolutely greater than that of coal, but when the collateral saving of labour is considered, the great levity of the gas, and its elasticity which enables it to be compressed into one-fortieth part of its bulk, its eligibility for small stationary engines, for locomotives, and small low pressure boats, is not "the mere baseless fabric of a vision."

7. Although a long time must elapse before our coal fires can be superseded as the general source of heat in our sitting-rooms, I do not doubt that for occasional fires in bed-rooms, libraries, offices, &c. gas will come into immediate use. D. O. EDWARDS.

THE HISTORY OF TOOLS.

PROFESSOR WILLIS'S lecture at the Society of Arts, Jan. 28 last, has brought to light several errors in my statements inserted in *The Builder*, of 23rd March, 1850, as respecting the block machinery at Portsmouth. Those errors arose from my having confined myself to official documents, instead of having consulted also General Bentham's patents, and from a determination to give the late Sir Isambard Brunel the credit of every part of that machinery which the documents before me did not prove to have been the inventions of others. I now subjoin corrections of my former paper, trusting that you will kindly give them place in some early number of your valuable publication.

First, as to the circular saw. I had given the invention of this useful tool to the Messrs. Taylor. Professor Willis says, "Where, or by whom, the woodcutters' saw was put into the form of a rotating disk has not been recorded." This point may be considered as having been cleared up by Mr. George Smart in the year 1813, but in evidence that is little known of. It was before arbitrators appointed in conformity to an Act of Parliament, 20th April, 1812. Mr. Smart deposed to these arbitrators as follows:—"He conceived he had the first circular saw that was made from a Mr. Mainwaring, from whom he purchased it about thirty-four years ago." (About the year 1779.) Mr. Smart added that he never used the circular saw till he heard of its improvements by General Bentham. Some of these improvements were particularised in the above-mentioned number of *The Builder*.

As to the first operations, those of cutting out the wood from the rough logs, and further preparing it of proper scantlings and lengths for the shells of blocks, it was already stated in my former communication, that they were all performed by machines of Bentham's invention.

Article 2 of my paper stated that Mr. Brunel had probably made some alterations in Bentham's boring-machine to suit it particularly to the boring of block-shells; but Professor Willis pointed out that "the same specification (that of Bentham's patent, 1793) describes boring-machines, some of which are similar in their arrangements to those of the block series." Thus it appears that Brunel did no more than select that engine of Bentham's which was the most suitable for boring block-shells.

Article 3,—to Mortise.—Professor Willis says, in regard to the machine for performing this operation, "Thus the self-acting mortising-machine is distinctly described in Bentham's specification of 1793, so completely as to entitle him to full credit for the invention of mortising-machines, whether by the process of boring a hole first, and then elongating it by a chisel travelling up and down vertically, or by the process of causing the hole to be elongated by the rotation of the boring bit during the travelling of the work."

Article 4,—cutting off Corners.—Has already stated this engine to have been Bentham's.

Article 5,—to Shape.—In the former communication credit was given to Brunel for the invention of the machine which performs this operation, and it was spoken of as being "amongst the most important of his contrivances;" but Professor Willis, in addition to his other observations on Bentham's patent, adds that it specifies "also the tubular gauge which is employed in the shaping-machine."

Articles 2 and 3, under the head of—Shieves, to bore and round, and to prepare for work.—The Professor, in addition to other observations on the tubular gauge of Bentham, says it is employed for "the formation of recesses by a revolving and travelling tool for the embedding of the works." The crown saw is distinctly specified in Bentham's patent, for he says of the tubular gauge, "It may be necessary that the stem should be an entire tube," and that "instead of a cutter or cutters, the end of the tube itself may be cut into teeth like a saw." Thus it is evident that the machines were of Bentham's invention, by which were performed the second and third operations in making sheaves.

Without entering further into particulars, it may be said that the modes of operating in drilling for rivets and broaching for pins, may also be found in Bentham's specifications. These specifications were given in full in the "Repertory," vols. 5 and 10, and may be worth the study of persons having in view the application of machinery to the working not only of wood, but also metals and materials of all kinds that are neither plastic nor fusible, nor requiring to be further wrought after having been moulded or cast.

Professor Willis assigns to Brunel "the merit of completing and organising a system of machine-tools so connected in series that each in turn should take up the work from a previous one, and carry it on another step towards completion." The Professor could not have been aware that the arrangement of the block-machinery was as to that sequence also Bentham's, for it is only in long-forgotten official documents that this was from the first provided for. When Bentham, in his official letter to the Secretary of the Admiralty, 15th April, 1802, recommended the adoption of Mr. Brunel's proposal for making the shells of blocks by machinery, Bentham advised it as to be "a *part* of the system of machinery to be worked by the steam-engine already provided in Portsmouth dockyard," and that "Mr. Brunel should be directed to *concert with the machinist in my office* respecting the best mode of fitting up the different engines and apparatus which may appear requisite for the manufacture of the different sorts and sizes of blocks, so that this apparatus should combine with the other machinery already provided, or which it may seem advisable to erect in that dockyard." Admiralty orders were given in conformity to that recommendation; and it was under Bentham's direction and superintendence that the details of the arrangement of the block-machinery were contrived, either at his office in town or at Portsmouth, and in conformity to his determination as officially stated, "that the block-machinery should be placed to the best advantage in point of appearance as well as use."

M. S. B.

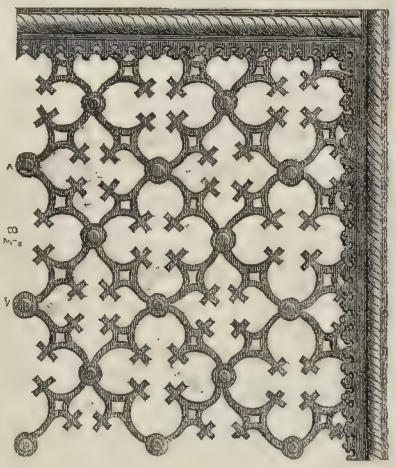
FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

M. Landry's Ville Modèle, and other recent Architectural Plans at Paris.—This architect is not content with the plans of new palaces, temples, and theatres, or a new system of architecture; he attempts the systematization of whole towns—*villes modèle*. According to M. Landry, the present towns are but the effect of chance—*villes hasards*; first formed by the fortuitous grouping of some huts on a river bank, successively extended and enlarged according to some other equally fortuitous and arbitrary accident or whim of circumstances. Unfortunately, these monitors have never been thought of being improved and systematised, but until they have acquired their perfect growth. What expense and pains are thus required for opening across these masses of construction, soldered to each other, some new passage and line of street, converting our cities for some more or less time into a heap of ruins? To what exorbitant sum (concludes M. Landry) will not the mere *alignement* of the city of Paris come, if it be ever accomplished? And why should man not employ his *logic* in the formation of new towns, on those many fine spaces where they are now erecting? Why should the same synthesis of thought not be applied to the ulterior development of villages, likely to become townships, and townships which will very likely once become great towns. Mankind, which has so long lived *at hazard*, feels now the necessity of applying reason and system towards the regularisation of its vast *domaine*, and to economise its forms and power, hitherto so egregiously squandered away. Under this point of view, also, the architectural fixation of the *town-idea* is most desirable. "A logically erected town would be by far cheaper than one built on the principle of ancient error." The programme of M. Landry comprises air and sun for all, sights, hygieistic regulations, highest value of land, with a minimum distance, &c. Whether this new system should be based on the figure of the triangle or the square, is a question of difficult solution. Besides these studies and plans of M. Landry, M. Constant Dupin, who had won the first architectural prize for Rome, has made the plan of a *hôtel des invalides civiles*, to be constructed on the site of the ancient park of Montrouge. Messrs. Godebœuf and Gallard have treated the same ideas relative to a house of retreat for the invalids and old of the industrial classes. M. Jumelin has made the plan for a granary, to preserve grain for an indefinite time by appropriating to our climate the system of *silos*.

The Raphael and Michelangelo Designs of the Town-Museum of Lille.—It was a fortunate occurrence for the above establishment, that the painter, M. Wicar, one of the members of the Art-Commission sent by the Emperor Napoleon to Italy, was a native of Lille. At his demise, he bequeathed to that city, what may be called rather a museum than a collection of original designs, collected by him in that country. This set of drawings contains 1,200 specimens, viz.: 86 Raphaels, 197 Michelangelos, 6 Andrea del Sarto, 9 Bandinellis, 1 Jean Bellini, 8 Annibal Carracis, 2 Corregios, 17 Carlo Dolcis, 10 Fra Bartolomeos, 15 Francias, 6 Guercinos, 8 Guido Renis, 5 Ghirlandaios, 3 Julio Romanos, 5 Leonardo da Vincis, 13 Masaccios, 1 Pahma Vechio, 5 Parmesanos, 1 Paul Veronese, 1 Perugino, 6 Poussins, 2 Tintorettos, 8 Titians, 2 Albert Durers, 3 Lucas de Leydens, 1 Rembrandt &c.—a collection unmatched, as the circumstances under which it was made will not occur again. Amongst the finest of the fine are the first pen and ink sketches of the Madonna della Sedia, by Raphael, as well as the Madonnas della Casa d'Alba, and de la Perla; the sketches for the frescos, the School of Athens, the Parnasse and the Zodiac. We find of the same master the original sketch of the St. Nicola di Tolentino, a picture which was subsequently made by Raphael for the Augustine Church of Civita di Castello. Most interesting is another sketch on a sheet of paper, on the rear of which is an autograph letter addressed by Raphael to his friend Dominico Paris Alfari, a painter of Peruggia, and in which he requests him to execute it on canvass. Astounding is a collection of 200 leaves from the architectural *cahiers* of Michelangelo; further, a drawing of the cupola of St. Peter's of Rome, a sketch of the Prometheus, and the sketches for his "Last Judgment." Other great curiosities of this collection are a first sketch of the picture, "La Continence de Scipion," by Julio Romano, showing the figures in their naked position, which were subsequently covered with drapery. Of Leonardo da Vinci are some studies in pen and ink and watercolour, of an extreme fineness and delicacy of touch. The most extraordinary, however, because unique specimen of the collection Wicar at Lille, is the bust of a young woman, modelled in wax and coloured. Its appearance is described as bewitching and surprising, and thence and from the rich sources which M. W. seems to have possessed, it has been generally ascribed to Raphael—as only he has portrayed figures intermediate between earth and heaven, the woman and the angel. It is further conjectured, that as the Romans, in the times of the emperors, were in the habit of exhibiting in the vestibule of their palaces during their festivals wax busts of their ancestors, so Raphael might have thought of imitating this custom in modelling the head of this Roman patrician of his time.

A NEW BRIDGE is to be built at Tallanstown, in the Glyde drainage district, by the Commissioners of Public Works

IRON SCREEN, PERUGIA.



IRONWORK, COLOGNE.



IRON SCREEN, PERUGIA.

The portion of an iron screen which we have thought worth engraving forms part of the inclosure of one of the chapels in the cathedral at Perugia. This building dates from the end of the fifteenth century; and the parts of the interior that have not been modernized present a bold example of Italian Gothic. The chapel which this screen encloses appears to be of a date not much later than that of the building itself, and has escaped alteration.

C. F.

IRONWORK, COLOGNE.

The annexed is a sketch of a piece of ironwork (one-fourth real size) I found upon an old door preserved in the model-room of the workshops of Cologne Cathedral, which, although imperfect, is a good specimen of workmanship, and may interest some of your numerous readers.

R.

Artificial Stone and Glass.—Mr. W. Hodge, of St. Austell, has patented the application of hornstone porphyry, otherwise called elvan or freestone, to the manufacture of glass, china, porcelain, earthenware, and artificial stone.

MODERATION IN CRITICISM.

I cannot help testifying to you my thorough concordance with your views dropped in the note to "Fid. Def.'s" answerer. If it had been a question about the reconstructing of Westminster-bridge, or the building of some great edifice, there could not have been more spleen and ill-nature unbottled than there has been between your two touchy correspondents. What strange creatures we architects must have become lately. A man cannot even express his own ideas about a subject (and that subject so humble a one as a guide-book), without doing it in such a manner as if he expected a tiger to answer his remarks. And lo! there *is* a tiger to be found to take up the case, to put on the disagreeable, the unkind, the uncharitable, to call names, and get angry, and to deal out to a fellow-creature every thing he can call to his mind that is satirical and ungentlemanly. Is it to be said, then, that we are totally callous to all milder modes of correction, but that of the bullying caste, or are we totally innocent of any knowledge of *the very bond of peace*. Is there no mode of expressing sentiments on any topic but that which calls forth the reproaches of satirical minds? I rather suspect, sir, that your correspondents aim at *criticism*. If so, I would give them this short hint,—That criticism does not consist in pulling people to pieces in a narrow-minded manner for the sake merely of being contrary. *True* criticism is a noble feeling—a noble desire. It corrects with circumspection, it acknowledges the grand and the beautiful, and if faults should appear (and they ever will do so), I say it remonstrates with charity, and points out the *true* path. There is nothing noble, nothing handsome, in that underhand kind of bullying us out of our faults, which, if it *should* call forth a "second edition," is ten times more violent than the former; thus doing no good, and only spreading dissentient feelings and animosity amongst its participators.

C. R.

PRESERVATION OF OUR ANCIENT MONUMENTS.

As to the restoration of monuments, I would mention two circumstances, to show how ineffectual all such endeavours would be until we have the arts (mechanical), forming the basis of education of all in this manufacturing nation, and the arts (ideal) upon that, operating in the middle and higher classes of society.

While obtaining a knowledge of costume for painting, and with that object devoting my study to antiquities, I made a drawing of the tomb of Bishop Stafford, in Exeter Cathedral, published in Lysons' "Magna Britannia," under "Devonshire," which tomb was beautifully executed in alabaster. That was in 1821, since which the canopy surmounting the effigy—an exquisite specimen of Gothic work of the period—had been, at considerable expense, *restored*; but when I saw it, in 1849, *it had been again maliciously* as much injured as before.

The effigies of Henry II. and his Queen, Richard I. and his Queen, and the wife of King John, Isabelle de Angoulême, I have long wished to see deposited in Westminster Abbey, since my late brother discovered and released them from imminent peril, at Fontevrond, in Normandy. He, during his life, made an effort to obtain them for the nation, but a diplomatic channel was not the mode to effect that object. It must be gained through a private and friendly channel.

When we see, as in Earl's Colne, Essex, the monuments taken from the church by the rector, and given to his brother, the doctor, and by him distributed about his premises (a modern residence, called, or mistakenly so, the Priory), and these the effigies of the Earls of Essex, it is evident that the true feeling (without the arts participating in the construction of mind to produce their relish for antiquity) is a mere love of £. s. d.

Robert T. Stothard.

A Probable Cause of Boiler Explosions.—M. Boutigny d'Evreux delivered a lecture lately, at the Royal Institution, on the spheroidal condition assumed by fluids on the application of a certain amount of heat. In addition to the numerous experiments with which this subject is usually illustrated, M. Boutigny showed a probable cause of explosions of steam-engine boilers. Taking a silver bottle or flask with a wide mouth, he heated it glowing hot, and whilst in this condition threw into it a few drops of water, which, immediately assuming the spheroidal condition, remained at an appreciable distance from the sides of the vessel, and, therefore, could not become heated. Whilst in this condition M. Boutigny corked the flask, and removed the source of heat, when the silver vessel gradually cooling, the water came to some extent in contact with it, burst into steam, and forced out the cork with a loud explosion. With regard to the cause operating to prevent contact between liquids and heated solids, M. Boutigny believes it to be due to the *repulsive* force of heat itself.

Kennington Common.—A Bill lately published is to empower the Commissioners of Works and Public Buildings to enclose and lay out Kennington Common as pleasure-grounds for the recreation of the public.



WHITE'S CLUB-HOUSE, ST. JAMES'S-STREET, AS ALTERED *

Mr. LOCKYER, Architect.

LONDON BRIDGES.

Old London-bridge was the only bridge across the Thames in London for a period extending to nearly six centuries, being commenced about the year 1176, under the superintendence of Peter of Colechurch. Westminster, which was the next, was commenced in 1739.

After the opening of Westminster-bridge, an Act of Parliament was obtained to remove the houses (which were of wood, and frequently taking fire), erected upon London-bridge, and which was also widened and improved; nevertheless, it was perpetually requiring repairs. Still, from the attachment and antiquarian veneration which old eventful associations had created, it remained till 1831, and now there is scarcely a landmark left by which the position where it stood is indicated. The present structure was commenced under the late Mr. Rennie, assisted by Sir J. Rennie, in 1824, and opened in 1831, with great pomp and ceremony, by the late King William IV.

As to Southwark, Blackfriars, and Waterloo bridges;—the first, a fine structure of cast-iron, was also erected under Mr. Rennie,—commenced in 1815, was opened in 1819. The second, of Portland-stone, was begun in 1760 and finished about 1770, under Mr. Mylne; and the third, a noble structure of Cornish granite, was commenced under Rennie in 1811, and finished in 1817. This bridge affords as fine a promenade of the kind as can be had in the heart of London; the pedestrian is able to walk free from the inconveniences attending thronged thoroughfares, and enjoy the fine perspective view of London, which, by the sharp turn of river, here meets the eye.

The noble river front of Somerset-house is close by the bridge: the dome of St. Paul's does not appear so vast as from Blackfriars-bridge, but the distance, which somewhat diminishes the idea of the size, "lends enchantment to the view." It is pleasant, on the close of a sultry day, to escape to Waterloo-bridge from the heated pavement of Fleet-street and the Strand: it is then that the nervous or impatient man, panting for a breath of air, and who fancies that the very noise of the streets aggravates all his uncomfortable sensations, will doubly enjoy the breeze that ripples the surface of the river, and likewise in marking how the setting sun touches both dome, tower, and pinnacle with its varied hues. Here, too, will be felt in the calm of a summer morning the force of Wordsworth's exquisite lines:—

"Earth has not any thing to show more fair:
Dull would he be of soul who could pass by
A sight so touching in its majesty:
This city now doth like a garment wear
The beauty of the morning; silent, bare,
Ships, towers, domes, theatres, and temples lie
Open unto the fields and to the sky."

G. J. R.

* See p. 241.

THE HANGING OF CHURCH BELLS.

My attention has just been called to an article on "Church Bell Hanging and Ringing," in No. 472, p. 124, of your interesting periodical. Without wishing in any unkind spirit to detract from the merit of what is there brought forward, I would beg leave to observe, that in the description of the parts of the hanging of a bell, one most important portion of the gear has been omitted, namely, the FILLET, or point where the rope is, as it were, fastened to the wheel. Without attention to that no bell can be rung; by *it*, the ringer is enabled to set the bell *at hand* and back—or fore stroke and back stroke.

The fillet is generally fixed about 60° below the top of the wheel (I have met with some not lower than 30°, and some even at 90°). It is also called the roller, and is fixed by a nut and pin passing through it between the sides or *shrouding* of the wheel, right across the groove. Under this, the rope passes, being tied to the upper part of the wheel, and the effect is to make *that* the FIXED point of the rope, and in ringing, the rope there doubles quite back at every fore stroke, and it is *there* where a rope first gives way. Sometimes the same effect is produced by a hole made in the sole of the wheel, through which the rope is passed, and fastened to the upright arms, and in this way, perhaps, the rope will last a little longer.

This *fixed point* for the rope was introduced with the *whole* wheel; for in the half-wheel the rope is fastened and fixed at the top; and so the ringer is not able to catch the rope up into a loop at the sally, but the rope as it comes down during the revolution of the bell, runs along on the ringing floor, being held only at the end; and so the ringer, having no other power over it, cannot set the bell each way, and, consequently, no peal of changes could be rung with the half wheel.

It is a great desideratum in campanalogical history to ascertain when and by whom the present beautifully framed whole wheel was introduced. The half wheel may still be met with in retired villages, and is still very common in Dorsetshire.

Your writer "Campanalogia," in describing the mode of ringing, says, that after a certain time, and the bell is put in motion, the "end of the rope is a little above his head;" but he says nothing how the ringer must *then* with one hand *catch* the sally, and then apply his strength, gently at first, but increasingly with each pull,—and at the next moment his two hands must be shifted to the end of the rope, —and so, by and by, when the bell is about stock level, he must catch the sally with both hands, and so, *toties quoties*, continue to pull as the bell is swung round,—pulling at every revolution the bell makes; at one time having hold of the rope at the end, both hands being raised above his head; and the next pull, when the rope comes down, and he catches it at the sally in a loop at the level of his face. All this cannot but appear difficult to understand from any written explanation, though it is quite simple in operation.

"Campanalogia" lays great stress on the *stay* and *slide*. Though appendages to the gear, they are not at all *necessary*, being added merely for easement and safety. There are many peals in stingy parishes without them. I have myself often rung in a peal of eight, where there was not a bell that had a stay, and the ringer is easily enabled to set his bell by that sleight of hand which practice alone can produce. There is another mode for effecting the same purpose as the stay, viz. an iron catch, projecting only a few inches above the stock, and which strikes every time against a projecting slide in the frame. This may be seen in the clumsy bell-wheel and gear figured in No. 58 of Parish Choir, page 145, from a bell at Wimborne, which is said to have been selected as a good specimen, though the bell has all its cannons broken off!

A few words more, if you please, about chiming. "Campanalogia," seems to imply that in chiming, the clapper strikes first one side of a bell, and then the other side; but that is not so. In chiming the clapper strikes only on *one* side, and it does so in this way:—The bell is pulled down till the clapper strikes the side, and rebounds; but if the bell is held down, by a very slight pull the clapper strikes again and rebounds, and so it may be continued. And by thus holding the bell tight down, a very slight motion is sufficient for the purpose. Sometimes the chimer, to ease himself, will tie the rope down to a ring in the floor, so as to keep the side of the bell within an inch or two of the clapper, which answers the same as holding it down, and is a great relief to the arms.

I beg to annex sketches of bell wheels, which I made many years ago, which may serve to make my bell dodges more intelligible.

H. T. E.

PEEL STATUES FOR MANCHESTER AND SALFORD.

MR. CALDER MARSHALL, R.A. has completed in plaster his statue of Sir Robert Peel, for the monument at Manchester. The figure is 9 feet high, and is attired in ordinary costume, with a cloak over one shoulder. His left hand is on his hip, and his right holds a scroll. It is to be cast in bronze by Mr. Robertson, of Pimlico. A sitting figure on either side of the pedestal, Commerce and Science, also in bronze, will redeem the monument, when completed, from the similarity which will characterise the majority. The pedestal will be of granite. The monument will stand at the *corner* of the open space in front of the Infirmary, looking down Market-street.

Mr. Noble's statue, intended for Salford, has been cast by Messrs. Moore and Co.: this is 10 feet 6 inches high, and was cast in two pieces: the weight about one ton. In this, too, the modern dress is relieved by a cloak over one shoulder. Some books are introduced on the ground to give support. The traditions of the statesman and the requirements of the committees will render the various monuments so much alike, that they might as well have obtained one first-rate statue, and electrotyped it for the different towns; by which means they might perhaps have managed to have put a little art and novelty into the pedestals.

"THE ORIGINATOR OF ELECTROTYPE."

WE have had several communications on this subject since our remarks on Mr. Dircks's pamphlet on it appeared in our pages. One of these is from Mr. Dircks himself, in which he complains that a portion of these remarks is calculated to convey an erroneous impression of his "Pamphlet on the Origin of Electro-metallurgy *in this Country*," as "it has never been doubted that Professor Jacobi, of St. Petersburgh, is *the* inventor of the Electrotype or Galvano-plastics." Now it appears to us that it is the public and ourselves who have reason to complain of an "erroneous impression," not Mr. Dircks. His pamphlet not only treats of the origin of electrotype under the leading title of "Jordantype," but it does not contain one word restrictive of its purposes to "this country." Moreover, even Mr. Dircks himself now further weakens Mr. Jordan's claim to be the "inventor" of electrotype, and still further complicates the question of origination, by acknowledging that "Mr. De la Rue describes, in the Philosophical Magazine of 1836, results precisely those belonging to electro-metallurgy." Was not this a publication precedent to either Mr. Jordan's, Mr. Spencer's, or Professor Jacobi's? Even on his own showing, then, Mr. Dircks cannot claim for Mr. Jordan the exclusive title to be *the* originator, *the* discoverer, or "*the* inventor of electro-metallurgy." As to Mr. Spencer's claims, we are not upholding them any more than Mr. Jordan's to such a title; and as to what constitutes "a publication," in the eye of the law at least, we know that in patent cases there is no very definite, strict, or settled idea. But we do think that neither the merits of Mr. Jordan nor of Mr. Spencer, as originators of electrotype, ought to be restricted to the question of prior "publication:" indeed, they are both of them superseded altogether under such a restriction by the prior claims of Jacobi; and it now appears that Jacobi's own are superseded by those of De la Rue. But more than all this, as if Mr. Dircks were much more bent on destroying the claims of his old associate, Mr. Spencer, than on establishing those of Mr. Jordan, which he discovered in the Mechanics' Magazine, he now declares it to be "the only fair conclusion we can come to," that "Professor Daniells discovered the principle of electro-metallurgy;" and that "Professor Jacobi in Russia, and Mr. J. C. Jordan in England, invented the art of galvano-plastics, which Mr. T. Spencer and others have successively improved." Another correspondent, too, Mr. C. F. Oldfield, advocates Professor Daniells' claims as *unconsciously* "*the* originator of electro-type." Do not all these conflicting claims and counter claims only prove the truth of our remark, that no one man is fully entitled to claim the merit of being *the* originator of the electro-type—even in this country? To get for it the name "Jordantype" now, even though Mr. Jordan's claim to such an *exclusive* honour were generally admitted, is impracticable; but, even on the showing of his own advocate, it is more than impracticable,—it is unmerited.

THE ORIGIN OF THE DORIC CAPITAL.

[AT page 13 of the second edition of Mr. Leeds' "Elementary Treatise on the Orders," there is what some will perhaps consider a very *saucy* note, since it points out the strong, and it would seem hitherto unsuspected, resemblance which the Doric capital bears—oh, horrible! —to what, familiar and undignified as it is, has suggested the following *invention* in rhyme.]

LIST, gentles, unto a tradition historic,
Which tells how was formed the order called Doric.
Vitruvius, confound him, says nought of the matter,
Though about the Ionic he makes such a clatter;
And would have us believe—truly whimsical prig!—
Its volutes were shaped after a lady's curled wig.

Jove once gave a snug party,
Less solemn than hearty,
At which Hebe most gracefully poured out the tea,
Though I know not if 'twas or souchong or bohea,
But only that all were in merriest glee.
E'en Minerva herself laid aside her *blue* airs,
And with drollest of winks and the funniest of stares,
Cried, "A *capital* thought has come into my head,
A better was never there hatched or bred:
I'm sure you'll all say 'tis exceedingly bright.
You must know, then, my temple, the Parthenon hight,
Has just been begun; but the architect sticks,
Because on the capitals' form he can't fix.
An idea he wants, and I've one for him here,
Which that 'twill displease you, I don't at all fear."
So, she took up a thick slice of cake, and then cut it
Quite square and quite smooth, and afterwards put it
Down flat on her saucer, and gave them a tap,
Saying, "Does it not make, 'faith, a capital cap?
Saucer shall be *echinus*, from *china*, you know,
And cake, 'cause from *bakehouse*, to *a'ba'cus* grow.
Fine words with most people prodigiously take,
Though they'd turn up their noses at 'saucer' and 'cake!'
Such shall therefore the shape of the capitals be,—
A most clever idea, as all will agree;
Though dull mortals below there will never divine
They were fashioned after this whimsy of mine."

Now, gentles, perhaps you will cry out, "Good gracious!
This rhymer is surely a chap most audacious,
To try to pass on us such fudge as veracious!"
Still, my legend is such that you ought to receive it;
But, zounds! if you won't, why you may—*disbelieve it!*

Q.

SOMERSETSHIRE ARCHÆOLOGICAL SOCIETY.—On Friday evening, the 2nd instant, this society held a *conversazione* at the Museum. The Rev. W. R. Crotch commenced by reading a paper on Egyptian hieroglyphics, &c. which was illustrated by several drawings. The Rev. Frank Warre concluded his series of sketches of our forefathers and their places of residence, which was interspersed with anecdotes of their social condition. Mr. Warre alluded in this paper (as it bore immediately on mediæval buildings), to the many beautiful remains of the manorial residences of Somersetshire, and enumerated Halsway Court, near Crowcombe, which was a hunting seat of Cardinal Beaufort, and is now a picturesque frontage backed by the swelling sides of the Quantock; also, Barrington Court, a magnificent pile; Lyles Carey, near Somerton; and an old manor-house of the Daubeney family, at South Petherton, commonly called "King Ina's Palace."

Notices of Books.

A New Universal Etymological, Technological, and Pronouncing Dictionary of the English Language, embracing all the Terms used in Arts, Science, and Literature. In 2 vols. By John Craig, Esq. F.G.S. London: George Routledge and Co. Farringdon-street. 1852.

The publication of a General Dictionary which should embrace the additions made to our language by the progress of literature and science, with a correction of existing discrepancies, up to the present time, has long been a desideratum. This is now supplied by Mr. John Craig, F.G.S. Lecturer on Geology in Anderson's University, Glasgow, with very great success. As the author remarks, independently of the advantage which this work has over others in price—

"One of them does not give the derivation of the words, another does not give the pronunciation. In the Universal Dictionary, both the etymology and the pronunciation of the words are given. It also possesses the advantage of containing a vast mass of important information connected with natural history and science, not to be found in any other. Another feature which distinguishes it, is the illustrating of terms which have become obsolete, by quotations from old standard authors, whereby the works of these authors can be more fully understood and appreciated. The names of persons and of places have been purposely excluded, because it was impossible to embrace biography and geography without either rendering the work too large and expensive to be accessible to the great mass of readers, or so abridging the other definitions as to destroy the completeness and utility of the publication."

The work presents a copious, if not a complete, Dictionary of Law Terms and Phrases, as defined by the highest law authorities.—All the terms used in Medical Science, in this and the other countries of Europe, are explained.—In Botany, it embraces all the genera in Don's great work and Loudon's Encyclopædia; and the orders, as given by Lindley, in his "Vegetable Kingdom," are fully described. As a Dictionary of Mechanics and Commerce, it will be found eminently useful to the intelligent operative, the engineer, clerk, or shopkeeper. In Zoology, all the classes, orders, and genera, given by Cuvier, Swainson, Gray, and others; and in Geology, Conchology, Ichthyology, and Mammalogy, describing all the terms there employed. In its orthoepy it seems to us it is weakest. There is merely a transcript under the head of "Key to the Pronunciation and the Vowel Sounds, with their French Equivalents" of "A Table of the Simple and Diphthongal Vowels," as used by Walker, which in that author is repeated at the head of each page, with figured references, offering great assistance to the student; but as to its application here, there is, in no shape, any allusion made, nor do we think, had there been, it would have offered any key to the rendering, for example, of the three words, "amateur," "connoisseur," and "restaurateur;" the first described by Mr. Craig, "ă-ma-*tare!*" the other as "ko-ne-*seur!*" and the last as "res-*taw*-ra-*ture*." We call the attention of the author to this point for future consideration.

It is a very useful habit for members of a family to fall into to call for the "dictionary," when there is any doubt expressed as to the meaning of a word, its spelling, derivation, or so forth. There should be no family without one, and this is just the work they should obtain. It is dedicated to Charles Knight and Robert Chambers.

Collectanea Antiqua; Vol. II. Part IX. Etchings of Ancient Remains, Illustrative of the Habits, Customs, and History of past Ages. By C. Roach Smith, F.S.A. &c. J. Russell Smith, Soho-square. 1852.

This part concludes the second volume of Mr. Roach Smith's interesting collections illustrative of past times. It shows what would surprise some of our lady friends, examples of pendant girdle ornaments, very analogous to the modern absurdity, invented to tempt pickpockets, called a *châtelaine*. In the preface the writer reproaches the city authorities for not purchasing Mr. John Newman's collection of antiquities found in London. Concerning the recent investigation as to the state of the royal monuments in Westminster Abbey, he says,—

"At a recent meeting of the Society of Antiquaries it was stated that a member of an architectural society was striving to induce his colleagues to petition the Government to consider the ruinous and neglected state of the royal tombs in Westminster Abbey. The announcement excited very little attention or sympathy. Indeed, it seems that none of the numerous antiquarian, archæological, and architectural societies have co-operated to remonstrate against the disgraceful state of the tombs in question; neither have they evinced the slightest interest in the matter. But were they consistently active, zealous, and united, it does not appear why the monuments in Westminster Abbey should be singled out for the special protection of Parliament, when so many of various classes and of different epochs, having equal claims to consideration, are even much more exposed to decay and Vandalism. A Parliamentary investigation of the whole of our ancient national monuments is required, not a partial protection, extorted for some which happen to be more conspicuous, and therefore more fashionably popular than others."

Cyclopædia of Useful Arts—Mechanical and Chemical—Manufactures, Mining, and Engineering. Edited by Charles Tomlinson. Illustrated by several hundred Engravings. George Virtue, London and New York. Parts 8 to 12 inclusive.

Of this work we have more than once had occasion to speak. We are glad to see it continue to sustain the good opinion we have had of it. Among the subjects more likely to interest our professional readers in the parts now under notice will be found casting and founding, chimney, coal, copper, couplings, cranes, drainage, dredging, drilling, elasticity, &c.

Miscellanea.

Profits of Gas at Manchester.—At a recent meeting of the gas committee of the corporation who themselves supply the town with gas, it was stated that notwithstanding the reduction in the price, the profits have gradually increased, and during the past year they amounted to no less than 37,399*l*. Within the last seven years the production of gas has increased from 305,000,000 to 510,000,000 cubic feet per annum. As to the position of Manchester with respect to advantages in the manufacture of gas, Alderman Shuttleworth said that "as some remarks had been made about the price of gas, it was desirable the public should know that Manchester stood not in a good position, but in the very worst position in England, for having gas cheap, with regard to the value of the material. This would be evident on comparing it with some other places. There was one place in which 11s. was paid for cannel, and the coke sold at 4s. 6d. leaving the charge for the material of the gas 6s. 6d. a ton. London paid 13s. for its cannel, and the coke was sold at 11s. and therefore the cost of the material for gas was only 2s. a ton. Another town paid 6s. 3d. for cannel and sold the coke at 4s. 6d. In another place the coal was bought at only 4s. and the coke sold at 2s. 6d. Now what was the case in Manchester? Manchester paid a price which might be put down at 12s. 6d. for the cannel, though, during the last two years, a price 2s. higher was sometimes paid; and the coke was sold at 2s. 9d. The gas was, therefore, subject to a charge of 9s. 9d. for its material, which was no less than 7s. 9d. a ton higher than London paid."

Steam Plough.—The following account of a steam plough, described in the *New York Courier*, places all others in the distance. It is the invention of a native of Cromarty, in Scotland:—"Mr. Alexander T. Watson has devised a locomotive steam ploughing machine, which, if the operator desires, will also do the work of sowing and harrowing at the same time. The model exhibited by him, at 38, Wall-street, is constructed to drive twelve ploughs, and in land suited to its operators a single machine will work over from 30 to 40 acres a day."

Why is Fire Insurance not Universal?—A little more light is shed upon this question by "An Insurance Clerk," who writes us, enclosing a printed list of "duties paid to Government" by London and country fire insurance offices in 1850, being the last official return, from which it appears that the Government tax the prudence and the providence of the country to the extent of no less than 1,129,592*l*. per annum! "It must be borne in mind," continues our correspondent, "that the foregoing are the parliamentary returns of the year before last, those for the past year not being yet ascertained, but we may fairly allow for rather more than the average annual increase of business in 1851, on account of insurances effected on property in the Exhibition, and at the various wharfs and warehouses, so that doubtless the gross amount will be much greater than that of the preceding year. Now, Sir, I would ask you and your many readers—Do not the above figures, for they are *facts*, speak for themselves? Do not they point to why it is fire assurance is not universal? Is it not quite obvious that, however admirable may be the principles on which assurance is based, however great the advantages it holds out, and however low the premiums required—the mass will not embrace these advantages when they are accompanied with the dead weight of such a heavy duty. How can it be expected that the multitude will assure, when they find that, for every eighteenpence they pay the assurance office, the Government makes the modest demand of three shillings—*just double?* All the reasoning in the world would not bring the poor man to think that it is anything else than a most unjust and iniquitous imposition. He admits it is right to assure, but he refuses—*on principle*—to pay 200 per cent. duty on such assurances. In the above," adds the writer, "I have not alluded to the necessity of each policy bearing the shilling stamp, though of course it should not be forgotten in estimating the revenue derived from the prudence of the country." So long as taxes are necessary, it may be all very well to tax the follies, the luxuries, or even the comforts of the country to uphold its dignity and state, but the most ruthless raid—the blackest mail—of feudal chief was not more iniquitous, impolitic, or oppressive than it is thus to mulct and to suppress the well-doing and the foresight of the people.

Rating of Parishes for the Poor.—The iniquity of the system of rating for the relief of the poor is an old grievance, and a most indefensible evil. A memorial on the subject has been presented to the Government, and if they desire to make themselves popular with the working and middle classes, they can do nothing so likely to effect their object as to remedy this grievance. It is an old axiom, however untrue, that it is the class most nearly allied to the pauper in position and means who are most charitable to and sympathise most with those requiring charitable aid. The law of parochial rates would appear to have been based on this axiom. Whatever parish is replete with the poor, there lay it on with a heavy hand; but go lightly over the parishes of the rich. Such is the virtual admonition and instruction of the law as it stands: whereas, had the converse of this been the rule, there would have been something more like rational principle in it. The general desire, however, is simply that some equitable adjustment be made for rating all according to their means, and not merely according to their parish, and we wish the petitioners all success in the attempt.

The Birmingham School of Design.—According to the new arrangements recently announced, there is to be no mere making up for the award of prizes by a temporary competition amongst the students, the whole of the drawings, models, &c. executed *in the school* over a whole session being now to enter as elements in the award. In original design the choice of subject is to be left to the invention, taste, and pursuits of the students, though certain subjects of local manufacture are recommended. The designs also must be executed in the school. This school is said to be making satisfactory progress.

The Jersey Harbours.—During the past ten years, says the *Jersey Times*,—from which we condense the following particulars,—a large amount of quay-room and accommodation for increasing commerce has been added to the former quay and harbour of St. Helier. In 1841, the Island States sanctioned the formation of a new pier and harbour, the foundation-stone of which was laid on 29th September, 1841. This harbour was formed and completed in less than five years, and was named "Victoria Harbour." It adjoins the old harbour to the south, and contains an area of about 7 acres; having a line of quay (exclusive of beaching-place) of 460 yards, with a depth at its extreme end of 38 feet; at its upper end of 23 feet. The quay is 50 feet in breadth, and the promenade 13⅔ feet wide and 1,300 feet in length. The "Albert" pier and dock were commenced in March, 1847, to the north of "Victoria Harbour," and west of the old harbour. Its area is 30 acres. The upper or northern end can be formed into a wet-dock, with an area of 13 acres, and a depth of water of 34 to 28 feet, at spring-tide: its quay-wall has an extent of 960 yards. The road-way is of same dimensions as those of Victoria Pier, and has a similar promenade, extending its entire length. It is 1,155 yards, or three quarters of a mile, in length, forming, with the promenade of Victoria Harbour, a walk of 1,605 yards. The entire area of these new works is 30 acres. "Albert" Pier and works were completed in November, 1851, and all the roadways and approaches were finished on 13th March, 1852, at a cost little short of 200,000*l.*—at the exclusive charge of the Island. The width of the new harbour is 640 feet. The entire area of the new harbours is 1,800,000 square feet. The old harbours have quay-wall, including the English and French harbours, of 1,200 yards, and an area of 13 acres; the breadth of the harbour being less than 100 yards. The old south pier-head, since the construction of Victoria and Albert harbours, has been thrown back 100 feet, thus making the entrance more easy of access. The depth of water in the old harbour varies from 24 feet, at the south end, to 14 feet, at the upper end, and its quay-wall averages a height of 16 feet. Its quay-wall, seaward, is 40 feet in breadth. The materials used in building the new harbour were principally obtained in Jersey, from the granite quarries at St. John's and La Moie, and the filling materials from adjoining rocks. The engineers were Messrs. Walker and Burgess; the contractors Messrs. Le Gros, De Gruchy, and De La Mare; the superintending engineer, Mr. Thomson. These works employed 500 stone-cutters, masons, and labourers, mostly from Devonshire.

Railway Jottings.—The directors of the South-Western Railway, in order to encourage the erection of cheap suburban dwellings, have, it is understood, resolved to contract with persons building such houses in the vicinity of the line for the issue of residential tickets for any given number of years, the same to be transferred with the key of the house to the occupier, for the conveyance of himself and family.——The South-Western and South-Eastern Companies have entered into an arrangement to unite their lines on the south of the Thames, by a junction from Wandsworth to Croydon. It is also intended to erect a large station at Wandsworth, whence the new line, to be called, "The North and South-Western and Brighton and Dover Junction," will run into the London and Brighton line a short distance north of the present Croydon station. Should the Fleet Valley Central Terminus scheme be carried out, the companies will cross the river by one common line.——Our returns, says the *Railway Times* of a recent date, show a receipt for the week of 252,673*l.* 3s. on 6,495 miles, indicating an average of 38*l.* 18s. 0½d. per mile. Last year, the 6,259 miles then opened produced the sum of 232,435*l.* giving an average of 37*l.* 2s. 8½d. per mile; and showing a balance in favour of the present week of 1*l.* 15s. 4d. per mile. The gross traffic of the kingdom, as returned since the 1st of January last, amounts to 3,128,580*l.* received on 6,495 miles, and averaging 481*l.* 13s. 9½d. per mile. In 1851, for a similar period, the amount reached 2,907,668*l.* produced on 6,259 miles, or 464*l.* 11s. 1¾d. per mile. The balance in favour of the present half-year is 17*l.* 2s. 7¾d. per mile.——The *Bombay Telegraph* of 3rd March last announces that "the snorting of the iron horse has at last been heard on Indian ground. In other words, the steam locomotive (called *The Falkland*) recently imported by the contractors, Messrs. Faviell and Fowler, was tried on the line at Byculla, on 2nd February, and at present the engine is a 'nine days' wonder,' and all Bombay goes to see it."

The Interest of Birmingham in Iron-trade Prices.—A correspondent of the *Birmingham Journal* deprecates the tendency of local papers to cry up the price of iron at quarterly meetings. "Under my direction," he says, "is annually used from 12,000*l.* to 14,000*l.* worth wrought iron in bars, plates, and strips, all of which leave the works in a variety of useful forms, and of every-day utility. Now we will suppose an increase of 2*l.* per ton in the price of such iron as I use, which increase would cause me a loss of nearly 4,000*l.* per annum in the article of iron alone. What must be the consequence? I have to increase the selling price of my goods, and in doing so, I know, by experience, that course will diminish the sales and the number of people employed, increase poverty and pauperism, and swell the prison list. Does not this case apply to all the various trades where iron enters largely into the manufactures going on? Certainly it does. To go back to the high prices of iron would be placing an incubus on the march of improvement that so greatly distinguishes the present age, and the remedy for loss from the present low rates will not be found in making them higher. Such improvements may be effected in the manufacture of iron that the ironmasters would be able to sell lower than the present rates; and as an instance of what science and enterprise can perform, I may mention that during the present quarter (March), I received notice from the parties who supply me with iron that what I was then paying 6*l.* 5s. for, would be 6*l.* 2s. 6d. until the end of the quarter, and commence the April quarter with 6*l.* with the prospect of further reduction. A similar reduction took place in the other sorts of iron I am using: these men are among the most wealthy in the iron trade of South Staffordshire, and, I am happy to say, to be found zealously working for the ultimate triumph of science and truth over ignorance and error."

Lord Carlisle's Lectures and Addresses in aid of Popular Education.—Many of our readers will be gratified to learn that these admirable lectures and addresses have been collected and published in a shilling part of the *Traveller's Library*. They comprise the well-known lectures on the poetry of Pope, and on the noble Earl's travels in America, as well as numerous addresses,—on the benefits conferred by education, the utility of mechanics' institutes and their position in Yorkshire, the union of labour and intellectual attainments, the improvement and development of the intellect, the Great Exhibition, and other topics, and are highly capable of pleasing and instructing the mind of the reader, whoever he may be. They are written by one whom we respect as one of the most advanced types and exemplifications of the enlightened gentleman of the nineteenth century.

The Engineers' Dispute.—The Amalgamated Operatives' Association have withdrawn their ill-advised circular, with the condition that the masters will withdraw the declaration to which it gave origin. This we hope the masters will do, and so at once put an end to this most distressing and disastrous dispute. Had the men taken the advice of their real friends in the outset, they might have still had, fructifying to some useful purpose, the 30,000*l.* in hard cash which they have literally thrown away in vain and idle attempts to upset necessary subordination; and even that large sum, positively and directly squandered as it has been, is as nothing to the actual loss additionally sustained both by men and by masters.

Dressing Stone by Steam.—"We paid a visit yesterday," says a New York paper, "to the works of the Empire Stone-dressing Company. The stone (mainly brown, from the Portland quarries, near Middleton, Connecticut) is hoisted by steam-power directly from the vessel in which it reaches our city, lowered upon a tram-road, and drawn into the shop, where it is fastened on appropriate beds or carriages, and so drawn gradually under the cutters, which, in the most approved machines, are four, revolving in a circle, and cutting away the stone to the depth of an inch, or more if required, at the rate of about two cubic feet per minute. There are six machines employed in the Empire Works, and the number will, doubtless, be increased to twenty or thirty within a short time, as the demand for dressed building-stone is practically unlimited. Each machine will dress from 300 to 500 feet per day, according to the width of the blocks. After dressing, the stone is very speedily polished and finished off by a different machine, in which the *chip* or dust made by cutting is used as scouring sand.

Tramways.—Why should not "tram-roads" be generally adopted in great towns? That greatly diminished wear and tear would result is evident from the examples in use, and I think if we reflect upon the innumerable tons of merchandise which, under the present system, are dragged and jolted about, to the injury of waggons and horses, and the waste of time, we shall be forced to confess that an uniform arrangement of smooth and easy tramways is one of the wants of the times.—T. T. C.

Drainage Tenders.—I beg to hand you a list of tenders for the drainage of Hayles' Charity Estate, St. George's-road, Southwark, Mr. W. Rogers, architect.

Mutter	£545	3	6
J. Laughton and Co.	459	0	0
G. Greigson	340	0	0
J. Pope	335	0	0
Th. Gardner	330	0	0
J. H. Brown	325	0	0
J. C. North	284	0	0
Willis and Davis	270	0	0
Radley and Rogers (accepted)	216	0	0

The work comprised 3,150 feet of 6 inch glazed pipe; 550 feet 9 inch glazed pipe; 309 single and double junctions; all the cesspools on the estate to empty and fill up, &c.; also to keep the work in repair twelve months.—R. S.

Tenders for Sewers!—For building 3,043 feet of half brick sewer, in Grove-road, Upper Holloway, for Mr. David Hughes. Mr. Tatlock, surveyor.

Dethick	£1,477	0	0
Hill	1,380	0	0
Murray	1,244	0	0
Carter	1,137	0	0
Greigson	1,083	0	0
Radley and Rogers	1,075	0	0
Humphreys and Thirst (accepted)	969	0	0
Beck	867	14	6
Langton and Wright	825	0	0

For brick and pipe sewers in James-street, Lisson-grove, for the Metropolitan Commissioners of Sewers:—

Hill	£480	0	0
Williams	435	0	0
Radley and Rogers	331	0	0
Humphreys and Thirst (accepted)	319	0	0

Road Makers' Estimates.—The following tenders were delivered at Messrs. Habershon's office, on the 5th April, for making roads and sewers at Plaistow, Essex, for Mr. Riles:—

Greigson	£931 !
Termain	844
Hill	659
Murray	564
Thompson and Webb	524
Reid	476
Watson	468
North and Gardner	465
Rogers and Radley	462
Ward	454
Watts	446
Green	436
Beck	339 !

Lecture on Iron at Society of Arts.—Mr. S. H. Blackwell, F.G.S. of Dudley, lectured lately at the Society of Arts, Adelphi, on "the Ironmaking Resources of the United Kingdom." The lecturer commenced by calling attention to the principal features of the Great Exhibition of 1851, the importance of its influence on the arts, sciences, and manufactures, and to what an extent the raising of that building itself showed the iron making resources of the country, on which in a great measure was based our manufacturing greatness, and which tended to bind all interests in one common bond of union. A rapid view was taken of the rise and progress of the iron manufacture in this country, which was divided into two periods,—first, from the earliest ages up to the time when coals were first attempted to be employed as smelting fuel,—and second, from that to the present time. The lecturer then said it was impossible not to be struck with the vast and inexhaustible supplies of iron and fuel which we possess, and with the wonderful fact that the extraordinary demand which railways and other requirements have produced, should have led not to an increased price, but to a constant discovery of new and cheaper sources of supply. The iron trade illustrates what appears to be a general law—that the natural resources of the world appear to be developed at the exact times when the progress of society most requires them, and when that progress is such as to enable us to avail ourselves to the greatest advantage of new discoveries. This was illustrated by allusion to the progress of the iron trade, railways, steam-boats, electric telegraph, the vast gold discoveries, and the rapid colonisation of Australasia and America, as also the progress which was making, and must rapidly extend, in our Indian possessions, where every mile of railway laid down will lead to an ever increasing demand, "all tending," to use the words of H.R.H. Prince Albert, "to the accomplishment of that end to which indeed all history points the realisation of the unity of mankind."

Help Yourselves.—Builders' Foremen.—At the anniversary dinner of the Builders' Foremen and Clerks' Benevolent Society, reported in our pages, Mr. Jeremiah Pilcher, in returning thanks for the toast o. the city of London and its trade, observed that the list of subscriptions exhibited a great contrast between those who were the patrons and those who contributed for their own benefit. The small amount which the foremen and clerks gave was anything but satisfactory. These were persons who received a certain salary, and to whom the society should look for a large increase of revenue, it being founded entirely for their benefit. Supposing each foreman and clerk contributed a certain sum, although a small amount weekly, the sum so received would soon amount to something very considerable: indeed, they might fairly expect to see almshouses speedily raised for the aged and infirm, and for those who might be unable to work from accident, to which the nature of their calling subjected them: he, the speaker, trusted that this hint would not be lost sight of, and that when they next met, the report would show a decided improvement in their funds through the adoption of it.

The Fountain at Billingsgate, which we said was contemplated when we published our view and account of the new buildings there, has been set up. It is of cast iron, and consists of a basin about 15 feet in diameter, with a stem in the centre composed of rushes, from which water will rise to some height. Over the lip of the basin, at regular intervals, lie twelve dolphins, which will discharge water for the use of the market-people.

Finsbury Park. — A correspondent, "W. N." wishes to be informed whether the Finsbury Park scheme is alive or abandoned, as he sees that some one has marked with a railing the plan of a road through the fields proposed for the park; and he asks if this be for building purposes. We fear from what we have heard that nothing has been done as to the projected park, but perhaps some other correspondent may be able to give us the most recent news as to it.

Self-Sustaining System of Sewage Removal.—Mr. T. A. Yarrow, C.E. (formerly surveyor for the county of Chester, but now resident in London), has been engaged, it appears, to report upon the drainage of Coventry, and in a pamphlet, developing a plan for saving the sewage of towns and applying it to agricultural purposes, he says:—"The means I propose to adopt are those suggested by Prince Albert, consisting of a rapid filter of peculiar construction; and the deodorant and absorbent employed in the process is peat charcoal, now produced at small cost from the bogs in Ireland. The plan consists of an application of the sewage filter at the outlet of the main sewer, by means of which sewage will be deprived of its colouring and offensive matter, and made to pass off in a perfectly clear state. After a certain time the charcoal in the filter will require to be renewed, when a little granulated charcoal must be added to the solid matter retained in the tank, and in a few minutes the whole mass will assume the form of a dry, portable, and inodorous manure, ready for packing in barrels or sacks, and capable of being transported by any mode of conveyance.".

A Roman Catholic Presbytery at Mallow has been erected for the Roman Catholic clergy of that district, from the designs and under the superintendence of Mr. R. Brash, of Cork. It is in the style of the 15th century. The walling is composed of mountain sandstone, close grained and of a dark red colour, built in Raudon ashler, with vertical and horizontal joints, and contrasts with the light limestone of which all the dressings are formed, such as plinth, quoins, jambs, mullions, and labels of windows, door-cases, niches, &c. and the casements are cast-iron, of lozenge pattern, with bronze fastenings. All the ceiling-joists are moulded, and with the sound boarding, are to be finished in appropriate colours. All the woodwork is to be stained and varnished. The building contains drawing-room, dining-room, library, kitchen, pantries, &c. on the ground floor, with 9 sleeping apartments, oratory, and corridor on the upper floors. It is intended to erect a convent in the same style for the Sisters of Mercy, on ground adjoining the above, which is to contain schools and a refuge for destitute females.

Stained Glass, Trinity Church, Marylebone.—A stained glass window, executed by Mr. Baillie, has been set up in the east window of Trinity Church, in the New-road. It is understood to be to the memory of Mr. H. St. George Tucker. From notices in some of the newspapers we expected to see a superior work, but must acknowledge our visit disappointed us. The window is divided into six compartments, three upper and three lower. The upper part of the centre compartment contains an emblem of the Trinity and Eternity in a panel, under which is inscribed, "Glory to God in the Highest;" and in a panel at the base in like manner, "Be thou faithful unto death, and I will give thee a crown of life." The remainder of the window is filled with unmeaning and ugly scrolls and foliage, which impart neither idea nor pleasure. It is stated, that the inhabitants propose filling the two side windows also with stained glass. In this case it is to be hoped Mr. Baillie will adopt a different style of glass.

Greenwich Park and Blackheath.—Workmen have just commenced breaking the ground, for laying down draining-pipes diagonally across the lawn between the Naval Asylum and Flamstead Hill. A new church at Blackheath is about to be erected at the cost of Mr. Angerstein, on a piece of ground between Myrtle-place and Shooter's-hill road.

Waldensian Church, Turin.—A Protestant journal, published in Turin, contains the following notice of the Evangelical Church erecting for Italian Protestants of that city:—"The works, which were resumed some days ago, are proceeding with great alacrity, and it is hoped that before the end of the season the church will be roofed in." An appeal has been made to the Protestants of this country to aid in the erection. In Glasgow, according to the *Christian Times*, about 500*l.* have been collected.

Value of Ground at Edinburgh.—In a submission between the Edinburgh and Glasgow Railway Company and the magistrates of the city as to the ground in Princes-street-gardens taken by the company in carrying through their line from the Haymarket to the North bridge, and in which Mr. C. M'Gibbon, builder, on the part of the city, and Mr. James Smith, on the part of the company, were appointed arbiters, and ultimately Mr. L. A. Wallace, architect, oversman,—Mr. Wallace has finally decreed that the value of the ground due to the city is 3,370*l.* Witnesses on behalf of the city estimated it as worth 30,000*l.* The oversman decided on the principle of value to the sellers rather than to the buyers.

A Valuable Brick.—A journeyman mason, lately employed on some repairs to a chimney in the Rue des Francs Bourgeois, Paris, while at work, broke up a brick which he found loose in the chimney, and, to his surprise, discovered that it was hollowed out, and contained a bank-note for 500 francs. The workman honestly communicated the fact to his employer, who called to mind that he had written his uncle, at Amsterdam, for money, and had received nothing but the brick in question, which he indignantly threw into the chimney, and wrote to his uncle an angry letter, to which no answer had been given. In Holland, it seems, hollow bricks are made on purpose to send small sums of money, as making a more secure package than any other.

Warming and Ventilation of the House of Commons.—Mr. Goldsworthy Gurney has reported to the House that by a simple arrangement most of the evils complained of could be remedied at small expense, but he declines to enter further into the subject unless—"called in." We are told to expect that some curious evidence will be tendered to the committee after the recess.

Improvement of Bristol.—A special meeting of council was held on Wednesday in last week, to consider the propriety of opening a new street from Temple-street to or near the terminus of the Great Western Railway, and of borrowing 10,000*l.* towards carrying out the improvement; but we regret to say that the resolution proposing the project, subject to subsequent revisal, was lost by a majority of thirty-eight against six in favour of it.

TENDERS

Delivered for building Primitive Methodist Chapel, Hackney-road:—

Wythe (Kingsland)	£1,857
Norris (Hackney)	1,670
Vaughan (Shoreditch)	1,329
Cranston (Newington)	884

The latter accepted, with an addition to his tender of 286*l.* making a total of 1,170*l.*! A correspondent complains of the mode of proceeding; but we are unable to enter into it.

For erecting a villa residence, Addison-road, Kensington Mr. Brown, architect:—

Symonds	£1,639
Watts	1,613
T'Anson	1,596
Higgs	1,549
G. Mansfield and Son	1,525
Browne	1,480

For the second design for a new station for the South-Western Railway, at Richmond:—

Piper	£4,070
Lovell	3,950
Carless	3,895
Smith	3,836
Bress and Son	3,797
T. Long and Son	3,684
Nicholson and Son	3,675
Little and Son	3,650
Grimsdell	3,545
Mills and Joy	3,520
Jay	3,463
Pollock and McLennan	3,390

For the rebuilding of a house in Hollis-street, under Mr. Marshall, architect:—

	Shop Front.	Total.
Messrs. I'Anson	£133	£2,086
Smith and Appleford	133	2,029
Mr. H. Burton	122	1,881
Messrs. Roper	125	1,875

For four villas, in Elm-grove, Southsea, for Mr. Gibsone, Mr. A. F. Livesay, architect. Quantities provided.

Aylen (Portsea)	£3,258
King (Portsea)	3,120
Absalom (Portsea)	3,028
Hendy (Portsmouth)	2,896
Davis (Southsea)	2,775
Camwell (Portsmouth)	2,395

TO CORRESPONDENTS.

"R. B.," "J. G. P.," "Pan" (declined with thanks), "J. B." Pentonville, "W. G. H." (we do not think the design an improvement on the Corinthian capital), "T. L. D.," "R. J. C." "Rev. H. C. K.," "A Labourer" (must refer to published tables), "Nails for Slating" (we should prefer zinc nails to painted *iron* nails), "B. O." "T. L." (thanks), "H. and T.," "E. H.," "W. D." (write to the secretary, 16, Grosvenor-street), "D. W. R." (glad to hear from him), "The Man in want of a House" (Loudon's Encyclopædia of Villa Architecture), "J. W. H.," "T. T." "R. B." ("R. R." did not mean "R. B."), "H. W. S." "H. W.," "H. D." "G. H.," "A Subscriber," "R. N." "R. and Son," "M. A. A." (shall appear), "Lady B." (next week), "D. O. E." (ditto.)

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

CONTRACTS.

TO BUILDERS.

PARTIES desirous of TENDERING for the RESTORATION and ENLARGEMENT of the PARISH CHURCH of WINFRITH, near DORCHESTER, are informed that the working drawings and specification may be seen at the Rectory, Winfrith, on and after MONDAY, the 12th April; or at the office of T. H. Wyatt, esq. Architect, 7, Great Russell-street, London. The tenders to be delivered on MONDAY the 19th of April to the Rev. G. B. COSSERAT, at Winfrith.

TO BUILDERS.

PARTIES desirous of TENDERING for the ERECTION of a NEW SAVINGS BANK, in the Town of Warminster, Wilts, are informed that the drawings and specification may be seen on and after Monday, the 12th April, on application to Mr. BUSH, at the Savings' Bank, Warminster; or in London, at the Office of T. H. WYATT, Esq. Architect, 7, Great Russell-street. Sealed tenders to be delivered at the Office of Mr. BUSH, on Tuesday, the 20th April. The trustees and Managers do not bind themselves to accept the lowest tender.

SCHOOL DESIGNS, &c. WHITECHAPEL UNION.—Any gentleman who has delivered designs and plans for the School at Forest Gate, and which are denoted by a motto different from the under mentioned, may (the same not being approved) receive his plans, &c. from the Master of the Union Workhouse, in Whitechapel-road, but must previously produce to me a fac simile of his motto, and a note in the same handwriting as the address on the envelope, and must afford such other information as will satisfy me as to the identity of the applicant, such envelope, containing his name, &c not having been opened.

"Palmam qui meruit ferat."
"Fides."
"We will try what we can do."
"Industria."
"Do weel and hae weel."
By order of the Guardians,
40, Leman-street, 8th April, 1853. JOHN SMITH, Clerk.

TO PARENTS AND GUARDIANS.

AN Architect and Civil Engineer has a VACANCY for a PUPIL.—Letters addressed to A. B. C. Office of "The Builder," 1, York-street, Covent-garden, will meet with prompt attention. A premium required.

PUPIL WANTED.—A Building Surveyor, in good practice, has a VACANCY for an out-door PUPIL, who will have every opportunity of acquiring a correct knowledge of his profession. A premium required.—Address to C. S. W. Office of "The Builder," 1, York-street, Covent-garden.

PUPIL and DRAUGHTSMAN.—A Civil Engineer, engaged in the construction of public works, requires a gentleman, duly qualified, as a Draughtsman and Assistant in his Office. There is also a vacancy for a Pupil. Address, with terms and testimonials, to I. N. Office of "The Builder," 1, York-street, Covent-garden.

MANCHESTER.—TO PARENTS AND GUARDIANS.—There is a VACANCY for a youth of respectable connections in an office and manufactory where he would have the advantage of acquiring a thorough theoretical and practical knowledge of the profession of a CIVIL and MECHANICAL ENGINEER, combined with the opportunity of learning GAS ENGINEERING in all its branches. He will be bound to a member of the Goldsmith's Company.—Apply to ALPHA, Post-office, Manchester.

WANTED, to place a respectable Youth as IN-DOOR APPRENTICE to a Carpenter and Builder, of a respectable business.—Apply to Mr. NOYINGTON, Baker, Finsbury-market, Finsbury-square.

TO ENGINEERS, SMITHS, GAS-FITTERS, &c.

WANTED, to APPRENTICE a respectable YOUTH, (indoors), to gain a thorough general knowledge of the above branches; in or at a convenient distance from Town. He would be preferred.—Apply, by letter, to J. C. care of Castle and Lamb, 7, Bull head-court, Newgate-street, London. A moderate premium will be given.

AN Architect is in want of temporary ASSISTANCE by one fully competent to make working details for a dwelling in the Tudor style. Address, stating experience and terms, to G. H. Office of "The Builder," 1, York-street, Covent-garden.

TO ARCHITECTURAL DRAUGHTSMEN.

WANTED, for a permanency, a DRAUGHTSMAN thoroughly accustomed to Gothic detail and drawing, together with the usual routine of an office.—Address, R. M. at the Office of "The Builder," 1, York-street, Covent Garden, stating references and salary.

FOREMAN, Brickmakers.—Wanted an experienced WORKING FOREMAN to superintend and keep the accounts of a brickfield in the neighbourhood of London.—Apply, by letter only, stating terms, to A. B care of — Lockwood, esq. 13, Feachurch-street.

AN ENGINEER WANTED, at the KENT COUNTY LUNATIC ASYLUM, Barming Heath, near Maidstone, to undertake the charge of the steam-engine and the cooking and washing apparatus and pumping, and to perform any other works in an engineer's department which may be required of him under the direction of the surveyor. He will be required to have charge also of the principal entrance-gate. Persons desirous of becoming candidates are to transmit their applications and testimonials of character and competency before Saturday, the 30th April, addressed to Mr. BEALE, Clerk to the Visitors, King-street, Maidstone. Candidates must be under 45 years of age, and married. The salary will be 30s. a week, with a house at the entrance-gate, and milk for himself and family, and two pints of beer daily. The duties are to commence on the 8th of May, and the appointment is to cease on either party giving to the other one calendar month's notice. Should further information be required, application must be made to Mr WHICHCORD, County Surveyor, Week-street, Maid-tone. The candidates whose qualifications are not approved, will be informed thereof immediately; whilst those from whom the Visitors would wish to select are to attend a meeting at the Asylum for that purpose on Saturday, the 8th of May, at their own expense, of which information will be given them.

By order of the Committee of Visitors,
WILLIAM BEALE, Clerk to the Visitors.
Maidstone, April 7th, 1853.

WANTED, by a Surveyor in the country, an experienced CLERK, competent to prepare fair and working drawings, specifications, &c.—Address, stating terms where last engaged, &c. to H. Post-office, Luton, Beds.

TO HOUSE PAINTERS.

WANTED, a good SIGN WRITER, in a constant situation. Testimonials required.—Apply, by letter, A. G. Post-office, Wolverhampton.

WANTED, at Country Wages, in a Town about thirty miles from London, TWELVE good HOUSE PAINTERS, who, if suitable, will have constant employment for four months.—Apply, Monday, April 19, from twelve till one o'clock, at 32, Steagate-street, Lambeth.

TO BUILDERS AND PLUMBERS.

WANTED, by a respectable Young Man, a SITUATION as PLUMBER, or PLUMBER, GLAZIER, and PAINTER, in Town or Country. Wages no object.—Address to J. G. No. 31, Great Barlow street, Marylebone, London.

TO SURVEYORS, &c.

WANTED, by a Young Gentleman, 24 years of age, a SITUATION as SURVEYOR, thoroughly conversant with every branch of the profession. Unexceptionable references can be given.—Address, A. B. 3, Angell-terrace, Paradise-place, Stockwell.

TO PAINTERS, DECORATORS, AND BUILDERS.

WANTED, a SITUATION as FOREMAN of PAINTERS and DECORATORS, or to take the Management of a Business. No objection to the Country.—Address, G. H. 97, Charlotte-street, Fitzroy-square; if from the Country, stating wages.

TO ARCHITECTS.

WANTED, a SITUATION, by an experienced Draughtsman, who is well versed in Gothic architecture, and accustomed to making Perspective Drawings. The Advertiser's testimonials will be found unexceptionable.—Address, M. No. 1, Chapel Field-road, Norwich.

TO BUILDERS.

WANTED, by the Advertiser, a SITUATION as CLERK, thoroughly acquainted with the business, has been in a builder's office some years, and accustomed to measuring and estimating; or as Clerk of Works, having been engaged in several extensive buildings.—Address to A. B. Post-office, 190, Tooley-street.

TO ARCHITECTS AND SURVEYORS.

A GENTLEMAN, aged 27, having a good theoretical and practical knowledge of both branches of the Profession, wishes for an ENGAGEMENT.—Address H. H. No. 2, Hemus-terrace, King's-road, Chelsea.

TO UPHOLSTERERS, &c.

A FOREMAN, of considerable experience, is desirous of procuring a SITUATION in the same capacity in a first-rate house in town.—Letters addressed "UPHOLDER," and left at the Office of "The Builder," 1, York-street, Covent-garden, will meet with attention.

TO PLUMBERS, PAINTERS, AND BUILDERS.

AS WORKING-FOREMAN, a Man who has filled a similar situation, has been accustomed to Plumbing, Writing, and Graining, Measuring, and Estimating; no objection to Town or Country.—Apply, by letter only, to B. A. Office of "The Builder," 1, York-street, Covent-Garden.

TO BUILDERS AND CONTRACTORS.

A PRACTICAL PERSON, who has had the Superintendence of extensive works for several large firms, requires a SITUATION as Clerk of Works, or General Foreman, or Foreman Bricklayer. Satisfactory testimonials can be given. Address to G. D. Post-office, Upper-street, Islington.

LONDON ASSURANCE CORPORATION, established by Royal Charter, A.D. 1720.
FOR LIFE, FIRE, AND MARINE INSURANCES.
Head Office, 7, Royal Exchange, Cornhill.
Branch Office, 10, Regent-street.
Actuary, Peter Hardy, esq. F.R.S.
This Corporation has effected Assurances for a period exceeding One Hundred and Thirty Years, on the most favourable Terms.
JOHN LAURENCE, Secretary.

PROVISION FOR FAMILIES IN CASE OF DEATH.—ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.
THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 3, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.
CAPITAL 200,000*l.*

This Company assures diseased as well as healthy lives for sums of from 5*l.* to 5,000*l.*
The annual income is nearly 4,000*l.*
Lives declined by other offices accepted at equitable rates.
Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.
M. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING-CLASSES.
BRANCH OFFICE—2, EXETER 'CHANGE, WELLINGTON-STREET NORTH (opposite Waterloo-bridge), STRAND.
Open every Evening from six till Eight o'clock.
Subscription for securing payment of 5*l.* and up to 50*l.* payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—
Weekly Contributions for payment of 5*l.* at death.
Healthy persons whose age on becoming subscribers shall be—
From 10 to 35 years, to pay One Penny per Week.
" 35 to 45 " " Twopence "
" 45 to 55 " " Threepence "
Collectors call at the houses of Subscribers for these weekly subscriptions.
The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.
Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.
N.B. No communications relative to the assurance of sums from 5*l.* to 50*l.* can be attended to unless addressed to Mr. JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.
JOHN MACGREGOR, Esq. M.P. Chairman.
The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office.
GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

ALLIANCE LIFE and FIRE ASSURANCE COMPANY.—Capital, 5,000,000*l.* Established 1824.—The Board of Directors have opened a WESTERN OFFICE, at No. 5, Waterloo-place, Pall-mall, where the public will find every facility in the transaction of both Life and Fire Assurance business. They have nominated EDWARD LOMAX, Esq. to the superintendence of this branch.
A. HAMILTON, Secretary.
Bartholomew-lane, London, April 13, 1853.

ROYAL COLOSSEUM.—NOW OPEN, DAY and EVENING. The whole of this magnificent establishment has been re decorated, many additions have been made, a new room opened, containing a skeleton of the Gigantic Mastodon, Gothic Aviary entirely rebuilt, the Saloon of Sculpture now forming the most splendid Coup d'Œil in Europe. The original PANORAMA of LONDON is exhibited daily, from Half-past Ten till Five; and PARIS by NIGHT, every evening (except Saturday), from Seven till Ten. Admission, day or evening, 3*s.*; children and schools half-price. A Series of Tableaux of the CRYSTAL PALACE has been some months in preparation for the CYCLORAMA Building, and will be exhibited in a few weeks.

PATRON H. R. H. PRINCE ALBERT
ROYAL POLYTECHNIC INSTITUTION.—Prevention of Forgery.—a Lecture by J. H. Pepper, esq. on Glyn an and Appel's Patent Paper for the Prevention of Piracy and Forgery by the Anastatic Process, daily at Two o'clo k, and on Monday, Wednesday, an l Friday Evenings at Nine. The talented Vocalist, Krauz de Fecher, who possesses the extraordinary compass of four octaves, and sings in thirty six different foreign dialects, will give his musical illustrations every Evening, except Saturday, at Eight o'clock.—Lecture on Voltaic Electricity, with brilliant experiments, by Dr. Bachhoffner.—An Explanatory Description, by Mr. Crispe, of the various kinds of Muskets, Rifles, &c.—A splendid New Series of Dissolving Views.—Exhibition of the Microscope.—Diver and Diving Bell, &c. &c.—Admission, 1*s.*; Schools and Children under ten years of age, half-price. A new edition of the Catalogue.

TO ARCHITECTS.

COMPETITION and other DRAWINGS.—Mr. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Bruges, &c and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the powers essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 18, Albany-street, Regent's-park.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishment of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 38, Pall-mall, London.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied, lithographed, or printed.
PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved.
BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous. TRACING PAPER and CLOTH; ditto in lengths.
GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.
WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament-street, London.
Contracts for the supply of large establishments.

BILLS of QUANTITIES.—DAY and SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.
Perspectives got up from Geometrical Drawings, either in Outline or Water Colours.
17, GATE-STREET, LINCOLN'S-INN-FIELDS.

MARTIN and HOOD, Architectural, Mechanical, Engineering, Map, and Plan Draughtsmen, Plan and Ornamental Writers, Engravers, and General Lithographers, respectfully intimate to their patrons and the public, that they are prepared to undertake WORKS OF ANY MAGNITUDE, in the above branches, on the most reasonable terms.
WORKING and TINTED DRAWINGS of every description of MACHINERY
8, GREAT NEWPORT-STREET, LEICESTER-SQUARE.

NOTICE is HEREBY GIVEN, that a GENERAL QUARTERLY MEETING of Members of the INSTITUTION of BUILDERS' FOREMEN and CLERKS of WORKS will take place on Wednesday Evening next, at the Hay Tree Tavern, St. Swithun's-lane, for the purpose of transacting the usual quarterly business.
W. ALLARD, Secretary.

THE CO-OPERATIVE SOCIETY of ENGINEERS are now prepared to execute Orders in every department of the Trade. First-rate mechanics sent to any part of the country on the shortest notice.—East London Iron Works, Cambridge-road, Mile-end.

CARPETS.—BRIGHT'S SPLENDID VELVET TAPESTRIES.—These goods being woven by steam power, are at least one-fourth cheaper than handwoven goods, the patterns more elaborate, and the quality equal to any. Brussels carpets of old patterns, at a great reduction. French, silk, and worsted damask, warranted 54 inches wide, from 6*s.* 6*d.* per yard. Turkey carpets, floorcloths, &c. LUCK, KENT, and CUMMING, 4, Regent-street, Waterloo-place (opposite Howell and James's).

A STEAM BOILER, and TWO COPPER BOILERS, the property of the Directors of the Poor of the parish of St. Pancras, in the county of Middlesex, TO BE SOLD. They may be seen at St. Pancras Workhouse, King's-road, Pancras-road, on application to Mr. HADRELL, the Master, on any day (Sunday excepted), between the hours of Ten and Five o'clock.

STEAM SAW-MILLS for SALE.—The Whole or any Portion of the MACHINERY for a STEAM SAW-MILL, recently taken down, and put into perfect repair, consisting of a Twenty-four and Ten-horse power Portable Horizontal Steam Engines, with the Boilers and fittings complete, ready for erection; a saw-frame to cut timber, Four saw-frames to cut planks and deals, several circular saw tables, saws, chains, drums, wheels, bands, &c. &c. by London makers.—Apply to Messrs. MEDWIN and HALL, Engineers, 99, Blackfriars-road, where the same may be seen

PORTABLE STEAM-ENGINES on WHEELS.—TO CONTRACTORS AND OTHERS.—FOR SALE, or TO BE LET, on HIRE, strong, simple PORTABLE STEAM-ENGINES, mounted on wheels, suitable for pumping, winding, sawing, or any other purpose, of three, four, six, eight, ten, twelve, and twenty-horse power. Also a Portable Engine and Mortar Mill, connected on wheels, by "Gough, Manchester." Apply to Messrs. MEDWIN and HALL, Engineers and Portable Engine-makers, 99, Blackfriars-road, where the same may be seen.

PLANING MACHINES.—TO BE SOLD, a great bargain, One PLANING MACHINE, one Planing and Matching Machine, and one Finishing Machine, with shafting to ditto; to be seen in good working order.—Apply to H. LUTTHAM, at Mr. Kelk's Saw-mills, Gillingham-street, Pimlico.

FOR SALE, a WOOD-PLANING and MOULDING MACHINE, ready for immediate work, fitted with a very complete set of Planing and Moulding Tools. This machine is capable of planing the four sides of boards, and moulding at the same time if required; and is qualified to prepare flooring-boards, matched linings, skirtings, panel stuff, mouldings, &c. &c.—For further particulars, apply to Mr. HENRY CLIFFORD, No. 9, Salisbury-street, Strand, London.

TO ARCHITECTS, BUILDERS, CONTRACTORS, &c.

HARTLEY'S PATENT ROUGH PLATE GLASS,

1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for

RIDGE AND FURROW ROOFS, GREENHOUSES, RAILWAY STATIONS, ENGINE SHEDS, MILLS, MARKET HALLS, AND PUBLIC BUILDINGS GENERALLY.

It being universally admitted that Glass in Roofs of a permanent character should not be less than one-eighth of an inch thick, weighing two pounds to the foot, Messrs. JAMES HARTLEY and CO. have directed their attention to the manufacture of a description of

ROUGH PLATE GLASS THAT COMBINES SIZE AND STRENGTH WITH ECONOMY OF COST.

The PATENT ROUGH PLATE is manufactured in sizes expressly for Ridge and Furrow Roofs, giving a span of from 6 to 12 feet, at a price not exceeding weight for weight that of common Crown Glass. Not being transparent, blinds are unnecessary, and when used in Greenhouses no scorching occurs: its NON-TRANSPARENCY and strength render it eminently suitable for the Glazing of Conservatories and Roofs of all kinds; also Factories, Workshops, &c., for which purposes it is supplied in squares of all sizes, from 8 by 6 inches and upwards.

For further information apply to Messrs. JAMES HARTLEY and CO., Wear Glass Works, Sunderland

N.B.—The Patent Rough Plate is supplied at a much lower cost than the common Rough Plate. —May 1, 1851.

GLASS FOR CHURCHES, CHAPELS, SCHOOLS, &c.

HARTLEY'S PATENT QUARRY GLASS,

Of three thicknesses, in long lengths: an economical substitute for lead lights. The attention of Architects, Builders, and others is particularly requested to this beautiful article; samples of which may be seen at

JOSEPH CHATER AND SON'S, ST. DUNSTAN'S-HILL, TOWER-STREET, LONDON.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead paint.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward numerous imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the permanative properties for which the original paint stands pre-eminent.

In justice to the proprietors these shall not be confounded with the original, even though sold under the pretence, that it is all the same.

H. Bubuck's Paint is entirely free from any injurious properties whatever, it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT;"

and if the cask has not been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit, &c. &c.

A Circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent of the carbonate of Carbonic Acid, consequently it has been called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its whiteness, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discovery was at a very early period drawn to this circumstance, and since that time, the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the latter way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 6 to 10, that is, 5 lbs. of Oxichloride paint will cover as much surface as 10 lbs. of the best White Lead, the saving of money in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than Paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual in the work technically called Painting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

OFFICE IN LONDON.—Mr. R. COOKE, No. 7, Bise-lane.

Office of the Washington Chemical Company,
73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM. THIS PAINT is superior in every respect to white lead: it is unequalled in whiteness, and dries very hard after it is applied, and is, therefore, for interior work, susceptible of a high polish. Besides, it is entirely free from poisonous influences, is unaffected by sea-water, sulphuretted hydrogen, or any gases, and preserves its original colour, which white lead does not do.

WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painters' colic, nor paralysis, &c. &c. to which dangerous complaints the workmen and manufacturers who use it are subject, and to which persons who inhabit newly-painted apartments are also liable, since its introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over any other paint. The public is cautioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.

The VIEILLE MONTAGNE ZINC COMPANY import largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the casks bearing their mark, VM, are only to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agents', residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.

The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from their Grinding Agents, Messrs. C. DEVAUX and Co., 62, King William-street, City, London, and Messrs. ROBT. ANDERSON and CO., Timber Bush, Leith, Scotland. Pure White Zinc Paint is also likewise purchased from Messrs. BLUNDEL SPENCE, and Co. Hull.

For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster-bridge, London.

DAMP WALLS.—NEW PATENT PAINT, as applied on the THAMES TUNNEL, guaranteed effective and permanent inside or out, in quantities to finish 20 square yards for 10s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8d. 8s., 15s., and 21s. each.

PATENT MINERAL ZINC PAINTS invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 3s., Greens and Blues, 6s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price; only 3s per Gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. BELL and CO., Steam Mills, 9, Wellington-street, Goswell-road.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps &c. JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanized India Rubber Tubing, which is now manufactured from 1/8 inch bore and upwards, in length from 50 to 150 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.

*** Testimonials may be had on application at the Manufactory.

N.B. VULCANIZED WASHERS and SHEET RUBBER for Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

GUTTA PERCHA TUBING.—Many inquiries having been made as to the durability of this tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received from Mr. C. Hacker, Surveyor to the Duke of Bedford:—

"Office of Works, Woburn Park, Jan. 10, 1852.

"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, although it will now have been in two years; we have adopted it largely, both on account of being cheaper than lead, much easier fixed, and a more perfect job.

To the Gutta Percha Co. &c. &c. C. HACKER."

N.B. The Company's Illustrated Circulars, containing instructions to plumbers for uniting pipes, lining tanks, &c. will be forwarded on the receipt of three postage stamps.

THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.

GUTTA PERCHA PAPER for DAMP WALLS. JEFFREY, ALLEN, and CO. having improved their make of the above, recommend it to the Trade as a substitute for lead, being much more durable, and will be found (if not absolutely wet) equally efficient. JEFFREY, ALLEN and CO.'S

IMPROVED PAPER HANGINGS, comprising Decorations, Gold, Block, Satin, Marble, and Bed room Papers, printed on their own premises, both by block, and cylinder, are also offered of good quality and at very moderate prices.—Kent and Essex-yard; or 113, High-street, Whitechapel, London.

PAPER-HANGINGS, by E. T. ARCHER'S patent Machine, Blocks, Cylinders, and Art-workmen, at his Manufactory for all kinds of paper-hangings, and for imperial decorations. PANELLED DECORATIONS fitted up on the walls of the customer's premises, in every known style, and for all purposes, by artists of known merit.

Always on hand a CHOICE and EXTENSIVE SELECTION of FRENCH PAPERS, from the best manufactories in Paris.

Attached to the paper-hanging factory there is the choicest assortment of CABINET FURNITURE in London, of the best make, and upholstery goods of the first fabric. Brussels carpet, 2s. 6d. per yard; floor cloths, the best that can be made, cut to any dimensions, 2s. 3d. per yard; silk and worsted curtains, of the finest fabric, 5 feet wide, 8s. per yard, at

E. T. ARCHER'S, 471, Oxford-street.

PAPER HANGINGS.—R. HORNE, PAPER-HANGING MANUFACTURER, 41, Gracechurch-street, City, invites builders and the trade to inspect his extensive stock of NEW DESIGNS in PAPER-HANGINGS, which, by the aid of powerful machinery, he is enabled to offer at the following prices, in stock quantities, for cash only, viz.:—

Stout lining paper		5d.
Super or ditto	6d. and 7d.	
Bed-room papers, in great variety	at	8d.
An excellent oak paper	at	9d.
Sitting-room ditto, on blended grounds	7d. to	9d.
Hall marble and stone	9d. to	6d.
Good satin papers	1s. 6d. to 2s. 0d.	
Flock papers	2s. 0d. to 2s. 6d.	
Hand-made ditto	3s. 0d. to 5s. 0d.	

Every novelty in French and English panelled decoration always on hand; also excellent imitation of fancy woods.

N.B. Patterns sent into the country, by post, showing the style and quality of the above, on receipt of two stamps, and the goods despatched with promptitude on receipt of a remittance to the amount of the order given.

LONDON and SOUTH-WESTERN RAILWAY. RESIDENTIAL TICKETS. In order to encourage the Erection of Houses at moderate rents—from 20l. to 50l. per annum, adapted to the wants of clerks, and of similar classes of society, on the Suburban Lines of this Company, which traverse the most healthy and attractive districts of the neighbourhood of London, the Directors are prepared to arrange terms for the issue at a reduced rate, and for a given number of years, of Residential Tickets, at or near to those paid previously existing. Twenty Houses or more, of the class referred to, on specified conditions, for the use of the occupiers of such Houses, and their families. A late train will run on the Windsor line daily on and after the 1st April, leaving Waterloo-station, every week-day, and calling at the principal intermediate stations, and will continue to run permanently during summer and winter. By order of the Court of Directors,

WYNDHAM HARDING, Secretary.

York-road Offices, March 27th, 1852.

GLASS TILES, ¾ of an inch thick, packed in cases containing fifty, 2l. 10s. per case net.

JAMES PHILLIPS and CO. beg to inform builders and the trade they supply SUPERIOR FOREIGN SHEET GLASS in cases of 200 feet, at 38s., 40s., and 42s. per case. STAINED and ORNAMENTAL GLASS, 1s. per foot. Hartley's Patent Rough Plate and Patent Quarry Glass.—126, Bishopsgate-street Without.

BELGIAN SHEET-GLASS.—ALFRED GOSLETT begs to inform the Trade that he is prepared to supply the above Glass, of good quality, and 16 ounces to the foot, upon the following cash terms:—In single cases, containing 200 feet (case included), 43s.; parcels of five cases, at 40s.; parcels of ten cases, at 38s. per case; or cut to any given size, at 3d. per foot.

SOHO CROWN, SHEET, ORNAMENTAL, and PLATE-GLASS WAREHOUSE, 26, SOHO-SQUARE.

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The Builder.

No. CCCCLXXXI.

SATURDAY, APRIL 24, 1852.

THE official returns of the last census, 1851, and the Registrar-General's reports of "Births, deaths, and marriages," afford materials for inferences calculated to affect materially our future progress and welfare. The future is foreshadowed by the past; and we may safely act in many circumstances, from a consideration of what has gone before, as if we knew, under Providence, what would occur hereafter. Events which we deem accidental and irregular, viewing only part of their cycle, are seen to be orderly and consequent, when we see their whole course. The facts collected throw much light on the circumstances affecting the prosperity and health of the people, and suggest the means of lessening sickness, lengthening life, and guarding against the evil effects of death, in a pecuniary point of view, on those who are left behind. Two statistical charts, one for London, the other for England and Wales,* have recently been compiled by Mr. C. Cooke from the returns we have mentioned, and other authorities. These give in a readable form much information, which, in the barrenness of figures alone, would be passed by; and they place forcibly before the inhabitants of this metropolis many startling facts little thought of. Few, for example, know that in every seven minutes of the day a child is born in London, and that in every nine minutes one of its inhabitants dies! The population of London is, roundly, 2,362,000. If the averages of the past fifty years continue, in thirty-one years from this time as many persons as now compose its population will have died in it, and yet in about thirty-nine years from this time, if the present rate of progress continue, the metropolis will contain twice as many persons as it does now. The whole population of Liverpool in 1851 numbered 255,000; while the *increase* of inhabitants in the metropolis between 1841 and 1851 was 413,000. It is truly marvellous! Where it will stop, and how food and shelter are provided for these masses, are subjects for speculation.

The fact that one in every three persons who die in England falls by *consumption*—that insidious and invincible scourge of this country—is very striking, especially when we remember the influence which the nature of the air we breathe must have in producing it, and the extent to which sanitary improvements might affect it. Statistical returns prove beyond a doubt or question, that those who dwell in confined, unventilated, badly-drained, and over-crowded habitations, live a much shorter time than these who are more favourably situated in this respect.

When persons observe the large number of houses building on all sides of London, the question is often asked, where are the tenants to be found? In truth, however, the number of houses building scarcely keeps pace with the present increase of the population, and in fifty years hence more than double the number of houses existing in 1851 (307,722) would be required to keep pace with the geometrical progress of the living. "To a casual observer," says the author of the charts to which we have referred, "comparatively few houses seem unoccupied in London. The census returns give 5 in every 100, not including those building. The additional houses required for habitation in the year 1852 will number about 6,151; in the following year, 6,268; and so on increasing. But although the inhabitants of this vast city have increased in 10 years 21 per cent. the inhabited houses indicate an increase only of 17 per cent.; which proves that the masses are either more densely packed together than 10 years ago, or that the houses recently constructed are more commodious and of larger dimensions."

A walk through the older districts of London shows a large number of houses uninhabited, even in streets where but a few years ago it would have been scarcely possible to obtain a house on any terms. The unavoidable inference is, knowing the number of houses built and the increase of the population, that the inhabitants are worse lodged than they were,—the houses more crowded.

Amongst the results of the last census are some important tables showing the houses and population of districts in 1851, as contrasted with those in 1841. We give the commencement of the first table, which relates to the London division, and leave our readers to draw their own inferences:—

	Houses, 1841.			Houses, 1851.			Population, 1841.	Population, 1851.
	Inha.	Uninha.	Buildg.	Inha.	Uninha.	Buildg.	Persons.	Persons.
MIDDLESEX (*part of*)								
Kensington	10,962	485	656	17,292	1,111	740	74,898	119,990
Chelsea	5,648	178	100	7,629	261	110	40,243	56,543
St. George, Hanover-square	7,630	339	186	8,795	452	163	66,657	73,207
Westminster	6,439	208	52	6,647	276	55	56,802	65,609
St. Martin-in-the-Fields	2,439	70	4	2,323	145	11	25,132	24,557
St. James, Westminster	3,590	118	5	3,460	299	6	37,457	36,426
Marylebone	14,169	583	193	15,955	658	56	138,383	157,679
Hampstead	1,411	72	6	1,719	77	28	10,109	11,986
Pancras	14,766	579	313	18,731	826	268	129,969	167,198
Islington	8,508	293	314	13,558	653	539	55,779	95,154
Hackney	7,192	318	188	9,861	505	193	42,328	58,424
St. Giles	4,959	186	29	4,778	331	21	54,378	54,062
Strand	4,327	537	8	3,938	252	4	43,657	44,446
Holborn	4,603	390	16	4,517	193	15	44,532	46,571
Clerkenwell	6,946	209	79	7,259	296	19	56,799	64,705
St. Luke	6,385	243	24	6,421	246	20	49,908	54,058
East London	4,796	236	7	4,785	202	8	39,718	44,407
West London	3,010	337	12	2,745	180	4	29,188	28,829
London City	7,921	573	82	7,329	1,127	17	56,009	55,908
Shoreditch	12,642	456	199	15,433	692	151	83,564	109,209
Bethnal-green	11,782	396	180	13,370	387	124	74,206	90,170
Whitechapel	8,834	495	44	8,832	321	21	71,879	79,756
St. George-in-the-East	5,985	243	24	6,151	178	23	41,416	48,375
Stepney	14,364	557	128	16,346	863	222	90,831	110,669
Poplar	5,066	181	121	6,882	336	122	31,171	45,157
SURREY (*part of*)								
St. Saviour, Southwark	4,659	182	29	4,613	243	12	33,027	35,729
St. Olave, Southwark	2,523	91	25	2,365	75	1	19,869	19,367
Bermondsey	5,674	263	33	7,095	390	81	35,002	48,128
St. George, Southwark	6,663	357	38	7,005	427	100	46,718	51,825
Newington	9,370	257	92	10,468	575	273	54,693	64,805
Lambeth	17,791	544	351	20,520	1,094	214	116,072	139,240
Wandsworth	6,459	271	89	8,290	598	287	39,918	50,770
Camberwell	6,843	278	119	9,417	917	237	39,931	54,668
Rotherhithe	2,420	112	16	2,834	196	67	13,940	17,778
KENT (*part of*)								
Greenwich	11,995	497	186	14,423	1,075	340	81,125	99,404
Lewisham	3,966	190	84	5,936	432	265	23,051	34,831

In Birmingham there were 27,272 inhabited houses in 1841, 2,958 uninhabited, and 226 building; and 1851, 34,076 inhabited, 1,663 uninhabited, and 436 building.

In Liverpool, 1841, 32,079 inhabited, 971 uninhabited, and 469 building; and in 1851, 35,360 inhabited, 3,275! uninhabited, and 90 building.

In Manchester, 1841, 32,314 inhabited, 2,745 uninhabited, and 172 building; and in 1851, 36,562 inhabited, 1,192 uninhabited, and 167 building.

Unfortunately, although we keep adding up facts, and make clearer and clearer still the existence of tremendous evils in a sanitary point of view, little or no advantage follows: the disease is admitted, and yet remedies are not applied.

On Wednesday, the 21st, a deputation of the Metropolitan Sanitary Association, headed by the Bishop of London, had an interview with the Earl of Derby, as first Lord of her Majesty's Treasury, and presented a memorial showing, amongst other things,—

"That the death-rate of London (25 per 1,000 per annum) is double the attainable minimum of mortality, as established by the reports of the Registrar-General and of the city medical officer.

That a large proportion of this excessive disease and mortality is attributable to defective water-supply and drainage; to the burial of the dead amidst the living; to the pollution of the air with smoke, and of the earth with stagnant filth, superficial and subterranean; to the practice of slaughtering and other noisome trades, in the heart of a dense popnlation; and to the undue crowding of the poor in badly-constructed and ill-ventilated houses.

That the continuance of this preventible mortality and disease, and of the vice, pauperism, and misery, which it indirectly occasions, constitutes a heavy burden on those resources, personal and pecuniary, which collectively make up the strength of the nation.

That measures for remedying these sanitary evils, and putting an end to these preventible sufferings, by purifying and keeping pure the air, the earth, and the water of London, have been for many years in preparation by Royal Commissions, by Parliamentary Committees, and Government Boards; that those measures are now ripe for execution, and ought not to be any longer delayed."

The memorial then urged the Government to adopt the aforesaid measures, and to make them the basis of improved sanitary legislation, having for its object to bring about the accomplishment of the following, amongst other results:—

To bring the Extramural Interments Act into operation.

To bring down pure sand-spring water from barren uplands in the vicinity of London, instead of pumping up impure valley-drain river-water from the Thames, the Lea, and the Ravensbourne; and to

* Published by Longman, Brown, and Co.

distribute the water at constant pressure, without stint, to the top of every house.

To provide a tubular back-drain, with suitable soil-pan and sink, to every house now lacking such convenience.

To alter the existing drains of deposit to tubular sewers of rapid flow, so that the sewage may be rapidly conveyed out of London.

To dry the humid soil of the low-lying London districts by a system of permeable drains similar to those employed in agriculture.

To consolidate the administration of water-supply, sewerage, house-drainage, and surface-cleansing, so as to bring about an improvement of the service, coupled with large economy.

To enforce and extend the laws against the pollution of the air by smoke.

To amend the Buildings Act, so as to insure that all dwellings hereafter constructed in London shall be suitable for healthy habitation.

Some strong statements, especially with respect to the burial question, were made by members of the deputation, and the Prime Minister in his reply, which he gave at considerable length, admitted the enormous importance of the various subjects commented on, and promised that immediate attention should be given to the preparation of some measure tending to prevent the interment of the dead in the midst of the living. What it is to be, or, indeed, if it is to be at all, is, nevertheless, still doubtful. It seems to us perfectly absurd, that earnest men should waste their time as deputations to point out again and again the same thing, and to obtain again and again the same acknowledgment of the truth of their statements, and the same promise to give the subject attention, which is forgotten, it would seem, as soon as the deputation has left.

ON THE FORM, TREATMENT, AND APPLICATION OF THE PEDIMENT.

THE pediment is too often, I suspect, conceived of as a thing quite different in species to the primitive gable of the cottage or barn: in reality it is only the latter under artistic and refined treatment,—an architectural gable. Its first appearance was in Greek architecture, for there can scarcely be said to be a feature analogous to it in the Egyptian, Arabian, or other Oriental styles. It is in the north a natural and indispensable feature. Whether its elements were suggested by the roof of carpentry, and the whole a representative of its end or profile, is of little consequence. To me it appears quite independent of a timber prototype. It is the offspring of necessity, the natural termination of a roof, the inclination of which is made in reference to weather, and should be an index to the climate under which it is erected; and the aspiring, traceried, and crocketed gables, and gabled canopies,—those picturesque and often fantastic shapes that crown the ecclesiastical piles of the middle ages, must be considered as no less the result of the primitive barn-end than of the Greek Ætos,—may be looked upon not only as the antique pediment freed from the laws of horizontal composition, and soaring under the inspiration of a new spirit, but as the primitive gable elevated by the influence of climatal requirements, infused with the soul of beauty, and translated from the lowly vale of physical exigency to the Olympian realm of art.

It is the æsthetic importance of the pediment or pointed gable that secured it so extensive an employment in Gothic architecture: nor is its æsthetic value less high in the classic, where it originated, than in the Gothic. Its use in composition is apparent when we consider how ennobling to a façade is the slightest elevation in the centre of the blocking course, or other crowning member, the remembrance of which generally inclines us to a pyramidal arrangement in any decoration placed over a flat cornice of a door or window. It appears to be an almost essential element of the picturesque. We can scarcely imagine a domestic building correct in expression without it. How Mr. Ruskin can look on such an object as the pediment of the Parthenon, with its sculptural glories, and see no beauty in it, as he asserts, it is difficult to conceive. The basis of variety, which is one ingredient of beauty, is the difference or variation in elevation; and here, in the pediment, is a most harmonious one. What made our ancient streets so picturesque, and the houses so expressive of their domestic use,—what chiefly contributes to charm the traveller in the old avenues of continental cities, and is the chief ingredient of their picturesqueness—the main source of their effect,—is the gables, which we omit. With our better and larger slates and other modern appliances, their ancient steepness is no longer necessary; but the using them just as they are required by our necessities or comforts would greatly relieve our architecture, and secure a good sky-line, to which nothing more effectively contributes than the extensive employment of the pediment. The want of gables to our houses is the chief cause of our monotony, and the employment of them on two sides of a square villa is not only far better in giving variety and pyramidal composition, than four straight cornices, with hipped and similar sides to the roof, but it would give more headway and useful space within the house. The pediment is the natural brow of the portico or façade, and gives a noble and intellectual look to the composition it crowns. It is the most suitable part for indicating, by the character of its ornamentation—the grandeur or the grace of its treatment—the destination of an edifice. Like the human brow, it should be expressive, and indicate by its decoration something of the nature of the enshrined. The ancients are supposed to have placed the eagle (the bird of Jove) on the apex of the temples of Jupiter, and with us there is no place so fitted for the chief object of decoration as the pediment: both its interior and exterior, *i. e.* its tympanum and its centre and extreme points without, present a most legitimate field for its display. If you possess but one detached figure with which to decorate and give animation to the building, or can afford but a single subject in bas-relief, the pediment presents its summit or its tympanum as the most proper and dignified position for its reception, where it will be the more beautiful if really an artistic work and in unison with the architecture, from beaming forth amid surrounding barrenness of decoration,—

"Fair as a star when only one is shining in the sky."

The first thing to be considered in reference to the pediment is, where it is to be placed. In architectural and art glossaries the pediment is defined as an ornament placed over doors, gates, windows, altars, niches, &c. but this, like too many other popular explanations, is a superficial and false one; for the pediment in reality should never be placed merely as an *ornament* anywhere: it should be placed, and placed only, where it will be an essential part of the structure, or justified more or less by utility. In short, it is only proper where it is the termination of a roof. We should ever bear in mind the original purpose out of which any feature arose. There are architectural members that are purely æsthetic, and æsthetic reasons are a sufficient vindication of their use; but there are others that should never be used but where their introduction will receive the sanction of utility. Such is the pediment, which is not a decorative feature, but a decorated utility—a piece of adorned structure; and no apology on the ground of beauty is sufficient for a useless pediment, which, with idle columns or other leading features wantonly and unmeaningly employed, must ever be a blot on the design,—a sin not against purity of style merely, but against natural propriety and architectural truth. It would surely be ridiculous if, when raising the great stones in the erection of a portico in front of a building, when asked what was the object aimed at, the architect could only reply that it was to throw a shadow, or series of shadows, on some wall. To add irrelevant features to an edifice shows a want of faith in the power of the art as a creator of beauty, or in the beauty of truth, which is itself a higher beauty; and scenic magnificence, unmeaning exterior pomp, which belies, or is belied by, the interior distribution, is not only not beautiful in art, but is a positive deformity; for real interior grace and genuine external beauty, like the soul and the body, must ever be in perfect harmony with, and illustrate, each other.

In placing the pediment, we should be guided by the general form of the building and arrangement of the plan, for almost every building will, if rationally treated, have a pediment. Now, I would have the pediment terminating the end of an oblong building or gallery, as in the Hall of Worthies, at Munich, which has the advancing wings so finished, not because that position is conformable to the best ancient examples, as would, I fear, be the motive of some, but because it is the natural and proper place for it,—the place where alone it can have any meaning. In the British Museum, as in too many other important edifices, it has been misapplied; for, while it is omitted on the ends, where it would have structural significance and justification, it is introduced in the centre, where it is little better than a mask.

I consider a pediment little better than a mask when it surmounts a portico of but one intercolumniation in projection and five or seven in breadth, because the portico it crowns affording no shelter either from rain or sun, is of no use. Besides, it is misplaced: it has no business over the long side of a portico any more than over the longer side of a building, at least over one so disproportioned to the width. There is a reason for this position in small window or door pediments, but these porticoes should more properly have half pediments at each end.

Such half pediments terminating in front the leaning roofs of the side aisles in a Classic or Italian church, as in that of La Villette, at Paris, and some other edifices, is not a misapplication of the pediment; but to cut up a straight façade into several parts by slight breaks of a few inches, and crown each alternate one with a pediment merely to break the sky line, is using a great structural feature for mere decoration, and giving it employment beneath its dignity.

The practice of placing small pediments supported on trusses over doors and windows, has been much criticised; but as it holds out the advantage of throwing the water sideways instead of in front, and thus rendering greater protection to the window or door beneath, it is, I think, admissible, though they as well as straight cornices might, doubtless, be rendered more useful than they are, and, consequently, less objectionable, by greater projection, which could be given generally without violation of æsthetic law.

Placed, however, over a pseudo-portico of attached columns, with no projection and sheltering nothing, as in the front of St. Peter's at Rome, where it moreover mutilates the attic order above, and is without adequate decoration, is a corrupt practice. It is indefensible; for the columns and entablature it covers are so, the whole being a senseless mask.

Pediments, and indeed cornices, over doors or windows under shelter of a portico, or in interiors, though often seen, are in reality a monstrosity. Though using the pediment chiefly for the purpose of decoration, we should refer to its natural types, and be guided by its structural theory. If we did this, not only would the practice I have just referred to be avoided, but many others also—many of those practices for which, though introduced by great masters, we can see no type in the gallery of nature, nor find justification in reason. We should then also eschew the placing of pediments within pediments, where artistically they destroy each other; or bending them to a cylindrical plan, and turning them round a corner, as many Italians have done, with other practices that structurally could scarce be perpetrated.

I should not consider it worth while to notice these corruptions of Italian design, introduced, as most of them were, by the painter-architects to produce painterlike effects, but for the proneness of our architects to reproduce them, forgetting, like their original

erpetrators, the true nature of architecture, nd wherein it differs from painting: the ormer is addressed to the reason more than to ie eye, and though a knowledge of what ontributes to effect in painting is of incalculable se to the architect, he should be careful above l things not to abuse it when acquired.

The laws of composition require that pedi- ients on a large scale should be at the sum- it of a building; also that different tiers of nall window pediments should be of different orms and proportions, the circular above the ectilinear, the more pointed or steepest above ie flatter ones: this likewise secures variety, nd is a better method of securing it than aving them varying on the horizontal line, as t the Banqueting House, Whitehall.

As to pediment forms, the only variety intro- uced upon the original is the circular or seg- ental, which, on a small or a medium scale, a very beautiful one. This form does not lmit of actroteria, as no exterior ornament ill unite with its circular cornice,—it, like ie dome, having no apex. Nor does it need ctraneous decoration, which could only dis- irb the eye as it ranged over its orbed mmit.

For the pitch or inclination of the pediment iere are æsthetic laws, which govern it accord- ig to the order it crowns, the extent of its ase, and the contemplated expression; and roportions are given by Vitruvius, Scamozzi, nd Serlio; but as the pediment, when em- loyed with sincerity, is always the end of a eal roof small or large, extended or fragmen- ry, for protection more or less important om weather, these laws must give way, or at ast be influenced and modified by exigencies f climate and material of covering. The ediment in England should, I think, invaria- ly be loftier than it was in Greece; for ough on a small scale and where lead is sed as a covering, æsthetic laws may have ore sway or be the sole guide, yet for the ake of general harmony considerations of limate should have influence in all.

The omission by the Greeks in their pedi- ients of the crowning member of the base ornice is deserving of notice: there is less eed of it for protection, and besides the pro- uction of greater variety and subordination mong the parts of the pediment by its bsence, a more artistic and harmonious junc- on is effected between the horizontal and nclined cornices. The exquisite feeling with hich the Greek pediment is formed will ause it ever to be looked upon as not the east of the triumphs of his genius. Neither othic nor Roman architect carried his feeling or the beautiful into the minutiæ as did the reek.

The omission, wholly or in part, of the hori- ontal cornice, which a reference to the theory f the pediment must show to be a non- ssential feature, is allowable in domestic uildings where required by a special purpose, ut the absurdity of cutting the raking ones apparent immediately on consideration of heir structural office. It is a gross abuse, owever the pediment may be applied; for, ough placed over attached columns of a door- ay, and therefore affording no shelter, or not o palpably a roof, the pediment may yet have he appearance of being useful to enclose omething,—a shield of arms, for instance; but, hen the raking cornice is discontinued, even his idea is destroyed, and the thing is utterly eaningless. Besides, it is wrong æsthetically: bears the appearance of mutilation, which he scroll or other ornamental termination eems a vain attempt to heal.

Vitruvius says that the ancients did not allow f modillions at all in the pediment, an assertion hat seems to favour the wood-cabin hypothesis f the origin of orders; but there is a sufficient sthetic reason for their use, as well as for utules when the tympanum is not occupied y sculpture, viz. their breaking or giving a aried line to the shadow on the tympanum. esides, they yield at least the appearance of upport to the superior and more projecting embers of the cornice. Modillion shadows, owever, are not only needless when the pedi- ent is filled with sculpture, but, by causing confusion of shadows, they would be in- jurious to the general effect of the composi- tion. In St. George's Hall, Liverpool, they have on this account been very properly omitted by Mr. Elmes, who had always, I understand, an eye to sculptural embellish- ment: besides, irrespective of the shadows they cast, the part of the architecture imme- diately contiguous to a grand sculptural sub- ject should be quiet in itself, so as not to dis- turb the eye. Painters like a plain flat surface next to their pictures, however rich the frames may otherwise be. Whether when used the modillions stand exactly over those of the entablature cannot, I think, be of much con- sequence, as the eye could scarcely detect a deviation. Their sides should invariably pre- serve a perpendicular position.

As to the decoration of the pediment, its tympanum appears formed for its reception, and, in truth, it is the most natural place, and that first calls for it; interior decoration being more necessary and important than exterior,—a maxim that applies to other departments of architecture, but too often violated in all. Acro- teral figures, should not be applied until the tympanum has received its share of attention, and should economy dictate that but one be decorated, the latter should have the preference. The chief defect of many important buildings consists in this, that whilst considerable deco- ration has been spent elsewhere, the great cen- tral pediment, which has the first and greatest claim, is left plain. The principle I contend for has been very properly allowed to govern in the application of sculpture to St. George's Hall, though another important principle has been neglected: the subject of the sculpture has no relation to either law or music, the purposes to which the building is destined,—a fault that arose, however, from no mistake of the designer as it was originally intended for another building.

If the thing supported is more honourable than the support, the entablature should be made to exceed in decoration the column; the archivolt should be more elaborate than the pier; and the pediment than either; and to place a vacant pediment above fluted Corin- thian columns, is to invert the natural order of things. But the deficiency manifests itself to the eye ere the mind has time to reason on the subject; and the surrounding cornices, com- plete, perhaps, in modillion or dentil decora- tion, and enriched mouldings, must (except in the smallest examples, as windows or niches) appear as the border of an empty panel, a rich frame without a picture, or despoiled of one. There is, moreover, no place more susceptible of effective decoration, where it would contri- bute more to the expression of the building, or ordonnance it crowns, or for which we have grander precedents: the pediment is not less susceptible of decoration than the Gothic or Tudor gable; but what would Gothic archi- tecture be without its pierced and traceried gables and ogee canopies?

A great paucity of decorative invention has been shown, I consider, in reference to the pediment interior in modern times, though in reality there is, perhaps, no feature more sus- ceptible of embellishment. Certainly it is not less so than the Gothic gable, which, with its beautiful niche, or highly decorated rose win- dow, must remind us that we have not drawn with sufficient freedom or boldness on the resources of geometrical form in the embellish- ment of the Classic pediment. Any square opening or cutting in a gable is a mutilation, but the circle inserted in the triangle has a harmonious and magical effect, and in the low triangle of the pediment would have the ad- vantage over one in the equilateral triangle of the Gothic, in producing unequal spandrels. The circular and semicircular window, with radiating bars, would be a beautiful decoration in pediments, as the marigold or Catherine- wheel window of the Gothic gable will attest. In fact, geometrical divisions, on the general principle of the Gothic gables, and analogous to tracery, are as proper in the one style as in the other. For such ornamentation in domestic buildings there can be no lack of pretext or justification; nay, utility would often dictate it, necessity enforce it. Windows for an upper apartment are often required, and where no window is needed, an aperture for air to the roof might receive form and decoration con- sistent with the place it occupied.

In the higher class of domestic buildings, for a shield of arms, with its figure or animal supporters, and other decorative accompani- ments, there could be no fitter place than the tympanum of the pediment, while for the latter there could not be a more appropriate decora- tion than such a subject, provided it be on a scale sufficiently large, it being no ornament when a mere spot in the centre. It was a most important decoration with the Renaissance architect, and the panels of the later Gothic might be considered as so many frames, nay the entire building frequently a shrine, for the hieroglyphics of heraldry. After a historical subject it is really the most effective and im- portant decoration that could be employed in domestic structures. For some commercial or other kinds of edifices, a clock of a single sober tint, as grey or stone colour, or exe- cuted in white marble, with figure embellish- ments, as Time, the Hours, or the like, would not be inappropriate or inelegant. In some a semicircular niche, containing a bust or small group might be introduced.

So important a feature, however, is the pedi- ment, so much decorative detail is employed in its formation, that in great buildings, and over a purely Classic portico, the highest class of embellishment is, I consider, called for. I believe no ornament, save the human figure, no decoration but a subject in relief, possesses sufficient dignity to be the ornament of the pediment: no arrangement or combination of wreaths or festoons, or harmony of geo- metrical forms, is worthy to fill such a place. The frieze may be worthily ornamented with foliage, or with abstract lines of beauty; but such decoration looks weak and tame in the pediment of the grand style of architecture.

Such, doubtless, was the feeling of the Greeks, whose successful practice of the highest sculptural embellishment has perhaps never since been equalled, though it cannot be denied that mediæval and other architects, of widely distant periods, were remarkably eminent in the harmonious uniting of sculp- ture and architecture: such is the exquisite union of the two art elements in several of the Gothic edifices of the fourteenth and fifteenth centuries, that it is impossible, in viewing them, to entertain the idea of more than one designer; and even in Egypt the Colossi and Sphinxes are not isolated monuments, but essentially architectural elements of expression and power.* S. H.

Swing Bridge on South-Eastern Railway.—At the Institution of Civil En- gineers, Mr. C. May read a paper, lately, on the "Swing Bridge over the River Rother, at Rye, on the line of the Ashford and Hastings Branch of the South-Eastern Railway." This bridge was constructed by Messrs. Ransomes and May, of Ipswich, from designs by Mr. P. W. Barlow. The girders are 112 feet long, 3 feet 6 inches deep in the centre, and 2 feet 6 inches at the ends, made up in four lengths, one joint being in the centre, immediately over the support, and the others between the centre and the ends. They are secured together at their ends by cross girders; the underside planed and inclined, so as to be slightly lifted, when swung home to their places, on girders secured to the land piers. Provision is made on the underside of the main girders, at three places on each side of the centre of the bridge, for receiving the tie-bars, which all tend to one point over the middle. Each tie-bar is 4 inches by 1 inch in section, and adjustable for tension by a right and left-handed screw, the nut of one end in the tie-bar, and the other between two plates of wrought-iron resting on the side standards, or A-frames, which are connected together by a wrought-iron arch. The turning of the bridge is effected by spur gearing, worked from a platform, projecting from the face of each girder. Two men, it was added, can with ease open the bridge in two minutes. The total weight of metal in the moving part, exclusive of the roadway, is said to be about 130 tons.

* To be continued.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

I sit down to commence this my sixth communication to you in an old cathedral town, and in face of one of the most exquisite productions of our mediæval artists. The sun, which tips with light, pinnacle, and panelling, and gargoyl, has also filled with rich shadow the holes and recesses cunningly formed to receive it: the whole surface is full of life and motion; thought and intention are visible everywhere; the mind of the old workers peeps out at every corner, and the mind of the looker-on is filled and satisfied. Had our review reached the period of the production of structures of this character, the glorious object before me, blackened, and battered, and decaying as it is, would prompt to a more forcible depiction of its principles, peculiarities, and beauty, than I could otherwise produce. This, however, must be deferred: we are but on "the margin of the inky flood," and must not over-sail our subject. Where were we? We have spoken of

> ——— "The Eternal Pyramids,
> Memphis and Thebes, and whatsoe'er of strange,
> Sculptured on alabaster obelisk,
> Or jasper tomb, or mutilated sphinx,
> Dark Ethiopia on her desert hills
> Conceals;"—

and have now to talk of Greece. "Greek art," says Kugler, "sprang from Greek religion. It was art which gave the gods form, character, and reality. The statue of Jupiter Olympius brought the Father of the Gods himself before the eyes of men. He was deemed unfortunate who died without beholding that statue. Art, among the Greeks, was an occupation of a priestly character: as it belonged to her to lift the veil of mystery which concealed the gods, so was it also her office to exalt and consecrate the human forms under which they could alone be represented. The image of the god was no mere copy from common and variable life; it was stamped with a supernatural grandeur, which raised the mind to a higher world." But her arts had an infancy, and to this let us look, confining ourselves to *architecture*.

Amongst the earliest constructions of masonry which remain to us, are those which have been termed indifferently by writers, *Cyclopean* and *Pelasgic*. The characteristics of this mode of construction are, that the walls are formed in some cases of enormous masses of irregularly-shaped stones, piled together without mortar, and having the interstices filled in with smaller stones; and in others, that the stones are polygonal, with their various angles carefully hewn, so as to correspond, without mortar, with those which are contiguous, and not admit smaller stones to fill up. Sir William Gell, who diligently investigated the subject, maintains that only the *first*-described method should be called Cyclopean—the second, Pelasgic; and, moreover, asserts, that this latter mode, although evidently the more artificial and scientific of the two, was practised several hundred years before the Cyclopean manner. Thus, he says, that the Pelasgi built and walled Lycosura 1800 years B.C.; that Argos was founded about 56 years earlier even, and was decidedly a Pelasgian city; and that Tiryns was fortified by foreign artists from Lycia, called Cyclopes, above 400 years later.

The question is surrounded by difficulties, and must be left unsettled; but this will not distress you. One of the most noted examples of the Cyclopean construction is the Gate of the Lions, at Mycenæ.

The doorcase there is formed of two massive upright blocks of stone, covered with another, which is 15 feet long, 4 feet wide, and 6 feet 7 inches high. Upon this stands a triangular stone, 12 feet long, 10 feet high, and 2 feet thick; on the face of which two lions, with their fore-legs resting on a round pillar or altar, are sculptured in low relief. The jambs (as the sides of a doorway are called) slope inward toward the top, coinciding with the Egyptian mode. Mycenæ is, unquestionably, of most remote antiquity.

The walls of Tiryns afford another instance of this mode of construction; the date of their erection is uncertain, but must be very early, as they are alluded to (in terms of commendation) by Homer. Gell says 1400 years B.C.: others, earlier.

In later instances of Cyclopean work, it must be remarked, the stones are squared, and are laid in courses of varying thickness, but without mortar.

Who the Pelasgi were,—whence they came, has been the subject of much celebrated controversy. Some have thought them Egyptians; some Phœnicians; some that they were indigenous. It seems tolerably clear, that they were a hardy people, who migrated at a very early period from Asia Minor, and made themselves masters of various countries. I have little doubt they were identical with the Phœnicians. The Etrusci were, perhaps, the same people.

Some recent writers maintain that Ireland was peopled by the same tribes, and support the opinion with strong arguments. Cecrops, who founded Athens 1556 years B.C. was long considered to have been the leader of a band of Egyptian emigrants. And although, more recently, learned men have shown reasons why this may be untrue, I am content, on various grounds, to assent to this belief.

* No. VI. See pp. 100, 134, 160, 196, and 228.

Whether he was so or not, is not very im portant for our purpose. There is abunda evidence of the early connection betwe Egypt and Greece, and of the obligations of t latter to the former.

Ancient history is positively such a con plicated web of contradictions and errors, to baffle all attempts at disentanglement. N will this surprise any person who has ende voured to chronicle an event, however recen The rapidity with which facts are forgotte or perverted, is so great, that we may be su prised rather that we have so much that apparently consistent and truth-*like*, if n true, than that much is obscured by the acc mulated mists in which Time makes a point shrouding the past.

In the Homeric times, which may be date 900 years B.C. architecture would seem to ha acquired some degree of excellence and im portance in Greece; even if we make d allowance for the glowing colours of the poe He calls it the gift of Minerva;—

> "For loved by Pallas, Pallas did impart
> To him the shipwright's and the builder's art."

Columns, metallic decorations, coloured co nices, and silver pillars, shine in his descri tions. The account of Priam's palace giv an idea of accommodation and even magnif cence. He says, if we follow Pope,—

> "And now to Priam's stately courts he came,
> Raised on arch'd columns of stupendous frame,
> On these a range of marble structure runs,
> The rich pavilions of his fifty sons,
> In fifty chambers lodged, and rooms of state
> Opposed to those, where Priam's daughters sate
> Twelve domes for them and their loved spous
> shone;
> Of equal beauty and of polished stone."

We must not attach to any of these wor exactly the same ideas which they now rais and the "domes" are more than doubtfu Paris built his own residence;—

> "Himself the mansion raised from every part
> Assembling architects of matchless art:"

and Homer describes it as a pompous stru ture.

With the roof sloping each way from th centre, to throw off the water, he was als acquainted; for he compares Ajax and Ulysse when wrestling, to the beams of such a co struction.

Amongst the earliest edifices in Greece, a those known as *Treasuries*, which are peculi to that country. That of Atreus, at Mycena which still exists, is of a conical shape, abou 48 feet in diameter. It was lined inside wit plates of brass, and covered outside with earth so as to form a mound or tumulus. I will giv you a sketch of it when we come to speak of th history of the arch. In the remotest ages, tw brothers, Agamedes and Trophonius, are sai to have been celebrated as designers of thes structures. Pausanias says that when the built the Treasury of Hyrieus, they arrange one of the stones so that they could ente when they pleased, without discovery, to remov treasure. The respectable proprietor not bein able to tell how his money went (a commo complaint even in our days), set a trap an succeeded in catching one of these insinuatin and designing architects, when, as the stor runs, the other cut off his brother's head, t prevent his own detection. For my own par I cannot bring myself to believe anything s bad of an architect. At all events, the story i much older than the date this would give it It is told in connection with one of th Egyptian kings, with the addition of circum stances not fitted for a lady's ears, which sho that their ideas of female virtue were ver different from what we entertain. I shoul mention, that some good archæologists thin the structures I have spoken of were no treasuries, but tombs.

One of the earliest columnar structures i Greece is the ruined temple at Corinth,—per haps *the* earliest. Colonel Leake suppose that it was erected about 800 years B.C. I is of the Doric order, of great solidity, an has very short massive columns, little mor than four times the diameter in height. Th diameter of the column, I should tell you i

parenthesis, is the datum technically used in proportioning columns; and in describing the height of specimens of the different styles, it is always spoken of as being so many "diameters." The hypæthral temple at Pæstum, in Sicily, built about 550 B.C. (which you visited not long ago, and have described so nicely), is another very ancient example; as are also the great temple at Selinus and the temple of Jupiter Panhellenius at Ægina;—which is beautifully placed on a mountain, as was the case with many Grecian structures. These massive ruins may be cited as early steps from the Pelasgic structures, and as the connecting link between the perfected architecture of the Greeks (seen in the Athenian temples) and the ponderous structures of Egypt.

The first buildings of the Greeks were poor works; the earliest temples were probably of wood. To wooden constructions, the majority of accredited writers on the subject ascribe the origin of Greek architecture. Trunks of trees fixed in the earth, with a tile to stand on, and a tile at the top to receive the beams forming the roof, originated, say they, stone columns with cap and base. You have here a drawing



Fig. 14.

of a timber hut, by which they illustrate their views (Fig. 14); and if you compare it with Fig. 15, representing the end of a Grecian Doric temple, you will see how far the analogy holds. The end of the roof forms the pediment; the longitudinal beams, extending from column to column, make the architrave; the ends of the transverse beams are supposed to have suggested the ornament called a *triglyph* (from being sculptured with two whole and two half glyphs or channels), which is seen above the columns in the sketch; and the end of the inclined rafters of the roof originated another ornament above each triglyph, in the underside of the cornice, called a *mutule*. The whole of the construction above the column up to the edge of the roof, embracing architrave, frieze, and cornice, is called the *entablature*. Do not be alarmed. I shall not trouble you with much of this detail. What I am about to say is, that without denying the influence which timber constructions had upon Greek architecture, I cannot help believing that Greece was something indebted to Egypt in this respect, and to Assyria. We have seen the connection which existed between the Greeks and Egypt. Bulwer says, in his "Athens," that it was not earlier than 670 years B.C. when the Greeks were thrown into familiar intercourse with the arts and manners of Egypt. At that time, some Ionian and Carian adventurers were driven upon the Egyptian shore, and afterwards, with their swords, enabled Psammetichus to regain his dominions, and become sole sovereign of Egypt. In return, he gave them lands, and obliged some Egyptian children to learn Greek: from whom descended a class of interpreters who established familiar intercourse between the two countries.

If you refer back to Fig. 13,—the tomb at Benihassan, you will see a close similarity to the Doric of Greece in a structure considered to be many centuries older than any example in the latter country. Some Egyptian columns have a capital not far unlike the Doric capital. From Assyria we now see that the Greeks had, at all events, the ornament heretofore known as the "Grecian honeysuckle." The accompanying sketches (Fig. 16) of a Greek "honeysuckle," and of an ornament very general on the Assyrian marbles, will substantiate this remark.



Fig. 16.

One main argument against the hut-theory of Grecian architecture would seem to be this: that while it might be supposed, that if imitated from wooden erections, the older temples would be lighter and more like the origin than those of later time, the fact is found to be directly the reverse; the earlier structures being more massive and less post-like than those which followed. Admitting, however, that the Greeks did obtain their first models from other countries, they so sublimated and refined their models as to become entitled to all the praise due to originality. They produced an architecture complete and perfect so far as its purpose went. It was from the year 444 B.C. to 430,—the brilliant era of the accomplished Pericles,—that the chief architectural glories of Athens arose:—the Propyleum, the Parthenon, the Temple of Theseus, and the temples of Erechtheus and Minerva Polias.

I must remind you that the Greeks had three orders—the Doric, the Ionic, and the Corinthian. These are all distinguishable at a glance, if by their capitals alone, and yet there are not merely ladies, but men, who can unblushingly admit that they do not know one from the other. The Doric capital, a square cap (called an abacus), and a rounded moulding under it, you may see in Fig. 15: of the other capitals, I will give representations hereafter although you do not need them. In the Doric order, the triglyph is also a distinguishing characteristic: it is not used in any other. The most important modern example of this order in London is the entrance to the Euston Station of the North-Western Railway: but you will scarcely pass through a new square without finding a miniature imitation of it in a porch. In Edinburgh you have the unfinished Monument on the Calton Hill, to serve as an instance. Simplicity and grandeur, with great elegance of detail, are the characteristics of pure Doric architecture. The Ionic was lighter and more refined; the Corinthian more slender still, and more elaborately adorned. Thomson says, speaking of Greece, in his "Ode to Liberty:"—

"In architecture, too, thy rank supreme!
That art where most magnificent appears,
The little builder man; by thee refined,
And smiling high, to full perfection brought.
Such thy sure rules, that Goths of every age,
Who scorn'd their aid, have only loaded earth
With labour'd heavy monuments of shame.
Not those gay domes that o'er thy splendid shore
Shot, all proportion, up. First, unadorn'd
And nobly plain, the manly *Doric* rose;
The *Ionic* then, with decent matron grace,
Her airy pillar heaved; luxuriant last,
The rich *Corinthian* spread her wanton wealth.
The whole so measured true, so lessen'd off
By fine proportion, that the marble pile,
Form'd to repel the still or stormy waste
Of rolling ages, light as fabrics look'd
That from the magic wand aerial rise."

The lines have been often quoted; but as they convey, in a form likely to be remembered, the *sentiment* of the three Orders, I have ventured to repeat them.

When the Parthenon was raised, the taste of the Athenian populace was cultivated to an extraordinary degree; and there is clear evidence that philosophy and art were studied by all, and contributed to the every-day enjoyments of the multitude. Desire for glory was the leading motive in the Athenian mind: to decorate their city, and render it the "Greece of Greece," as it has been termed, became a passion. Art can scarcely take a high place until the people themselves are prepared to



E. O. LAING, Sc.

Fig. 15.—THE END OF A DORIC TEMPLE.

receive and appreciate it. If their knowledge of it be extended, and a love for it induced, its efforts will necessarily advance. When Aristotle said, incorrectly as a general rule, that the common people are the most exquisite judges of whatever is graceful or sublime in art, he spoke (observes Bulwer) from his knowledge of the Athenians, who were a special case. When this is really the fact (and to this end, if we wish to elevate the arts, our endeavours should tend), then of course mediocrity will cease to be applauded, and the efforts of genius will be appreciated, and led into the right path.

Pericles has earned immortal honour by the assistance which he afforded to the fine arts: but the Athenian people are entitled to part of the glory which even the remnants of the magnificent structures then erected gain for their undying city—a glory which they foresaw and strove for. I say foresaw, because it is known that when Pericles, in reply to a complaint made by political opponents, that he had squandered the public money upon the

city, offered to apply his own private revenues to the task, on condition that the edifice should be inscribed with *his* name, and not that of the Athenian people, they at once uttered their applause of his acts, and laughed at the charge. The money thus expended has returned ample interest even in a pecuniary point of view; it has proved an investment on which their descendants are subsisting. Travellers from all parts of the world still visit the wonderful remains of these buildings, to study the effect they produce, and to enjoy the associations they induce; and so contribute materially to the support of the modern inhabitants.

I must say a word or two about the Parthenon, the finest example of Doric art, before we pass to the Ionic and the Corinthian; but the chimes of the old church, which seem to follow each other faster and faster, remind me of other duties less pleasant than addressing you, and force me to defer for a time any further observations.

Believe me always yours,

Reggio.

THE ROUND CHURCH AT NORTHAMPTON.

At the meeting of the Northamptonshire Architectural Society, held last week, Mr. Scott read a paper with reference to the proposed restoration of St. Sepulchre's, Northampton, which he commenced thus:—

Round and octagonal churches appear, in the first instance, to have been built not so much for congregational uses as to overshadow some single central object,—baptisteries, to inclose the great central font,—and other churches of this form, to inclose some sacred tomb or shrine. It is a remarkable circumstance, that at Jerusalem *two* such edifices exist; both very much alike in plan and construction; both overshadowing a mass of rock; and in both that mass of rock containing a sacred cave. One of these buildings is commonly called the Mosque of Omar, or, more correctly, "The Dome of the Rock." The rock it contains appears, from pretty good evidence, to be that in which the brazen altar in the ancient temple was erected; while the cave within it was a cesspool formed to receive the blood of the sacrifices. This rock was, for some centuries after the destruction of the temple, held sacred by the Jews, who made annual pilgrimages to anoint it with oil. The Christians, at a later period, to annoy the Jews, had covered it by a dunghill; but when the city was taken by the Mahometans, it was searched out and cleansed by them, and became one of their most sacred sites. Omar erected, probably, only a small building to protect it; but one of his successors, some fifty years later, erected over it the present magnificent circular (or partially octagonal) temple, called the "Dome of the Rock." The other circular edifice is the Church of the Holy Sepulchre. When the Sepulchre was first recovered by Constantine, he erected over it a small ornamental building. This, with the neighbouring Church of the Martyrdom, was destroyed about A.D. 600, or a little later, by the Persians; after which Modestus, the coadjutor of the Patriarch, erected over the tomb a magnificent circular church, which probably suggested to the Mahometans, who almost immediately afterwards took the city, the idea for the similar erection over *their* sacred cave. This church was, in its turn, destroyed about the year 1000, and shortly afterwards rebuilt on a plan nearly resembling the former one; shortly after which the city again came into the hands of the Christians, who enlarged the church to such an extent as to make it include the site of Calvary and other sacred spots. It was just about this time that our own Early Round Churches were erected; being humble imitations, on a very reduced scale, of the building justly held so sacred by the Crusaders. The fact of their being built so soon after the Church of the Holy Sepulchre itself was re-erected, and while the city was in the hands of the Crusaders, adds much to their interest. Mr. Scott then gave a general outline of the form of the Church; and in the course of further observations said,—

The great question is now, what is best to be done? And this question resolves itself again into two, the one bearing upon restoration, the other upon enlargement. To begin with the Round. The primary question is, whether or not we are to aim at bringing it back to its ancient form? I see no difficulty about its external wall: we have evidence enough here to restore with absolute certainty. We *may* also be able to restore the groining shafts with certainty, though as yet I am not quite decided as to their design, the one which remains presenting some puzzling difficulties. Were these satisfactorily restored, the groining might follow, though with less certainty as to its original design, particularly as regards the section of its transverse ribs, and the manner in which it would rest upon the pillars. Before this could be done, however, the form of the original Round would have to be regained, both at the east and west, involving very extensive alterations, including the closing of the tower arch, and those leading into the chancel aisles. When we reach the arcade, with the triforium arches and clerestory, however, we should be left wholly to conjecture: not a trace of their original design remains. If their present form dates from the erection of the tower, it is probable that its massive walls have swallowed up all the materials which could give a clue to the restoration; though if the old form of these parts was preserved to a later date, we might hope, on removing the present clerestory, &c. to find at least some remains to aid in restoring the design. Still, however, the restoration could not be viewed as other than conjectural, and it becomes a question whether the interest lost by such a restoration would not be more than equivalent to the beauty gained. I confess myself much perplexed by the whole question.

The Rev. G. A. Poole afterwards read a paper on the same subject, from which we make the following extracts:—

We often hear at our meetings of the interest which attaches to the study of a church with reference to its history and its original character. I will now illustrate this interest from the church before us, confining myself, however, to the Round, the only portion which is attributed to Simon de S. Liz. You are all aware that in the interior we have a circle of eight cylindrical columns, supporting pointed arches. The columns are decidedly Norman, and the arches, though pointed, are so exceedingly simple, being only of one order, with a flat soffit, that if it were possible to conceive that any Norman arches could be pointed, we might certainly suppose that these were of the same date with the columns. Yet it was *à priori* very unlikely that if this church was really of the date assigned it, it would have had pointed arches. In consequence, it has given rise to various opinions. Mr. Parker, of Oxford, the compiler of the "Glossary of Architecture," declared it an example of pointed arches of a pure Norman period, accounted for by the foreign influence which might, under these circumstances, be fairly expected. Mr. Sharpe, the author of "the Parallels," had included this among examples of the transition period, which commences, according to his dates, about 1145. I had myself, in a work published some four years ago, attributed these arches to Simon de S. Liz, who died in 1127: but in my last paper on this church, I ventured, after a more careful survey, with express reference to the restoration, to state that the arches which had been so variously interpreted, were in fact so recent, as to be separated in their history from the columns, it might be 400 years or more. Since that, Mr. Scott has discovered, *beyond all possible doubt*, that not the arches only, but also part of the columns themselves, are recent, the capitals having been taken off and the shafts lengthened about two feet.

And now I turn to the question of restoration, and this I do with some little (I will not say diffidence, for I feel pretty confident of the justice of my conclusions, but with some little) trepidation, because I know that what I have already said upon the subject has been thought to savour of destructiveness by much better judges than myself. Let me, however, premise this much concerning myself; that I am a most absolute Conservative in Ecclesiology, only with a little touch of something which, to follow out the figure, I will call Toryism, which intensifies, and, at the same time modifies, Conservatism; which elevates it from a profession to a passion, from a jumble of compromises and expedients, to a high and consistent principle. Nor, indeed, should I wish a better motto to my paper than the words of one of those right good old Tory songs, which make one tingle to one's finger's ends,—

"This is no my ain house,
I ken by the biggin o't."

And all this I say, lest I should be presumed to argue with the predilections and from the principles of a *destructive;* and that, now and always, what I may say may be interpreted in a conservative sense, if at least it possibly may be, and if not, then in a higher, and no lower sense. Not that, after all, my opinion has any greater weight than it shall derive from my arguments; for the Architectural Society, and the committee, to whom especially the restoration of the Round is intrusted, cannot be in the slightest degree committed by what I say. I wish this to be most distinctly understood. In the whole question I have no *authority* at all, direct or indirect, and the *interest* only of a devoted student of ecclesiastical art in one of its most valuable relics. All that I throw out is, at the best, for discussion.

One thing, too, I will premise, touching those who arrive at different conclusions from my own,—that no man, let his powers be ever so great, can be a fair judge, who does not come to see the church with his own eyes, and study it in its present condition, with especial reference to its restoration. I have shown that with less practically important objects it has been hitherto slightly studied, and that it has in consequence been generally supposed that the present pier arches are original, and that there was never any groining or triforium, and that though the present clerestory is obviously not Norman, yet that the original one was octagonal in form, and that the present is at least of such a date as to have some antiquarian interest. From these premises, every one of which is now proved to be false, I had myself, until I had made my last more careful review of the church, arrived at conclusions precisely opposite to those which I shall presently state. I cannot help believing that a similar course of study would produce a similar change in the opinions of others.

The first question before us is purely mechanical. Are the walls of the Round in a state in which they can be left with safety? and, if not, can they be restored to such a state without rebuilding? If the architect says *yes* to either of these questions, they will, of course, remain. If he says *no* to both of them, another question occurs. Shall they be rebuilt, or suffered to tumble down and remain in ruins? A question which would hardly occur to one of common sense, and which is therefore most worthily argued in the terms of one of uncommon genius. "Do not," says Mr. Ruskin, "let us talk of restoration. The thing is *a lie* from beginning to end. You may make a model of a building, as you may of a corpse, and your model may have the shell of the old walls within it, as your cast might have the skeleton, with what advantage I neither see nor care: but the old building is destroyed, and that more totally and mercilessly than if it had sunk into a heap of dust, or melted into a mass of clay: more has been gleaned out of desolated Nineveh than ever will be out of rebuilt Milan. But, it is said there may come a necessity for restoration! Granted. Look the necessity full in the face, and understand it on its own terms. It is a necessity for destruction. Accept it as such: pull the building down: throw its stones into neglected corners; or make ballast of them, or mortar, if you will; but do it honestly, and do not set up *a Lie* in their place. And look that necessity in the face before it comes, and you may prevent it. . . . Take proper care of your monuments, and you will not need to restore them. A few sheets of lead put in time

upon the roof, a few dead leaves and sticks swept in time out of a watercourse, will save both roof and walls from ruin. Watch an old building with an anxious care: guard it as best you may, and at any cost, from every influence of dilapidation. Count its stones as you would jewels of a crown: set watches about it, as if at the gates of a besieged city: bind it together with iron where it loosens: stay it with timber where it declines: do not care about the unsightliness of the aid—a crutch is better than a lost limb: and do this tenderly and reverently, and continually, and many a generation will still be born and pass away beneath its shadow. Its evil day must come at last; but let it come declaredly and openly, and let no dishonouring and false substitute deprive it of the funeral offices of memory."

For a formal refutation of these principles I must refer you to a paper lately published by Mr. Freeman. For my own part, it seems to me that Mr. Ruskin's exposition of his own views precludes the necessity of an answer. It is in short a *reductio ad absurdum* of his own principles:—that is, if they *are* his principles; for I suspect that, like most impassioned declaimers, he has really gone beyond what he himself at all believes and feels. His words have run away with him; or perhaps his characteristic *αυθαδεια* has impelled him to lay about him so lustily, that he has broken his own knuckles against our hard heads.

Let it be granted then that the outer walls are not to become a ruin, but are either to be kept up, or, if that be impossible, to be rebuilt stone by stone. And now what do they consist of? They comprise the exterior of an aisle and of a triforium. If, therefore, they remain, you have a triforium indicated when none really exists. To perpetuate this mendacious deformity would surely be more like a lie, and an ugly one too, than a careful restoration in the interior of that triforium of which the exterior still exists.

I will now venture to enumerate three kinds of church restoration, which are so far from "*a lie*," that they are absolutely and distinctly truthful; so far from reckless, that they are essentially "tender and reverential."

First, there is that never-ending, still-beginning, restoration, for which there is room in a large fabric almost from its completion, and which may be so careful and extensive as to admit of no signs of far-spread decay,—a course which is now being pursued at Lincoln, where no single stone is allowed to be replaced except by its fac-simile. This course cannot be otherwise than satisfactory, if it has been carried on from the beginning, and where it is not so, it is the penalty of past neglect; and, as for its being untruthful, since it is the condition of all sublunary things to need repair of some kind, this course is really to enter into the truth of things,—to accept it, and to follow it out to its just conclusions. It is simply absurd to talk of expressing either our admiration or our reverence for anything of use and beauty, and our thankfulness to our forefathers for their bequest to us, by letting it tumble to pieces, and become of lower, less graceful, or inferior use.

This course of restoration, however, must be followed *to the very letter*. At York, where constant attention is given to the works, but, perhaps, with less strict surveillance of authority, one of the capitals in the Early English arcade in the north transept is replaced with a bust of the Duke of Wellington! This warning, however, is unhappily not needed here, for for this kind of restoration there is no place at present in St. Sepulchre's. I hope it may be left, ere long, worthy of such jealous custody as to require it but seldom, and that *when* and *as* it does require restoration, such as this may be given to it.

Secondly, when a church has fallen into general decay by long neglect, but has not suffered material changes in the fabric, it may surely be restored by the insertion of masonry, where it is absolutely needed, at the same time leaving every fragment which will still perform its proper office untouched. Here the course pursued reveals itself, and the effect, if in any degree bad (as it is not, as compared with a more sweeping reparation), is only so much so as to be a fair penalty for the neglect which has caused such a restoration to be needed. This kind and degree of restoration may be followed in the outer round of St. Sepulchre's.

Thirdly, and finally, there is the restoration of an integral portion of the fabric which has perished by neglect, or violence, or accident, or which has been replaced with something worse than ruin, an incongruous substitute without any virtue of its own. And this is *desirable* in proportion to the interest or other merit of the building; *safe* in proportion to the assurance we have of the character of what is destroyed; *necessary* in proportion to the use, and *graceful* in proportion to the uselessness in a hard dry sense of that which has perished. Under this head would come the greater part of the restoration, such as I have advocated, of the round of St. Sepulchre's. Interesting unquestionably it is in its history and associations far beyond ordinary churches. It is certain that the several features I have mentioned did exist: it is equally certain that they had a well-defined character, of the very details of which we may discover traces, of the broad lineaments of which we cannot doubt. Its use is not, perhaps, greatly lessened by its present incongruities; but all the more graceful the attempt to remove them: nor do I believe that I have to contend with those who would really argue the matter as a *cui bono* question, in the Harriett Martineau sense.

NOTES IN THE PROVINCES.

Lincoln.—A quantity of building land, in a field opposite Monson-street, was lately offered for sale at auction, but only one out of forty to fifty lots was sold, price 3s. 4d. a yard. "It is a singular fact," says the *Lincolnshire Chronicle*, "that houses are being built in Lincoln in every direction, and yet there are an immense number of houses to be let, and people are leaving the place every week."

Yarmouth.—Four windows in the south aisle of the parish church of St. Nicholas are being restored, and a new door leading into the chancel is about to be made by order of the restoration committee.

Bury St. Edmunds.—The Norman tower, now restored, has just been surrounded by a wrought-iron palisade.

Lowestoft.—Messrs. Lucas have taken the contract for a new chapel at Lowestoft, Suffolk, Mr. Kerr, architect. It will be of an Italian character, with a composite for vestry, staircase, and belfry; accommodation, including a small organ gallery at west end, about 600. The material will be brick, with ornamental brick dressings *entirely*, openings being arched: considerable architectural effect may thus be obtained at small comparative cost.

Huntingdon.—Mr. Smyth, architect, has been appointed to prepare plans of a new infirmary for thirty in-patients, to be erected on a site already selected.

Southampton.—A new building for a corn exchange and chamber of commerce is about to be erected on the site of the old custom-house, from designs by Messrs. Hinves and Bedborough, architects. The elevation is in the Italian style.

Hereford.—The contracts for the Hereford, Ross, and Gloucester Railway have been signed by Mr. Peto, who has contracted for making the whole line at a cost of 230,000*l.*; of which sum he himself takes shares to the amount of 135,000*l.* or less, the number being discretionary with the directors: he is to receive of the remainder 50,000*l.* in cash, and the balance in debentures. The Great Western Company have undertaken the complete working of the line for 60 per cent. of the income, after paying interest on debentures. It is expected that more than a thousand "navvies" will be shortly in full operation on the line.——The five stained glass windows in the eastern end of the Ladye Chapel of Hereford Cathedral, forming the Merewether testimonial, are now in their places. —— New baths and washhouses are being opened at Hereford. "The building," says the local *Times*, "has been erected by Mr. Nicholson, architect, of this city, on land adjoining the Steam Corn-mill of the Industrious Aid Society. From the boiler of the mill the waste hot water is conveyed to the baths, which will thus be furnished with a never-failing supply, superabundant in quantity, without the expense of heating it for the baths. In each bath the bather, at his option, can turn on or off either hot or cold water, or can gratify himself with a shower bath, if so disposed."

Rugby.—Messrs. Branston and Gwyther have obtained the contract for a portion of the work at Rugby station. There were sixteen competitors. 10,000*l.* is said to be the price. There will be a great deal of glass and iron used in the construction of the building.

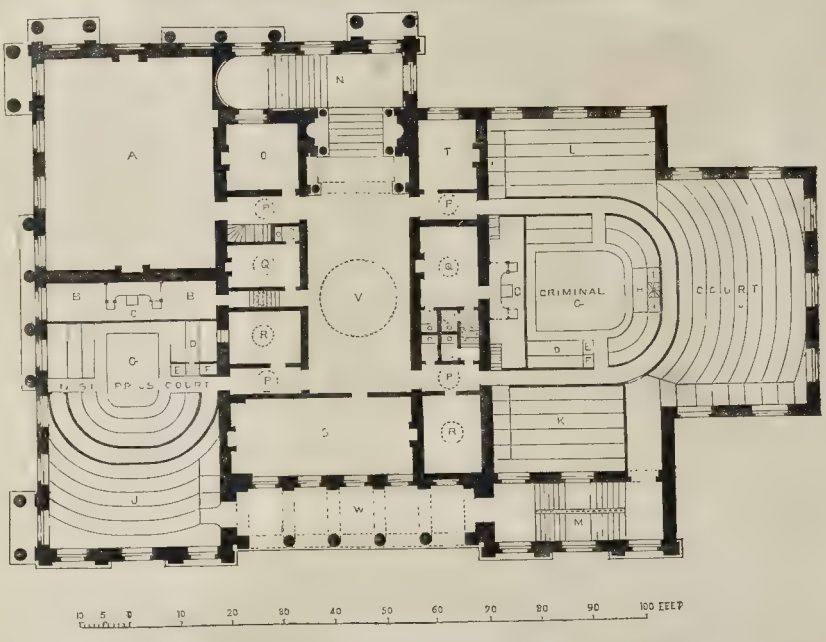
Edgbaston (Birmingham).—The new church of St. James is now completed. It stands on rising ground near the Carpenter-road, and is in the Middle Pointed style, comprising nave, transept, and chancel, tower, with broach spire, south porch, and sacristy. The transepts have aisles on their eastern sides. The nave is 96 feet long by 31 feet 6 inches wide; the chancel, 29 feet long by 24 feet wide; the transepts, each 24 feet deep, and, including their aisles, about 35 feet wide. The length of the church externally is about 129 feet, and it will accommodate about 1,000 worshippers. The tower, which is attached to the east aisle of the south transept, and forms internally a portion of the aisle, is 71 feet high; including the spire, 103 feet. The church is built of irregularly wrought stone, with Bath stone dressings. The roof interiorly is open, and of stained fir. It is of high pitch, rising 48 feet from the floor. The seats are all open. The floor of the church is paved with blue and red tiles; and the doors will be of oak, with scroll hinges. The edifice will be warmed by heated air, the apparatus for supplying which is arranged under the sacristy. The architect is Mr. S. S. Teulon, of London. The building was founded by the late Lord Calthorpe.

Uttoxeter.—A public meeting of inhabitants of Uttoxeter has been held for the purpose of promoting the erection of buildings to comprise a town-hall, apartments for the literary institution, magistrates' room, police station, and covered market.

Lichfield.—The ratepayers were lately considering the propriety of applying to the Lord Chancellor for a faculty to take down and rebuild the tower of St. Mary's Church as a memorial of the late vicar. Two schemes appear to have been proposed, one for the mere restoration of the tower as it stands, and another for the erection of a tower and spire, which some objected to on the ground that it would involve other alterations and expenses.

Bury-lane, Lancashire.—A new church has been erected here at a point adjacent to the Liverpool and Manchester Railway, not far from where the diocese of Chester joins that of Manchester. It has been consecrated as "The Church of All Saints, Bury-lane," having a district attached to it. The foundation stone was laid on 19th June last. The cost of the building, including incidentals, is estimated at 1,250*l.* The material is stone; the style of architecture florid decorated; and the plan comprises a nave, with centre aisle, a south porch, a bell turret at the west end, containing two bells, and a vestry at the north-east side. Internally that part of the continuation of the nave set apart for the communion table, is separated from the rest by a low screen of wood tracery, forming a kind of chancel. The length of the nave is 70 feet inside, the breadth 27 feet 4 inches; the exterior height 18 feet to the eaves, and from thence to the ridge of the roof, which is of high pitch, is 24 feet 2 inches. There are three large windows on each side, a window of three lights at the east end, and a smaller one at the west end, all finished with ornamental and characteristic tracery. The accommodation is calculated for 300 persons, and 170 of the seats are free. The seats are open, the entrances being finished with ornamental bench ends, capped by poppy-head finials. The roof is of open timber, stained. The floor is laid with black and red tiles. There is an area of ground encircling the building, for a burial ground. The architect is Mr. E. H. Shellard, of Manchester.

PLAN OF GUILDHALL AND ASSIZE COURTS, SWANSEA.



Burnley. — Ænon chapel was opened on Good Friday, and is thus particularised by the *Preston Guardian*:—"The foundation stone was laid on 25th December, 1850, and the edifice has gradually risen, under the superintendence of Mr. J. Green, architect. Mr. R. Smith was the mason; Mr. Parker, joiner; Messrs. J. Radcliffe and Son, plasterers; and Mr. H. Berry, glazier. The principal front of the building is in White Lion-street, is in the Italian palatial style of architecture, and consists of projecting centre, triple circular-headed windows, pick dressed, frosted, and channelled rustics, moulded string course, central window over, the whole enriched with Corinthian columns, pilasters, and projecting balconies. Each of the front doors is approached by a large broad flight of steps, and is arched with polished channelled rustics and moulded keystones. The whole front is surmounted with a bold cornice, supported on blocks. The sides are built in a plain style. Under the chapel is a schoolroom, with vestries, or classrooms. The cost of the building will be about 2,700*l.*: it will accommodate about 1,000 persons, and may be said to be the first chapel built *in* the town by the General Baptists of Burnley. The warming of the building is on a new and scientific principle, for whilst it heats, it at the same time ventilates it. No matter how large the edifice may be, it will on this principle be warmed in two hours, whilst half the fuel used in the ordinary apparatus will not be consumed. This invention (for invention we are informed it is), has been the result of the patient study of our townsman Mr. Thomas Atkinson, whitesmith."

Kirkthorpe (near Wakefield).—On Thursday week, the church, which has been almost entirely rebuilt, was re-opened for public worship by the Bishop of Ripon. An unsightly gallery has been removed, and the body of the church fitted up with open stalls. The chancel has been laid with encaustic tiles, and a stained glass window, the purchase of a separate subscription, placed at the east end of the church. The work has been executed from a design by Messrs. Perkin and Backhouse, of Leeds, architects.

Doncaster. — The increasing population of the town, says the local *Gazette*, and the greater consumption of gas, have rendered it necessary for the committee to add an additional gasometer to their works. The boundary wall was let to Mr. Robinson, Fisher-gate; and at a meeting of the committee on Monday last the tenders for the gasometer were opened. All the tenders were within 15*l.* of each other, two being of the same amount. The expenditure involves the sum of nearly 600*l.* The committee unanimously agreed that the tender of Mr. Knapton, of York, should be accepted.

Merrington.—Through the liberality of the Dean of Durham, Archdeacon Thorp, and others, according to the *Gateshead Observer*, Merrington Church has been rebuilt. The architect employed was Mr. George Pickering, of Durham. The contractors for the masonry were Messrs. B. Adamson and Son, of Whickham; and for the carpentry and joiner-work, Mr. Martin Dunn, of Gateshead.

Wigan.—The committee to carry out the erection of the proposed public hall have unanimously chosen the plans drawn by Mr. R. Lane, of Manchester, architect.

Ormskirk.—A project has been started for the construction of a pier or jetty at Southport, to extend from some part of the promenade to low water. The undertaking is to consist of 4,000 shares at 1*l.* each. Nearly 600 shares were taken at the meeting lately held to start the project.

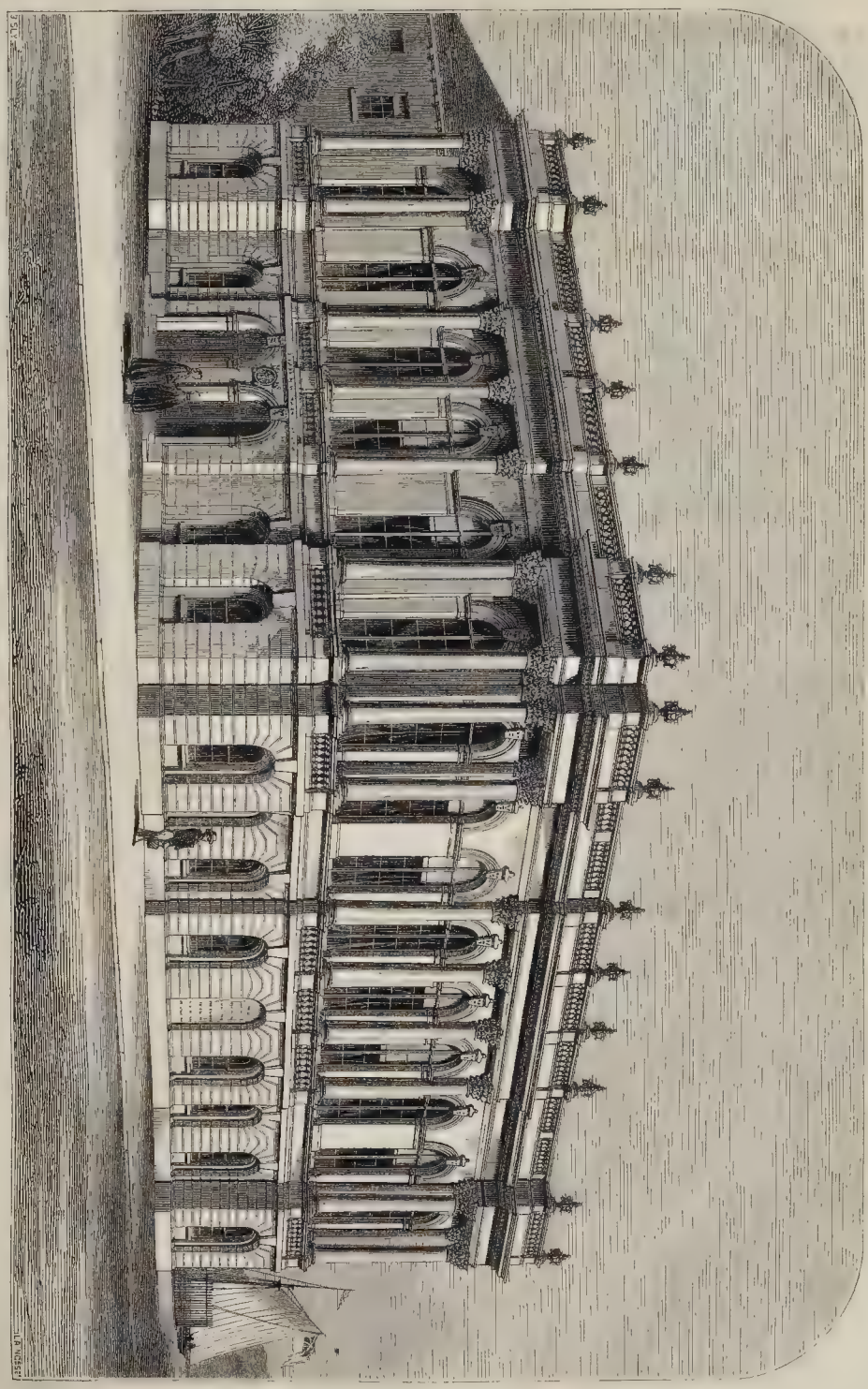
SWANSEA GUILDHALL AND ASSIZE COURTS.

This new building has been recently finished, and was used at the late assizes, as well as by the town council. A description of it appeared in our pages on 13th ult. under head of "Notes in the Provinces." The work was commenced in 1848. The walls are built of stone from quarries in the vicinity, the fronts, however, being wholly cased with Bath stone. The walls of entrance-hall, principal staircase, and vestibule, are entirely finished in Martin's cement. The porticoes of the two fronts, supported by full and three-quarter columns, with capitals sculptured, are after those of the Corinthian temple of Jupiter Stator at Rome. The principal staircase leading to the vestibule consists of two flights of stonesteps 10 feet in width, and on the right and left of the upper flight there is an arrangement of Doric columns and pilasters supporting an entablature, having niches between for statues. The ceiling is coved and panelled. The vestibule is above 40 feet in length, and 20 feet in breadth, lighted from a dome in the centre, and forms the approach to the two law courts, council-chamber, judges' rooms, justices' and juries' rooms, and barristers' robing-rooms. Under the courts are the various offices for corporation officers, local Board of Health, and fire-proof muniment-rooms; and under the criminal court there are cells for prisoners. The whole of the works were erected under the immediate superintendence of the architect, Mr. Thomas Taylor, of London, by Mr. R. Richards, of Swansea.

The following references will explain the plan of the building:—

A Council-chamber.
B Magistrates.
C Judge.
D Jury-box.
E Witness.
F Crier.
G Counsel's table.
H Dock.
I Officer.
J Public gallery.
K Gallery for jury and witnesses in waiting.
L Gallery for magistrates.
M Public staircase.
N Entrance-hall and principal staircase.
O Consultation-room.
P Lobby.
Q Judge's room.
R Jury's retiring-room.
S Grand jury and witnesses' waiting-room.
T Bar robing-room.
V Vestibule
W Corridor of communication for the public between the two courts.

Building-works in Paris.—The work of demolition is going on rapidly in Paris. Battering-rams are letting daylight into the filthy courts and lanes near the Hotel de Ville, and the demolitions for prolonging and improving the Rue des Mathurins, St. Jacques, are going on rapidly. The demolition of these houses has brought to light a Gothic chapel of the end of the thirteenth century.



SWANSEA GUILDHALL AND ASSIZE COURTS.—MR. THOMAS TAYLOR, ARCHITECT.

ART APHORISMS. BY GOETHE.*

He who, at present, will speak, or still more discuss, on art, ought to have an idea (*Ahndung*) of what philosophy has done in our days, and still continues to do.

He who will reproach an author with obscurity, ought first to look into his own self, dim of everything there be quite clear. In the whether twilight, even a very plain hand becomes unreadable.

Reality and idea cannot be separated, unless that art as well as life be destroyed.

When artists speak of reality (nature), they subsume always the idea, without being quite conscious of it.

In the same position are those who recommend, exclusively, experience; they do not consider that experience is only half of *the* experience. Just as what strikes uncultivated people in art-works as nature, is not nature (*exterior*), but the mind—*internal* nature.

We do not know of any world, except in relation to man; we do not want any art but that which is a type of that relationship.

Search within yourselves and you will find all; and then rejoice that outwardly lies, however you may call it—a nature which says yes and amen to everything which you have found within yourselves.

It is as difficult to learn from patterns as from nature.

Many things have been long discovered, long ago found, but do not affect the world; they may affect the world without being perceived; operate, yet not affect the whole; which is the cause that the history of every discovery has to battle with so much astounding mystery.

Superior aspirations, even if not accomplished, are more praiseworthy than inferior ones in all their success.(!)

Art reposes on a sort of religious sentiment, —on a deep, indestructible seriousness (*Ernst*), wherefore she so eagerly combines with religion. Religion does not require any art-sentiment, rep sing, as she does, on her own foundation; but she can neither impart art-sentiment nor the taste of art.

SOMETHING WICKED.†

An editorial note affixed to my last communication, calls me to order, by hinting that I indulge in a too *mediæval* strain of writing, and express myself somewhat more vigorously, not to say coarsely, than suits the exquisite refinement of modern ears. The time has been when grave theologians, and sober yet intemperate controversialists,—for to suppose them to have been tipsy would be horrible,—would attack each other like so many Billingsgate drabs. Those were, indeed, glorious times!

Having confessed to some tincture of mediævalism of a certain sort in myself, I proceed to say something concerning a different species of it, and one which, patronised as it is, I am disposed to deprecate. What I allude to is, that *Neo-mediævalism* in architecture and other branches of art, the taste for which is so rife among us at the present day. That the re-introduction of the various mediæval styles —a sort of adoption, by the way, of our own ancestors,—has done much for the historical study of Gothic architecture is indisputable. Neither can it be denied that it has helped to awaken architecture and architects out of that lethargic tranquillity and comfortable drowsiness in which they were lulled at the commencement of the present century, till the halloo! of antiquaries first, and next of ecclesiologists, roused them from their couch of poppies. We were then forced to bestir ourselves; to rub our eyes, and open them to what we had previously made a merit of ignoring. Now, so far, so good: what is to be complained of is, that if we have opened our eyes, it is only to look in one direction, and that we look even at Gothic architecture and its *et-cætera*, not through æsthetic, but merely through archæological spectacles. Archæology is certainly a very excellent nurse —be it a wet or a dry one: the mischief is, it is one which would keep us in leading strings for ever. Well-intentioned, garrulous old creature as it is, it is terribly apprehensive of our proving sad "naughty children," should we attempt the slightest freak. Then, after having set us a-roaring by a slap from its pedagogue rod, it coaxes us again, and promises that if we be good and "proper-behaved," we shall have plenty of nice pretty *dates*, wherewith to regale ourselves. Should folks here call me satirical, I can only shrug my shoulders and say in my defence, *difficile est satyram non scribere*; especially in these days of Pre-Raffaelitism and other strange archæo-manias.

But come, I will endeavour to be less frolicsome in my remarks, even at the risk of growing dull. However, in order to avoid becoming quite prosy all at once, I plunge then boldly into the stream of rhyme:—

Let whoso to true artist fame aspires,
Not be misled by mere delusive fires,
Engendered but from rottenness and damp;
Nor such mistake for art's true guiding lamp.
To merely antiquarian lore trust not;
For archæology is art's *dry vot*;—
At least oft proves so; and at last 'tis found
That art's decayed, tho' it looks quite sound.
Even the methods we adopt to stay
Corruption, serve but to produce decay;
When art, its former genial vigour flown,
Shows neither other ages nor our own;
Tricks itself out in antic bygone shapes,
And what it cannot *imitate*, it *apes*.
When, reft of energy, it makes a merit
Of arrant mimicry, devoid of spirit.
The worn-out wardrobe of far other days
To copy, seems to be this age's praise;
And so to keep quite to its models true,
It copies both the clothes and patches too!

Having swum across the stream,—and very *watery* stuff the reader will, no doubt, allow that it is,—I am once more on the terra-firma of plain prose. Though in what direction I ought to turn myself first, I hardly know, such a multiplicity of topics present themselves, all drawing different ways. Well, then, is it for me—

That my reader hath fallen asleep,
At which I most surely don't weep,
Since it giveth me time to think 'fore I speak;
So, whatever it prove, it must keep
Till comes round—or else square
P'rhaps—another whole week.
And so, Mr. Editor, whate'er may say U,
That is what certainly sayeth your Q.

A VOICE FROM ST. GILES'S.

FRESH AIR.

The spring is with us, and once more
Shall summer come with pleasant hours;
And earth, unconscious of our care,
Once more be gaily clothed with flowers.

E'en now, on many a sheltered bank,
Screened from each frost and bitter gale,
The violet peeps, 'midst clustering leaves,
Or feebly gleams the primrose pale.

And soon shall spring, in meadows green,
Drooping her head, the cowslip fair;
Whilst in each lane, the hawthorn sweet,
Shall cast around its fragrance rare.

Yet not for me, nor thousands more,
Do these sweet joys, the flowers, bloom;
Unhappy exiles, from their love,
Closed within this living tomb.

For us no rose unfolds its leaves,—
For us there grow no lilies fair;
Nor do the little birds for us
Fill with sweet melody the air.

Oh! ye whose lot far happier cast,
Permits you, free, abroad to roam,—
And not enchained as we unto
(Oh that it might be called) home!

Ye who, when tired with labour's toil,
Or sad, perchance, with anxious care,
Can seek the pleasant woods and fields,
Assured of peace and comfort there:

Your sympathy we claim, and crave
Your pity, for our lot is hard;
Toiling unceasingly, and yet
From these dear blessings quite debarred.

Nor these alone: for closely pent,
Gloomy and narrow courts among,
No freshening breezes unto us
Can, with their fragrance, ever come.

Yea, even the winds, that seem at will
To range the country, far and wide,
Laughing restraint and law to scorn,
Ever find entrance here denied.

Yet, though we never more may see
Or press the grass beneath our feet,—
Oh! might not this one gift be ours,
To breathe the air, fresh, pure, and sweet!

To us 't would be a gift indeed,
A treasure rich, a mine of wealth,
Bringing to soul and body too,
That first and greatest blessing—health.

And then, perchance, on sunny days,
A breeze would from the country come,—
Laden with fragrance from the fields,
Where once was placed my happy home.

Then, as the light wind fanned my brow,
Or cooled my hot and burning cheek,
Unto my very heart it would
Sweet words of peace and healing speak.

Each care would lightened be, and I,
Of half my weariness beguiled,
Might, for a few short minutes, dream
Once more I was a happy child.

And, heedless of the walls around,
'Midst childhood's scenes, in vision rove,
Through pleasant lanes and sunny fields,
Scenes that for ever I shall love.

And though the visions soon were fled,
Long should its influence remain;
Like pleasant twilight round me shed,
Soothing each gloomy care and pain.

Fellow men, if this might be
(Men of science think it may),
Give, oh give, your earnest aid,
And that without delay.

Grievous ills we daily meet,
As we tread life's thorny road:
Blessings great shall rest on him
Who lightens this our load.

We have prayed your help, and now,
Trusting in your love, we wait:
When at length the succour comes,
Oh! be it not too late! M. A. A.

NOTES OF IRISH BUILDING WORKS.

A new Roman Catholic Church is to be erected in Meath-street, Dublin. The plan is rectangular; and the interior dimensions are, 130 feet in length by 53 feet in width. At the north-west angle is a tower and baptistery, 12 feet 6 inches square, exclusive of the walls, which are 5 feet in thickness. This tower is lighted by two large windows of five bays each, with perpendicular tracery in the heads, and communicating with it is an entrance porch, 11 feet by 13 feet, having buttresses at the angles terminated by a gable and a niche with crocketed canopy central between two lancet-headed windows over entrance doorway, which is 10 feet 4 inches in height, with tracery in panels. The tower is flanked by deeply-hooded massive buttresses; and in the interspaces is an arcade 9 feet 3 inches in height, containing pedestals for figures, surmounted by crocketed canopies. Above this rises a broach spire, with crocketed pinnacles. Total height of tower and spire 170 feet. The west doorway of nave is 9 feet in width by 15 feet 6 inches in height, is deeply recessed in wall, with clustered columns, supporting an arch with label mouldings and tracery in the spandrils. The nave is 100 feet in length by 25 feet in width, and separated from the aisles by clustered piers 17 feet 6 inches in height, placed at intervals of 16 feet, carrying a series of pointed arches (with hood mouldings), having a rise of 9 feet. In each aisle are three confessionals, recessed in the main wall; and in the north and south elevations entrance doorways are provided. At the eastern extremity is the chancel with three altars. Over the principal altar is a window 16 feet in width by 30 feet in height, consisting of seven lights, with mullions and tracery of the Flowing Decorated period; and immediately opposite, at the western side, is a window 35 feet in height, with tracery of the Perpendicular style. At the south-eastern angle is the sacristy, 20 feet by 12 feet 6 inches, communicating with aisles and chapels, and having a private entrance, with staircase leading to apartments overhead. The chancel is enclosed by an arch with a rise of 14 feet, resting on piers 27 feet 4 inches in height. The aisles are lighted by a series of equilateral and circular wheel windows alternately (with hood mouldings and flowing tracery) placed immediately under the eave course, 23 feet from the ground line, between buttresses. Central over these, at a

* Translated, for the first time, from Posthumous Works. Vol. IV. p. 245. 12mo.

† Just like a candle.—*Printer's Devil.*

height of about 32 feet, are the clerestory windows of two lights, with Perpendicular tracery. The total height, to wall plate, is 42 feet 6 inches; to ridge, 58 feet. The roof of nave consists of open timber work, with moulded ribs in three thicknesses, and having framed trusses resting on moulded corbels 10 feet 2 inches deep, at distances of 16 feet, and immediately central over piers: the purlins are moulded on one side. In the spandrils of the trusses is Gothic tracery. The roofs of aisles are also open, and are composed of framed trusses, with a cross strut and tracery in the spandrils. The west elevation will face Meath-street; and the expenditure incurred in the erection of the church will probably be about 8,000*l.* or 9,000*l.* Mr. McCarthy is the architect.

A new bank is to be erected at Cookstown, according to designs by Mr. Jackson, architect, Belfast. The front will be in the Grecian style, and of cut stone.

New schools are to be erected at Pallas-green, for which the necessary drawings have been furnished by Mr. James Pain, architect.

The directors of the Killarney Junction Railway intend lighting the town with gas.

A Presbyterian church is in progress of erection in Antrim.

The Waterford Chamber of Commerce and union guardians have held a meeting lately, which was numerously attended, for the purpose of taking steps towards the establishment of a beet sugar factory near the town. Mr. Sproule attended, on the part of the company, and gave all the requisite information respecting the growth of beet sugar. The proposed outlay is 10,000*l.* The factory at Mountmellick cost upwards of 8,000*l.*

Messrs. Ormond and Meade have been declared contractors for the works, to be executed at the Cork Corn Exchange, in preparation for the Munster exhibition.

THE DOMESTIC USE OF GAS.

Sir,—Upon reading the article, "British Polytechnic Fire," in No. 478 of your scientific yet amusing periodical, I was struck with the idea that it would uproot the monopoly in coals, and that Wallsend of every description would no longer be a precious commodity. Gas in every poor man's room was vividly before my eyes. Upon ruminating, however, as I am wont to do, upon improbable schemes, I bethought myself that, "as we must catch the hare before we can cook it," so we must get the gas before we can set fire to it, and avail ourselves of its culinary powers.

Now I consider this the gist of the scheme, the turning-point of its adaptation to domestic use.

The expense, however, of laying on gas generally in our houses, will, I fear, be a bar to its universal use for domestic purposes. The rich may enjoy it, but how are they who find it no easy matter, by the most rigid economy, to keep a house over their heads, to encounter the primary expense of pipes from the main, pipes to the kitchen, pipes to the various apartments requiring fire or light. Oh! the gasfitter's bill? Do, Sir, enlighten my mind upon this point. A Suburban.

*** As the ideas of our "Suburban" correspondent, who probably sighs for water-pipes no less than for gas mains and branches, may represent the doubts of many more on the subject of the domestic use of gas, whether for lighting or for heating the poor man's dwelling, we will try to enlighten his mind on this point. He is one of those despondent geniuses, we fear, who, had he lived under the ancient draw-well system, would have regarded the project of supplying houses of every class in towns with water through pipes as a very "improbable" scheme. Yet private dwellings of all ranks have been so supplied, *partly at the expense of the water companies, and partly at the expense of the landlords—both of whom must have at length found it for their private and particular interests to do so.* Let our correspondent be consoled and comforted: every practicable scheme must have a beginning, however late in the day, and so must the domestic use of gas. But more than all this, the domestic use of gas has already had a beginning, and London is in this respect as far behind some other towns throughout the country as its "suburban" districts are behind it so far as regards water-pipes and gas ones. In Glasgow, for instance, there are hundreds of workmen's dwellings already fitted up with gas pipes and burners for light, and why not for heat, so soon as the latter can be shown to be cheap enough and efficient for such a purpose? As it is, the fittings are all up when the poor man enters his dwelling: all he has to do is to pay for the article he consumes. On the south-east coast of England, too, and elsewhere through the country, the domestic use of gas, on similar principles, is already extending, so that it can no longer rank amongst "improbable schemes." As for the supposed decline of the coal interest, we leave that to the coalowners.

THE SHOP SUN-BLIND NUISANCE.

Ever and anon complaints are forwarded to us as to the dangerous and intolerable nature of this nuisance. We have just had two such complaints, one from a district surveyor, who points attention to the rather unaccountable circumstance that the Metropolitan Buildings Act appears to ignore the existence of sun-blinds as completely as if it had been passed in those antiquated times when leafy branches were the only sun-blinds used by our savage ancestors by way of parasol or palanquin. The surveyor, however, is not quite sure but that these nuisances might be brought under the head of projections extending over the public way, and so be swept off altogether as an irregularity. Formal complaints have been made to him in his official capacity by personal sufferers, as he himself has been, and he could not do a more grateful service to the public than to bring them under the power of the Act; for the clause of 10 & 11 Vict. (July 22nd, 1847) for regulating the police of towns, namely clause 28, appears to be a dead letter, having probably been altogether overlooked by the police authorities. Let us once more draw their special attention to that clause. It enacts "that every person who, to the obstruction, annoyance, or danger of passengers, places any *blind, shade, covering, awning*, or other projection *over* or along any *footway* (unless at *least eight feet in height in every part thereof from the ground*) shall be liable to a penalty of forty shillings *for each offence*." Here is a plentiful field of profit for some of that not much esteemed class of men, the informers, at least if a share of the "forty shillings" be legally theirs; and, at all events, surely the police ought to see to it without loss of time. Instead of being eight feet clear of the pavements most of them are not much more than five feet. We fear that some hurried passenger must be felled like an ox, however, ere this increasing nuisance be effectually put down.

Lecture at Inverness on Architecture.—Mr. Mackenzie, of Elgin, architect, on Friday in week before last, delivered a lecture on architecture to the members and friends of the Inverness Mechanics' Institution, in the Academy-hall there. In the concluding part of his lecture, Mr. Mackenzie made some remarks in vindication of his own profession from some of the aspersions too commonly thrown on it. If the architects of the present day, he said, were allowed, like the monks of the mediæval ages, years to mature their conceptions, and were hampered by no considerations of expense, they would produce buildings which would vie with, if they did not surpass, those which now attracted so much admiration; but when they had no voice in the selection of a site,—when they were tied down to a particular style,—when the period allotted them for the preparation of their plans was grudgingly extended to a few months,—and when the whole sum to which they were restricted did not amount to what would formerly have been expended in the formation of a window,—he did not see how any very magnificent results could be hoped for.

Notices of Books.

Rudimentary Astronomy: with illustrations. By the Rev. Robert Main, M.A., F.R.A.S. First Assistant at the Royal Observatory, Greenwich. Weale, High Holborn. 1852.

This perspicuous volume belongs to the series of rudimentary scientific works published by Mr. Weale, and which must now constitute a goodly little library. Besides the motive that must have induced the publisher to add a treatise on Astronomy, the author in this work has taken a course which has enabled him to steer clear, as far as possible, of other elementary treatises, more particularly of a descriptive order, by making his own more explanatory than descriptive.

The Practice of Embanking Lands from the Sea. By John Wiggins, F.G.S. Land Agent and Surveyor. Parts I. and II. Weale, High Holborn. 1852.

This volume, though uniform with the preceding in appearance, is not a mere rudimentary treatise for beginners. It contains much instructive matter of use to practical men, as well as to those unacquainted with the nature of sea-banks and the reclamation of lands from the sea, and whose attention may be drawn to the subject, either from the nature of their property, or with a view to the employment of their capital. The subject is one of considerable importance, and good may be expected to result from the publication of this treatise.

Miscellanea.

Improvements in Broadway, New York.—The principal improvements at present going on here appear to be in hotels and confectioners' shops. The Metropolitan Hotel is in an advanced state of progress. It will have 214 windows fronting the street. The marble front of the St. Nicholas is finished, and is said to produce a fine effect, were it not that the immense mass of rough red bricks, forming the sides of the building, do not harmonize with the white marble front. Paint or plaster, the *Home Journal* thinks, is much wanted, and is, perhaps, intended. There is several months' work still to be done to this edifice. The St. Denis, a quaint, original-looking building, opposite Grace Church, is approaching completion. The cornices and other settings-off are made not of stone, as they seem, but of a new and peculiar composition of sand and cement. It is, in fact, sand *made over again* into stone. There is one drawback to the utility of this composition—it will melt and run like molasses at a temperature of 212 degrees! The St. Denis, therefore, would present a singular appearance after a fire; but as the new material is used only as ornament, and nowhere as a *support*, it does not in the least affect the safety of the building. The hotels now in construction will be capable of accommodating scarcely less than 2,000 people; but they will relieve the pressure only temporarily. Mr. Astor, it is rumoured, intends to erect a very large hotel at the corner of Thirteenth-street and Broadway. Mr. Monot, of the New York Hotel, proposes to build another house of great extent at the corner of Twenty-third-street, on the site of "Corporal Thompson's." And Mr. Lafarge intends to construct a hotel, larger than either, on ground adjoining Bond-street House, having a front on Broadway, Amity, and Mercer-streets. The building will be commenced shortly after the 1st of May. There are also various other enterprises of the same character in agitation. ——The Church of St. Thomas, so long the one venerable feature of Broadway, the old-fashioned walls of which the fire last year did not injure, is nearly ready again for service. The exterior has undergone slight alterations, which impart to the old church a somewhat lighter aspect.——The *Home Journal* complains of the telegraph posts which run along Broadway, and of the homo-ducts, as he calls them, erected by builders over street cellars, in progress of formation. Broadway, he remarks, is always to be, but never is, finished. The Russ pavement is spreading.

SELF-SUPPORT OF ABLE-BODIED PAUPERS.—The mitigation of the burden of supporting the unemployed poor by obliging them, as far as possible, to provide for themselves both food and raiment, in place of idly wasting an immense force of muscle and sinew throughout the country, while the employed, the industrious, and the well-doing are made to support that force in idleness, is a subject which common sense seems at length to be forcing on the attention of the ratepayers throughout the country, in spite of all the fine-spun arguments against it, mainly based on the dread of socialistic results,—as if labour and self-support, in the place of idle dependance on others, were likely, when added, as a test, to the degradation of pauperism, to induce the industrious, and self-respecting, self-dependant artisan, to turn pauperism into Socialism! And even although Socialism were identified with pauperism, what worse mischief to Socialism could we wish than that it should be subject to such a degradation, and be hence despised by every self-respecting workman? The reproductive employment of pauper labour, which we have long advocated, is now engaging the attention of the clergy and others, of all religious denominations, at Manchester, where steps are being taken to induce such a change in the poor-law or its administration as to employ paupers on remunerative labour. The Rev. T. R. Bentley, M.A. incumbent of St. Matthew's, Manchester, at a meeting lately held for the purpose of adopting petitions to Parliament and the Poor-law Board, observed that he had consulted the earliest statutes that had been passed for the relief of the poor, and without going further back than the 43rd of Elizabeth, he had found that they all contained provisions for setting the able-bodied to work, in lieu of the assistance afforded to them. He did not find any mention of "reproductive" work, but this omission could be accounted for by the presumption that our ancestors never contemplated anything else than profitable labour, and hence there was no necessity for particularly specifying its quality. The statute in question expressly stated that the officers entrusted with its administration should provide flax, hemp, and other stuff, with which to set the people to work. The Poor-Law Amendment Act, which was passed in 1834, did not repeal the 43rd of Elizabeth, but merely changed the officers. Therefore, to all intents and purposes, the principle of the statutes for the relief of the poor was not foreign to the introduction and prosecution of remunerative "pauper" labour. It is to be hoped, then, that a compulsory return will speedily be made to the spirit of our old poor-law, which thus appears to be quite consistent with the letter of the new, as well as with its spirit and intention.

THE ENGINEERING DISPUTE.—Two of the "amalgamated engineers" were brought up last week at the Lambeth Police Court on a charge of intimidation, brought by an engineer's labourer in the employment of Messrs. Maudslay and Field. After evidence had been taken, Mr. Norton, the magistrate, said it was clear that the evidence of the complainant did not bring the case within the terms of the Combination Act, and he was inclined to think that they had in a great measure provoked the treatment they had experienced, by reason of their having called after the defendants, and acted offensively towards them, after having parted peaceably. He should not, therefore, send the case to the sessions, but impose a fine of 20s. each and the cost of the warrant, or, in default, to stand committed to prison for twenty-one days each. The fines were immediately paid, and the defendants at once discharged.

ARCHITECTURAL LECTURES.—Mr. Kerr is to lecture on architecture at the London Mechanics' Institution, on the 28th of April and the three Wednesdays following. The first lecture will treat of the general question; the second, of the history to the fall of the Roman empire; the third, of the history from that epoch to the present day; and the fourth and last, of the present principles of design and criticism practically.

ON "THE VALUE OF ENGINEERING ESTIMATES."—The *Liverpool Journal* of the 10th inst. contains an article on this subject, with special reference to the probable cost of the Rivington Pike Waterworks for Liverpool, and exemplified by the cases of the Birkenhead Docks, Grimsby Dock, Holyhead Harbour, &c. It is calculated that the real cost of the Rivington Pike scheme will be swollen into millions in place of some hundreds of thousands, as originally estimated. That the original estimates for the Birkenhead Docks are less than half what the actual cost of these docks will be. That the original estimate for the Great Grimsby Docks was 422,876*l.*; whereas 574,104*l.* have already been expended, and 200,000*l.* will be required to complete them; while, nevertheless, the promised dock comprises only 40 acres in place of 100. That the real cost of Holyhead harbour of refuge is more likely to be 2,000,000*l.* than 628,080*l.* the original estimate, and to take 10 years than 6. The responsibility of a good deal of these discrepancies is laid on the shoulders of Mr. Rendel, as engineer, and of Mr. R. Stephenson, as referee. "We are far from wishing," concludes the *Journal*, "to depreciate the benefit the country may derive from engineering skill and ability, often evinced in the successful completion of most difficult tasks; but we do say that estimates ought to tally more than they do with the actual cost, otherwise it is sheer nonsense to have any estimates at all; whilst to those who embark their money on the faith of engineering estimates the consequences are most disastrous. A sum of money is raised to complete a work that is expected to realise a certain amount of revenue. Before the work is half done the estimate is doubled; preference bond, or some such arrangement is required, and the original subscriber is left penniless. Well may contractors and engineers grow rich, whilst their constituents are their dupes. Nor can we imagine a system more dishonest or disgraceful than the one we are now commenting upon."

THE DUMFRIES NEW PRISON.—This edifice is now completed, and the principal portion occupied. The smaller and more recently built wing is still vacant. "It is unmistakeably ugly," says the *Dumfries Courier*, "and ought never to have been erected on its present site. From some points the edifice has rather an imposing effect; otherwise it is an eyesore and a blot on the appearance of the burgh. No one will blame the architect of the Dumfries Prison for giving it a seducing aspect to the criminally disposed portion of the population. The interior arrangements, however, have been skilfully planned, and well executed." The building runs along the south side of Buccleuch-street for about 150 feet, and the greater portion is 26 feet wide. It is divided into three parts, the eastern end being for female prisoners, the western for males, the one being about three times the size of the other, while the third part, which stands betwixt the other two, affords rooms for the occupation of officials and other purposes: this portion is about 10 feet broader than the wings on each side. The whole range of building is five stories in height. The only openings to the front are the doors, and the necessary absence of any windows in the great extent of the front wall is the principal cause of the heavy aspect of the building.

GLASGOW ARCHITECTURAL ASSOCIATION.—In the economy of this association the preparation and exhibition of competition designs forms one of the more prominent elements. Scarcely had the association been constituted, when premiums towards this purpose were offered by Mr. Wilson, Mr. Rochead, and Mr. Smith, local architects. The drawings for the subject proposed by Mr. Wilson—"The best design for a Presbyterian place of worship, *not* in the Gothic style," have been recently exhibited, and the judges on their merits, Messrs. Rhind, Wilson, and Rochead, have awarded the premium to Mr. John Thomson; and in consideration of superior merit adjudged a further premium to Mr. James Hamilton, draughtsman in the employment of Mr. Kirkland, Bothwell-street.

LECTURE ON GLASS MANUFACTURE.—One of the recent "Exhibition Lectures" of the Society of Arts, Adelphi, was on glass, by Professor George Shaw, of Queen's College, Birmingham. The lecturer, after describing the chemical components of the materials of glass, or the "silicates," pointed out how the various kinds of glass were produced by different mixtures of silicates. Thus, a mixture of silicate of alum and of potass, or soda, produced a glass which resisted the action of acids, but was fusible at a low temperature. The lecturer then described the processes of fusion, cleansing, annealing, &c. and proceeded to notice the different branches of the manufacture, and first, sheet glass. The glass used for glazing, he observed, was of two kinds, crown glass and spread glass—the method of producing each of which he explained, referring for illustration to the specimens sent to the Exhibition by Messrs. Chance, Mr. Hartley, Messrs. Swinburne, and others. In purity of colour and beauty of surface, he observed, the English manufacturers must yield the palm to those on the continent, though for all purposes of utility our glass was equally good. In speaking of the manufacture of flint glass, he referred to the specimens of prisms in the Exhibition, and explained the method of cutting, polishing, and engraving glass. There was great difficulty in producing large masses of crown glass of uniform texture, but Messrs. Chance had recently hit on a method whereby they were successful in furnishing glass of this quality sufficient to meet the demands of science. The common colours of glass were produced by metallic oxides. Sometimes the colour was made to permeate the whole body of the glass: at others, only the surface was coloured, thus enabling the workman to remove it in some parts and substitute other colours. In no branch of art had the Exhibition more fully answered its design than in the illustration it had afforded of the various means of producing painted windows. Owing to the fact that the surface of plain glass was only susceptible of two or three colours, the remainder could only be produced by means of enamel, which impaired the transparency. The Exhibition had done great service in demonstrating the utter hopelessness of ever producing real pictures in glass, if its transparency was to be maintained; but it had also shown that no material was better adapted for presenting the conventional forms of heraldry, or the easy designs in which consisted the symbols of mediæval art.

ST. ALBAN'S ARCHÆOLOGICAL SOCIETY.—A quarterly meeting of this society was held at the town hall, St. Alban's, on Wednesday week. In the absence of the president (Earl of Verulam), the Rev. Dr. Nicholson, the rector of St. Alban's, took the chair. The secretary reported an interchange of courtesies and publications with the Kilkenny Archæological Society, and the chairman presented a copy, in colours, of a fresco, recently discovered in the abbey, representing a mitred ecclesiastic. A *bulla* found near the abbey, and bearing the name of Pope John XXIII. was the subject of some discussion. Mr. Evans produced some Celtic antiquities, found in Herts; and read some remarks, also transmitted to the Society of Antiquaries, on the subject of the *bulla* above mentioned.—Mr. Shirley Brooks read a paper on the Literature of English Epitaphs. He reviewed the history of these incriptions, and concluded by urging that an improvement in our present style of epitaph writing would only be effected by the subject being continually raised at meetings like that he addressed; and recommended members of archæological societies to take special note of any single instance of good or bad epitaph writing which came under their knowledge, and to make it the subject of public comment. The audience was graced by the presence of a large number of ladies.

STATUE OF NAPOLEON.—The large equestrian statue of the emperor Napoleon, modelled by M. de Nieuwerkerke for the city of Lyons, is to be cast in bronze at one operation, by MM. Eck and Durand. The pedestal of this statue is, for the present, placed in the courtyard of the Invalides.—*Galignani.*

TURN-OUT OF BRICKMAKERS.—At Preston the working brickmakers have struck work in consequence of an attempt of the masters to enlarge the moulds and exact the usual tallies without increasing the wages. The men also, it appears, require the restoration of sixpence per thousand, taken from them at a time of depression. "As for the sixpence on the thousand, taken off before," says a correspondent of the *Preston Guardian*, "we submitted to it in consequence of promises made that it should be added when times mended, and we now think the time has come when their promises ought to be fulfilled. But they threaten to reduce us to starvation by machinery. A Pharaoh of old once cruelly oppressed the brickmakers, but a just Providence showed him and posterity the wages due to hardness of heart. Depend upon it, such proceedings as these will soon cause a severer struggle than was ever yet known betwixt labour and capital. We earnestly hope that our masters will duly consider our reasonable demands, and peace and comfort may again be our lot." Some of the employers, it seems, have consented to the terms of the men, but most of them have "determined to resist all dictation on either point from the men." If the circumstances be rightly represented, it would appear that the meaning of the term "dictation" may be grossly misapplied. When masters "dictate" oppressive and unjust terms to the men, who are chiefly to blame but the masters themselves for the attempt of the men to protect their interests from such oppression and injustice by counter "dictation?" It is incumbent on those who complain of "dictation" on the part of the men to suggest how they are to protect their humble, but to them all-important, interests from the rapacity of greedy and unjust taskmasters while still maintaining that due subordination so essential to the interests both of employers and employed.

DESTRUCTION OF WORKS OF ART AT BOSTON, UNITED STATES.—A gallery containing between 600 and 700 pictures, a large number of statuettes, portraits of artists, &c. and valued at 40,000*l.* has been destroyed by the burning of the Fremont Temple in Boston. The collection belonged to Mr. Thomas Thompson, and was the fruit of twenty years accumulation. It would have been but ordinary prudence to have expended even a few of the thousands laid out on such a collection in the adoption of efficient precautions against fire. In the present instance the treasure was not even insured. It is said to have contained many originals,—by Titian, Guido, Murillo, Cuyp, Lely, Vandyck, Reynolds, and other masters.

KENT DISPENSARY COMPETITION.—It has been my misfortune to read many disgusting "competition" advertisements in THE BUILDER; but I think that which appears, alone in its glory, in your impression of the 10th, caps them all. If the profession is to "eat dirt," a most eligible opportunity now presents itself for indulging in such a propensity; and in the event of any response being made to the elaborated and tempting invitation of "Mr. Charles J. Cartarr, secretary (by order)," I would beg permission to offer that gentleman my congratulations on being the enviable instrument of converting "architects" into "*snobs*."—R. K. P.

METROPOLITAN IMPROVEMENT.—A correspondent, "G. H." wishes attention to be drawn to the state of various at present waste spaces in different parts of the metropolis, as at Skinner-street, Snow-hill, the corner of Cheapside, Stamford-street, and the site of the Fleet Prison. Mr. Pearson's new scheme, he remarks, appears to keep Victoria-street, Holborn, from progressing. The subject is one which concerns the beauty of the town, the increase of property, and the welfare of the people; and it is strange indeed that valuable sites such as these should so long remain empty, waiting for the carrying out of public improvements. Such a circumstance actually justifies the running up of all sorts of new and irregular buildings in inconvenient positions rather than throw them into projected improvements so long in being carried out.

POSITION OF ORGANS.—Dr. Wesley, the organist of Winchester Cathedral, has addressed a letter to the *Salisbury Journal* in reference to an announcement of its being the intention of the Dean and Chapter of Salisbury to remove the organ from the choir-screen to the side of the choir of their cathedral. "The profession to which I belong," he says, "being rarely consulted on such a subject, and knowing well, as I do, that such a step is highly detrimental to musical effect, I take this means of expressing my opinion, that not only is the effect of an organ injured by being placed at the side instead of the centre of a cathedral, but the choir service also suffers in various ways." The writer quotes a letter from Professor Cockerell in support of his ideas on this subject.

PIPE DRAINAGE.—The propriety of using earthenware pipes for drainage has been violently impugned, and the Board of Health recommendations of them objected to, in the Institution of Civil Engineers, where a paper on the subject is to be read shortly, that will probably excite some discussion.

WAX CHANDLERS' COMPANY'S COMPETITION.—Allow me to inform "Verax," one of your correspondents some weeks old, that the Court of the Wax Chandlers' Company wisely took the precaution of having a professional adviser, in Mr. C. Fowler, to aid them in coming to an equitable decision. From among upwards of forty designs submitted to them for their new hall, they ultimately came to the resolution of choosing three designs belonging to Mr. Wood, Mr. J. Peyton, and Mr. Jos. James, respectively, who were to receive the three premiums named in the advertisement.—A SUBSCRIBER.

RATIONAL RECREATION FOR THE WORKING CLASSES.—The *Leeds Intelligencer* directs attention to an advertisement in its columns, offering prizes of 5*l.* 3*l.* and 2*l.* for the three best essays "On the most desirable plan of supplying innocent and elevating Recreation for the Working Classes." The prizes are to be conferred only on working men, though essays from other persons desirous to promote the object of the society are also invited.

NEW DISCOVERIES AT NINEVEH.—Col. Rawlinson, it seems, "has opened out the entire place of sepulture of the kings and queens of Assyria." There they lie, it is said, "in huge stone sarcophagi, with ponderous lids decorated with the royal ornaments and costume, just as they were deposited more than 3,000 years ago."

TABLES ON DRAINAGE.—A pocket-sheet of tables on drainage, by Mr. Bailey Denton, has been printed by Metchi, of Parliament-street, and appears to be a useful thing in its way. There are seven tables, the first and largest of which shows the cost of the necessary digging and tiles in draining an acre of land at various distances between the drains.

ROADMAKERS' ESTIMATES.—Tenders received for making a road at Sutton, on the land of the South Metropolitan School Board, under the direction of Mr. Edwin Nash. Quantities furnished:—

North and Gardner	£1,539	0	0
Wright	1,010	0	0
Mayes	920	0	0
Reddin	782	0	0
Murray	754	0	0
Radley and Rogers	729	0	0
Jarvis	695	0	0
Smith and Cole	687	0	8
Ward	640	0	0
Siddons	637	0	0
Drummond	596	15	4½
Williams and Dearlove	596	7	3½
Gregson	553	0	0
Watson and Carter	550	0	0
Reed	546	2	6
Franklin	536	0	0
Bugbird	515	15	11½
Mathews	505	5	0
Barnard, Richardson, and Son	500	13	6
Lewis	500	0	0
Becks	478	15	5
Franklin, Poplar (accepted)	432	14	2

TENDERS

For building two second-rate dwelling-houses, with shops, stable-buildings, fence walls, &c. at Upper Edmonton, for Mr. Wm. Fisher. Mr. Gosset, architect. Quantities taken out by Mr. Wallis.

Ashby and Sons	£1,594 0 0
Perry	1,497 0 0
Gadsby	1,484 0 0
Hobbs	1,483 0 0
Devereux (accepted)	1,427 10 0

For taking down portion of house, and rebuilding, at Bayswater.

Hunt	£1,249
Roper and Son	1,065
Lawrence (accepted)	978

For pulling down and building seven fourth-rate houses in Bermondsey-street; old houses to be allowed for separately. Mr. Jarvis, architect.

	Amounts.	For old houses.	Net.
Thomas	£2,245 ...	— ...	£2,245
Hannah Fullagar	2,111 ...	£100 0 ...	2,011
Lake	2,049 ...	80 0 ..	1,969
Farrant	2,000 ...	— ...	2,000
Cooper	2,030 ...	130 0 ...	1,900
Heath	1,826 ...	130 0 ...	1,696
Wills	1,725 ..	— ...	1,725
Jones	1,740 ...	198 10 ...	1,541

TO CORRESPONDENTS.

"Casts" (a correspondent asks for "the best method of taking casts of carved wood-work, and likewise a recipe for the material used"), "S. H." (the note reached us: thanks), "R. G.," "Campanalogia," "W. D." (under our mark), "H." (ditto), "W. A.," "Mr. E.," "J. W." "J. J. L.," "J. B.," "R. W. K.," "W. P.," "A. W. H.," "J. L.," "C. J.," "A Subscriber," "H.," "J. T.," "T. L.," "L. V." (we will endeavour to learn), "Dr. S.," "Anti-Humbug," "Tyro," "P. B. D.," "E. N.," "J. B.," Glasgow (index will be found in first number for next year), "J. F. M.," "J. L. A."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

METROPOLITAN BUILDINGS ACT.—Office of Metropolitan Buildings, 6, Adelphi-terrace, Strand, 22nd April, 1852.

NOTICE.—An EXAMINATION of PERSONS desirous to obtain a certificate of qualification for the Office of DISTRICT SURVEYOR, will take place on THURSDAY, the 20th day of May next.

Persons desirous to be examined must apply on or before the 10th May, and the application must be accompanied by a preliminary statement, according to the course of examination prescribed in the rules for that purpose, copies of which may be had at the office, or at Mr. Weale's, Architectural Bookseller, 59, High Holborn. ARTHUR SYMONDS, Registrar of Metropolitan Buildings.

HEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS, sent *free* by post, contains designs and prices of upwards of One Hundred different Bedsteads, in Iron, Brass, japanned Wood, polished Birch, Mahogany, Rosewood, and Walnut-tree Woods; also their priced list of Bedding, and their new warerooms enable them to keep one of each design fixed for inspection. They have also, in addition to their usual stock, a great variety of the best designs of PARISIAN BEDSTEADS, both in wood and iron, which they have just imported. HEAL and SON, Bedstead and Bedding Manufacturers, 196 (opposite the Chapel), Tottenham-court-road.

IMPORTANT to FAMILIES FURNISHING, who study Elegance with Economy.—BROMPTON HOUSE, 93 and 94, QUEEN'S-ROAD, KNIGHTSBRIDGE.—JAMES COOK'S three guinea French-polished Mahogany Arabian Bedstead, Bedding, Cabinet, Carpet, Looking-glass, and Upholstery Warehouse. Estimates given, and a list of prices sent post-free.

THE CO-OPERATIVE SOCIETY of ENGINEERS are now prepared to execute Orders in every department of the Trade. First-rate mechanics sent to any part of the country on the shortest notice.—East London Iron Works, Cambridge-road, Mile end.

MEASUREMENT of BUILDER'S WORK.—A Surveyor of considerable practical experience continues to give, by close and privately INSTRUCTION in MEASURING and ESTIMATING every description of Builders' Work, so as to prepare bills of quantities, together with other valuable professional information. Terms very moderate.—Direct, free, to B. B. care of Messrs. Harris and Co. Looking Glass Manufacturers, 338, New Oxford-street.

BRIGHTON.—TO PLASTERERS.—WANTED, several GOOD HANDS in the above trade. Immediate application to be made to K. H. Star in the East Inn, Eastern-road, Brighton.

AN Architect and Surveyor, at Brighton, is in immediate WANT of an ASSISTANT, suitable for taking out Quantities, getting out Working Drawings, and Superintending Workmen, &c.—Address, stating salary expected, B. Post-Office, Brighton.

A DESIGNER and SALESMAN WANTED, who has been accustomed to make Drawings, and take orders in the Cabinet and Upholstery branches. Desirable if he has had any experience in a Builder, or Architect's Office.—Apply by letter, and stating full particulars, to BANTING and SONS, 57, St. James's-street.

BOROUGH of DERBY.—SURVEYOR WANTED.—The Local Board of Health of the borough of Derby are desirous of immediately APPOINTING a suitable person as their SURVEYOR. A new survey of the entire district having just been completed by the Board of Ordnance, and the plans delivered, such officer will be required to lay down thereupon a system of sewerage and drainage works for the borough, and to prepare estimates of the expense thereof, which will have to be submitted to the General Board of Health for approval. He must be competent to prepare plans, drawings, estimates, and specifications of all works connected with the sewerage, drainage, paving, and repairs of the streets, as well as surface-cleansing, and be able to superintend the execution thereof, test the materials, and see to the fulfilment of the conditions of the contracts for executing such works. He will be required to report upon all new buildings within the borough, as to their drainage and conveniences, and also upon cases of nuisance involving structural alterations for abating the same. The whole time of the Surveyor will be required to be devoted to his duties, and the appointment will not be absolute until confirmed by the General Board. The salary of the surveyor has hitherto been 300*l.* a-year, and office accommodation. Candidates are requested to state the amount of salary they will require. Applications must be forwarded with testimonials of qualification, indorsed, "Application for Surveyor," addressed to the Clerk of the Local Board from whom any further information may be obtained, not later than SATURDAY, the 15th day of May, 1852.

By order, JOSEPH JONES,
Town-hall, Derby, April 21st, 1852. Clerk to the Local Board.

WANTED, a TRAVELLER, on Commission; one who has a connection among Builders and Plumbers would be preferred.—Apply at 32, Chichester-place, King's-cross.

TO MARBLE MASONS, &c.

WANTED, in the Yard of a Statuary and Stone Mason, in a large manufacturing Town in the west of England, a steady, active, and good WORKMAN, about 30 or 35 years Constant employment and liberal wages will be given. A Married Man preferred.—Address, to A. B. H. Office of "The Builder," 1, York-street, Covent-Garden, stating full particulars.

TO LAND SURVEYORS, &c.

WANTED, by a Young Gentleman, a situation as SURVEYOR, &c. He is thoroughly conversant with every branch of the Profession. Unexceptionable references can be given.—Address, A. B. 19, Paradise-place, Stockwell, Surrey.

WANTED, by a respectable Young Man, a SITUATION as CLERK in a Builder's Office and Yard, in which capacity he could make himself generally useful. Salary moderate.—Apply to Mr DAVIS, Builder, 1, Hugh-street, Eccleston-square, Pimlico.

WANTED, by a Practical Builder, a SITUATION as SUPERINTENDENT, MANAGER, or CLERK of WORKS, who can measure works and make out working drawings; can give most respectable references to character and ability.—Direct O. H. C. No. 1, Hollywell-street, Westminster.

TO BUILDERS, PLUMBERS, AND DECORATORS.

WANTED, a SITUATION as WORKING FOREMAN, or otherwise, by a Three-branch hand. Can execute writing and graining. Patterns can be forwarded. No objection to town or country.—Apply, by letter, to P. D. Post-office, Stratford, Essex.

TO ARCHITECTS AND BUILDERS.

WANTED, a SITUATION as CLERK of the WORKS or SHOP FOREMAN, by a steady, active man, well acquainted with the building branches; unexceptionable references given.—All letters prepaid, addressed A. Z. 15, St. John-street, Reading, Berks

TO ARCHITECTS AND CIVIL ENGINEERS.

WANTED, by a Gentleman, a SITUATION in London as MANAGER or SUPERIOR CLERK. He is acquainted profoundly with all styles of architecture, ornament, and practical delineation of detail, perspective, colouring, surveying, and dilapidations. Terms moderate, and the most unexceptionable references given as to character, position, and ability.—Address, THOM, Buck and Wotton's Post-office, Mount-street, Lambeth.

TO ARCHITECTS.

A FULLY Qualified Architectural Draughtsman is open to an ENGAGEMENT. Terms moderate; references given if required.—Address Z. Z. Messrs. Waterlow and Son's, 49, Parliament-street, Westminster.

TO ARCHITECTS.

A FULLY qualified Assistant is desirous of a RE-ENGAGEMENT; he has been accustomed to prepare finished working and detail drawings and specifications, taking quantities, and the usual routine of an architect's office. References unexceptionable. Terms moderate.—Address, F. H. Cresswell's Library, 121, Crawford-street, Marylebone.

TO ARCHITECTS.

A CLERK of WORKS, of great experience, and Twenty years' practical acquaintance in the different branches on works of large magnitude, is DISENGAGED.—Address X. A. X. 61, Old Broad-street, City.

TO ARCHITECTS, &c.

A CLERK of the WORKS, of unusual experience, wishes for an ENGAGEMENT either for a long or short period. Testimonials for twenty years.—Address, A. Mr. Willis's, 88, Judd-street, Brunswick square.

AS Grainer, Writer, Painter, &c.—A Young Man wishes to obtain a SITUATION.—Apply by letter, post paid, to W. S. Mr. Bate's, chemist, 118, Great Dover-street, Borough, London.

TO PLUMBERS AND GAS FITTERS.

A YOUNG MAN, who thoroughly understands both branches of the above, requires EMPLOYMENT.—Address, S. P. Old King John, Holywell-lane, Shoreditch

TO CARPENTERS AND BUILDERS.

A YOUNG MAN is desirous of obtaining a SITUATION in a good Shop as an IMPROVER.—Address P. P. Office of "The Builder," York-street, Covent-garden.

TO ARCHITECTS AND SURVEYORS.

A YOUNG MAN, having completed a term of four years with, and held a Situation for the last six months under the same Architect, is desirous of obtaining another ENGAGEMENT. Very excellent references. Salary required, 30s. a-week.—Address to BETA, care of Mr. E. Perkins, No. 44, Paternoster-row.

TO GREENHOUSE BUILDERS, SASHMAKERS, &c.

A YOUNG MAN, who has been used to the above trades, is desirous of an ENGAGEMENT. Wages not of so much consequence as constant employment. Will make himself useful in Painting and Glazing.—Apply, by letter, to C. R. Trafalgar Coffee-house, Four Doors from the Elephant and Castle, Walworth-road.

TO ENGINEERS, CONTRACTORS, &c.

A YOUNG ENGINEER, lately engaged on Government Works in Ireland, seeks EMPLOYMENT, as a moderate salary, as GENERAL ASSISTANT in office or field-work, either in England or abroad. Speaks French and German, and has the best testimonials from his late superior officers.—Address, H. G. care of Mr. C. Goswell, Three King-court, Lombard-street.

TO BUILDERS.

AN experienced Estimator, Measurer, and Draughtsman, is desirous of an ENGAGEMENT. He is practically acquainted with the business, and the general routine of a builder's office. Terms moderate. Apply to E. H. at Mr. Oakley's, No. 2, Lamb-street, Spital-square.

AS BUILDER'S GENERAL FOREMAN or CLERK of WORKS. The advertiser, having just completed his last engagement, is open for a RE-ENGAGEMENT in either of the above capacities. Can give satisfactory reference as to capability, industry, &c.—Apply by letter, prepaid, to A. Z. 14, Huntley-street, Francis-street, Tottenham-court-road.

TO ARCHITECTS.

A GENTLEMAN, who has had seven years' experience in the Profession, and is well accustomed to get out fair working, perspective, coloured, and detail drawings and specifications, and to superintend buildings in progress, is desirous of undertaking the MANAGEMENT of an OFFICE, or of meeting with any other engagement as Assistant with an Architect or Surveyor.—Address, A. Y. Office of "The Builder," 1, York-street, Covent Garden.

TO CARPENTERS AND BUILDERS.

THE Son of a Surveyor, in his 22nd year, is desirous of an ENGAGEMENT in a Carpenter's or Builder's Office; he thoroughly understands the general duties of a Builder's Office. Wages not so much an object as a permanency. Satisfactory explanation will be given, on application, in writing, to E. Y. O., Baldwin-terrace, St. Peter-street, Islington. The Country preferred.

TO RAILWAY CONTRACTORS AND OTHERS.

THE Advertiser, who, for the last seven years, has been engaged as a District Cashier and Book-keeper by one of the largest Railway Contracting firms in the kingdom, desires EMPLOYMENT in a similar capacity. Unexceptionable references and security if desired.—Address, S. G. B. 4, Charles street, St. James's, London.

ALLIANCE LIFE and FIRE ASSURANCE COMPANY.—Capital, 5,000,000l. Established 1824.—The Board of Directors have opened a WESTERN OFFICE, at No. 5, Waterloo place, Pall-mall, where the public will find every facility in the transaction of both Life and Fire Assurance business. They have nominated EDWARD LOMAX, Esq. to the superintendence of this branch.
A. HAMILTON, Secretary.
Bartholomew-lane, London, April 15, 1852.

PROVISION FOR FAMILIES IN CASE OF DEATH.—ENDOWMENTS FOR CHURCHES, CONVENTS, AND SCHOOLS, BY MEANS OF ASSURANCE.

THE CATHOLIC LAW and GENERAL LIFE ASSURANCE COMPANY, 8, New Coventry-street, Leicester-square, London; 15, Bachelor's-walk, Dublin; and 18, Rue Tronchet, Paris. Incorporated under 7 & 8 Vict. c. 110.
CAPITAL 200,000l.

This Company assures diseased as well as healthy lives for sums of from 5l. to 5,000l.
The annual income is nearly 4,000l.
Lives declined by other offices accepted at equitable rates.
Prospectuses, proposals, and every information furnished on application to the Actuary or Secretary.
H. FORRISTALL, Managing Director.

LIFE ASSURANCE for the WORKING CLASSES.
BRANCH OFFICE—2, EXETER CHANGE, WELLINGTON-STREET NORTH opposite Waterloo-bridge), STRAND.
Open every Evening from six till Eight o'clock.
Subscription for securing payments of 5l. and up to 50l. payable on death of subscriber, may be made upon the following terms, certified by the Actuary of the Company, W. H. Archer, Esq.:—
Weekly Contributions for payment of 5l. at death.

Healthy persons whose age on becoming subscribers shall be—	
From 10 to 33 years, to pay One Penny per Week.	
" 33 to 45 "	Twopence "
" 45 to 55 "	Threepence "

Collectors call at the houses of Subscribers for these weekly subscriptions.
The rate of subscription will not increase as the contributor grows older, but the same weekly amount paid at the commencement will be continued throughout life.
Subscribers may make from one to ten subscriptions, so as to secure the sum of Five, Ten, Fifteen, Twenty, and so on up to Fifty Pounds.
N.B. No communications relative to the assurance of sums from 5l. to 50l. can be attended to unless addressed to Mr JOHN MOLYNEUX, 2, Exeter 'Change, Wellington-street North, Strand.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.
TRUSTEES.
Lord Wenlock, Earrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robt. Swann, esq. York.
BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY.—Mr. W. L. Newman, York.
The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100l.

Age next birthday.	A MALE. Whole Life Premiums £ s. d.	A FEMALE £ s. d.	Age next birthday.	A MALE. Whole Life Premiums. £ s. d.	A FEMALE. £ s. d.
10	1 7 6	1 8 4	48	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
18	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 12 0
28	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 3 0	1 19 2	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 —
38	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 13 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 23l. 10s.; and a lady of the same age can secure the same sum, for an annual payment of 19l. 17s. 6d.
Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES
are also effected by this Company, on the most moderate terms.
Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to
Mr. RICH. WOOD, Solicitor, 12, John street, Bedford-row, Agent for London.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.
7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON; AND 56, PALL-MALL, MANCHESTER.
Established May, 1844.
INVESTMENT OF CAPITAL AND SAVINGS.
The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.
Interest payable in January and July.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION
CAPITAL STOCK, £100,000.
The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

IMPORTANT NOTICE TO POLICY-HOLDERS.
Policies absolutely INDISPUTABLE, and made PAYABLE TO THE HOLDER BY SPECIAL ENDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.

FOR SECURING LOANS OR DEBTS.
Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.
MUTUAL ASSURANCE:—
Assurances may be effected from 50l. to 10,000l. on a Single Life. Entire profits belong to the Assured, and divided annually. One lit for half the amount of the first five annual Premiums. Medical men remunerated for their Reports. Liberty to Travel, and Foreign Residence, freely extended.

COLLEGE EDUCATION.
A Novel Table has been construced expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.
Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.
The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.
Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.
PETER MORRISON, Managing Director.
Applications for Agencies may be made to the Managing Director.

FLOUR MILLS.—The ESSEX ECONOMIC FIRE OFFICE was established in 1834, to INSURE FLOUR MILLS at reduced rates.
JOHN K. LEAKE, Secretary, Head Office, Chelmsford.

LONDON ASSURANCE CORPORATION, established by Royal Charter, A.D. 1720.
FOR LIFE, FIRE, AND MARINE INSURANCES.
Head Office, 7, Royal Exchange, Cornhill.
Branch Office, 10, Regent-street.
Actuary, Peter Hardy, esq. F.R.S.
This Corporation has effected Assurances for a period exceeding One Hundred and Thirty Years, on the most favourable Terms.
JOHN LAURENCE, Secretary.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.
JOHN MACGREGOR, Esq. M.P. Chairman.
The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office.
GEORGE TIDDEMAN, Manager.
THOS. MUSGRAVE, Secretary.

THE WESTMINSTER and GENERAL LIFE ASSURANCE ASSOCIATION, 26, 27, and 28, King-street, Covent Garden, London.
TRUSTEES.
George Dodd, esq. M.P. | Colonel W. H. Meyrick.
Geo. Mercer Henderson, esq. | Joseph Wm. Thrupp, esq.
The rates of premium for assurances, either participating or not participating in the profits of the Association, are as low as is consistent with security.
The additions made to the sums assured by policies which have participated in the three divisions of profit declared in 1833, 1847, and 1850, have averaged one-half of the premiums paid on them.
Every restrictive condition of assurance, not absolutely necessary for the security of the office, has been withdrawn from the policies.
Every facility offered to persons about to effect assurances on lives, and any information that may be required on the subject of life assurance, can be obtained on application at the office.
W. M. BROWNE, Actuary.
Agents required in the principal county towns.

LOANS.—Persons desirous of obtaining ADVANCES from 50l. to 250l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 61. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3l. per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100l. is to bear interest after the rate of 3l. per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the offices of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.
By order,
EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.
NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

TO ARCHITECTS.

MONEY.—Any Gentleman having the command of or procuring about 18,000l. or 20,000l. to invest in a sample freehold Building Property, or willing to advance about 2,000l. to be beneficially expended on the estate, and using bricks, &c. may be introduced to considerable professional business.—Apply, by letter, in the first instance, to Y. Z. Mr. Earnshaw, 119, High Holborn.

TARPAULINS FOR COVERING ROOFS during Repairs, SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention. WILLIAM PIGGOTT, 115, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

LONDON and SOUTH-WESTERN RAILWAY. RESIDENTIAL TICKETS.—In order to encourage the Erection of Houses at moderate rents, viz. from 20l. to 50l. per annum, adapted to the wants of clerks, and of similar classes of society, on the Suburban Lines of this Company, which traverse the most healthy and attractive portion of the neighbourhood of London, the Directors are prepared to arrange terms for the issue, at a reduced rate, and for a given number of years, of Residential Tickets (1st or 2nd class), with persons erecting Twenty Houses or more, of the class referred to, on specified conditions, for the use of the occupiers of such Houses, and their families. A late train will run on the Windsor line daily on and after the 1st of April, leaving Waterloo at eleven o'clock, p.m. and calling at the principal intermediate stations, and will continue to run permanently during summer and winter.—By order of the Court of Directors,
WYNDHAM HARDING, Secretary.
York-road Offices, March 27th, 1852.

PLUMBING, &c. BUSINESS.—A good opportunity occurs for succeeding to a respectable connection, on very eligible terms. The situation is good, the house let off to cover rent, and may be entered upon for the mere value of Stock and Fixtures.—Apply to Mr. POTTER, Clapham-road-place, Kennington.

TO PLUMBERS, BUILDERS, AND OTHERS.

TO BE DISPOSED OF, an old-established and lucrative BUSINESS, in consequence of the death of the late proprietor.—For particulars apply to Mr. ADDIS, 6, Leicester-street, Leicester-square.

TO PAINTERS AND PLUMBERS.

TO BE DISPOSED OF, upon moderate terms, a very old-established BUSINESS, in a respectable neighbourhood, in the above line, with immediate possession.—Apply by letter, post-paid, to A. B. at Mr. Brown's, Stationer, 187, Strand.

TO ENGINEERS, IRON SHIPBUILDERS, AND OTHERS.

TO BE DISPOSED OF, the WORKS of a Firm which has been established for many years in one of the principal ship-building ports of Scotland, together with all the Machinery and Tools requisite for carrying on the business of an Engineer, Iron Shipbuilder, and Founder, in all the branches. The premises are spacious, most substantially erected, and well arranged. The machinery and tools of a superior description. Freight to all parts very moderate, and wages low. Coal can be procured on most favourable terms. To one or more parties desirous of engaging in business as engineer, having at command about 14,000l. this will be found a most eligible opportunity.—For further particulars apply to Messrs. FULLER and HORSEY, 12, Billiter-street, London.

TO GLASS-CUTTERS AND OTHERS.

A REGISTERED VENTILATOR to be DISPOSED OF on advantageous terms. This invention is exceedingly simple, efficient, and, at its established prices, very profitable. The inventor is desirous of selling it only on account of other engagements, which prevent his proper attention to it.—Apply by letter, prepaid, to J. B. Post-office, Camberwell-green.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS,
QUARRYMEN and STONE-MERCHANTS,
BATH.
(DEPOTS.)

Great Western Railway Station.... PADDINGTON.
Great Western Railway Station.... BRISTOL.
Hope-street, Mount-pleasant ..... LIVERPOOL.
Castle-fields ..... MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

BATH STONE DEPOT, Great Western Railway, Paddington.—EDWARD FLUESTER respectfully informs Builders, Masons, and Others that he continues to supply the Box-hill Ground Stone, Corsham-down, Coombedown, and Farleighdown Stone, of the best quality, and at the lowest prices. Painswick and Forest of Dean Stone in blocks, steps, landings, or slabs of any thickness.—N.B. Stone and other goods landed and carted.

TO BUILDERS, MASONS, AND OTHERS.

BUILDERS, MASONS, and others are informed they can now be supplied with YORK BLOCK, SAWN STEPS, SLABS, &c. at unprecedented prices, from the Caen Wharf, Rotherhithe

THE ROYAL HIBERNIAN PAVING FLAG.
The attention of Architects, Surveyors, Builders, Masons, Paviors, and the trade generally, is respectfully called to an inspection of this newly discovered Flag, from the Sister Island. The proprietors are under the impression, looking at their superior quality, and cheapness, that they will to a great extent supersede Caithness and Yorkshire. For Pavements, Hearth-stones, Window-sills, Landings, &c. they can be sent of any size or thickness required. They have been introduced into several of the leading streets in Liverpool. On plans and specifications being furnished, Flags for Passages, &c. can be shipped all ready for being laid down, either by steamer to London, or elsewhere by sailing vessel. There are upwards of 20,000 feet now on sale at Mr. HICKS'S, Stangate, at prices ranging from 30s. to 60s. per 100 superficial feet, chisel-dressed on the edges, smooth-faced, and ready for use; they resemble the Caithness in appearance, can be pitched with accuracy and ease, being composed of iron felspar and silica.

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"The Kilrush Quarries do not yield Marble, but produce large and valuable flags of excellent quality, and adapted to the many public, domestic, and mercantile uses to which they are applied. These are actually exported to America."

Any quantity supplied on application to Mr. ROBERT HICKS, Stangate, Lambeth; Mr. THOMAS WEEKS, 34, Hanover-street, Islington; or to Mr. J. CUNARD ANDERSON, Limerick.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Area-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILDITCH, POLICE-SURVEYOR, PAVEMENT OFFICE, MONUMENT CHAMBERS, 34, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

PAVING, SINKS, COPING, SILLS, STEPS, Scifaced Slab, Harehill, Rubin Hood, Rubbed Paving, Selfaced Paving, thick), Slates, Tiles (pan, plain, and foot), Chimney Pots (large or small), Stone or Clay Pipes, Bends, Junctions, &c. Builders are invited to inspect the goods, the quality of which will be found to give every satisfaction, and the prices such as must ensure general approval, a list of which will be sent free on application — E. and W. STURGE, Bridge Wharf, City-road.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post-paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

THE PIMLICO SLATE WORKS.
Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Public Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted) continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Pillers, Vary and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—49 and 50, Upper Belgrave-place.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various mastic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedford-bire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRADYS, Belvedere-road, where terms may be stated.

TERRA COTTA and SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs, and sold at No. 1 Wharf, Pread-street, Paddington.
Vases, tazzas, friezes, capitals, coats of arms, chimney shafts, trusses, flower pots, and a l ornamental work required to stand heat and frost without cracking or changing colour, may be had at nearly the same cost as executing in cement.
Terra Cotta is more durable than iron, granite, marble, or stone, and may be made of black, red, and light cream colours of every shade. It can be more nicely erected and delicately wrought than either stone or marble and architects can have their own designs modelled and fired in this material ,without moulding and the chance of copying) fresh from the hands of the artist.

ASPHALTE for RAILWAY ARCHES, Bridges, Platforms, and every description of Basement Flooring, 40s. per ton. Goods and workmanship warranted to open part as per special agreement.—GERVASE FOOTTIT, Asphalte Works, Rotherhithe Established 1834. Importer of Trinidad Asphalte

WHITE AND ORNAMENTAL BROWN LAVA.

PATENT METALLIC LAVA,
Manufactured only by
Messrs. ORSI and ARMANI.
For the INTERIOR of CHURCHES, MUSEUMS, HALLS, VESTIBULES, CONSERVATORIES, &c. &c.; for Foot Pavement, Flooring, Covering Railway Arches, Terraces, Roofs, &c. &c.
SAMPLES LAY FOR INSPECTION. List of Prices and every Particular, may be obtained at the Office, 6, Guildhall-Chambers, Basinghall-street, City; and at the Office of "The Builder."

MARBLE.—Mr. J. FABBRICOTTI, Proprietor of Marble Quarries at Carrara, Italy, begs to inform the Gentlemen connected with the Marble Trade, that he has established in London the most extensive Depôt in the United Kingdom of STATUARY, Veined, Sicilian, Dove, and Black and Gold MARBLES, the produce of his own Quarries.
CARRARA-WHARF, Thames-bank, Pimlico, at the foot of Vauxhall-bridge Office 8, Crescent-terrace, Millbank.
Mr. THOS. THOMPSON, Agent.

TO BUILDERS, MASONS, AND CONTRACTORS.
OBSERVE!!! the Cheapest Depôt in England for MARBLE CHIMNEY-PIECES of superior quality and workmanship is the Westminster Marble Company's Patent Works, Earl-street, Holywell-street, Millbank. An inspection of their superior stock of statuary, Sienna, black and gold, vein, and other chimney-pieces, tombs, monuments, tablets, &c. is earnestly solicited.

Medieval Works,
Memorials,
Fonts, Screens, etc.
AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder,
PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.
MARBLE CHIMNEY-PIECES manufactured by improved machinery The public are invited to view the stock, unequalled for quality and price.
A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.
A liberal discount to the Trade.
MARBLE WORKS in all its branches, at a remarkably cheap ate, for HALLS, DAIRIES, LARDERS, &c. &c.
Circulars sent on application.
N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

ITALIAN and GALWAY MARBLE QUARRIES
Depot, Whitehall-wharf, Parliament-street, Westminster,
Arrived, from Galway, per *Margaret*, 87 blocks of Black, and 3,000 feet of slabs.
Arrived, from Leghorn, per *Mermaid*, *Robert*, and *Pehr*, 100 tons of various Marbles, Statuary, Veined, Sicilian, Dove, Sienna, Bardilla, Black and Gold, Brocatello, Levanate, and Bussi.
Also, St. Anne's, Rouge Royal, Alabaster, and all descriptions in Slabs, Irish Flagging, &c.
The following vessels expected daily :—
Lively Lass, Galway, 113 Black and Green, 120 tons. (Arrived.)
Marsalla, Leghorn, 37 Blocks, 80 tons. (Arrived.)
Rapid, Leghorn, 47 Blocks, 100 tons.
Reduced prices. Terms, six months.
Mr. FRANKLIN, Proprietor. Office hours, Eleven until Three.

VEINED MARBLE.—TO MASONS, BUILDERS, &c.—NOW ON SALE, at the Marble and Wood Sawing Mills, Commercial-road, Pimlico, the LARGEST STOCK in London of VEINED MARBLE, in SLABS, at the following low prices for cash :—
¼ inch, 1s. 3d. per foot super. ; 1 inch, 3s. 6d.
Slabs carefully packed and forwarded to any part of England.
Sawing, 2d. per foot super., carriage included ; Bardilla, Dove, Black, Black and Gold, Statuary, and all other Marbles in general use, in slab and block, equally low.
PORTLAND STONE, from the best Quarry, Marc Hill, Wingerworth, York, and other stone in general use, either in BLOCK, LANDINGS, or SLABS. SINKS, GRANITE CURB, &c.
JOHN HOLMES, Agent.

TO ARCHITECTS, SCULPTORS, BUILDERS, STONE and MARBLE MASONS, &c. &c.—ALABASTER QUARRIES, CHELLASTON, near DERBY.—Alabaster in blocks of almost any size, and of very superior quality, may now be obtained from the Quarries on application to
Messrs. JOSEPH SMITH and SONS,
HORNINGLOW, near BURTON-ON-TRENT.
This stone was extensively used during the Middle Ages for Monuments and other Ecclesiastical Decorations and since that period until now has been employed in blocks of any size. Its colour is white, and beautifully variegated. It is easily worked, and capable of taking a high polish, which renders it suitable for every kind of interior Decoration.
Agent in London, Mr. WILLIAM FIELD, 88, Holywell-street, Millbank; Depôt, 24, Wharf, Paddington, where a stock is always on hand.

BARROW LIME.—This celebrated hydraulic Lime, from the Blue Lias Stone, can now be forwarded by railway fresh from the kilns to any part of the kingdom. It is degreded much more generally used for concrete, and can be supplied ready ground for that purpose Price, &c may be obtained on application to JOHN ELLIS and SONS, Leicester.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, ensuring equally any core. The above is constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.
Gibbs, Canning, and Co's Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.
ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality.
SECONDS, PAVIORS, STOCKS, and other Bricks.
CHARLES RICHARDSON, 6, South Wharf, Paddington.

GREY-STONE LIME.—HALL, BROTHERS, Merstham Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery.

Grey-Stone lime	6s. 6d.	per Yard, or 36 Bushels.	
Ditto, for Masons	4s. 0d.	ditto	ditto
Ditto, Ashes	1s. 6d.	ditto	ditto
Black ditto	3s. 0d.	ditto	ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the London and Brighton and South-Eastern Railways, or lines connected with them. A fresh supply, hot from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.
Prices for Cash on delivery :—7s. per yard at the stations or works; 6s per yard delivered within five miles; in not less than 2-yard quantities. Booking, 2s per yard; 1s. per yard off, if paid monthly Collecting charged for The quality is warranted to be the best.—Address, Merstham, near Reigate, Croydon ; or Youl's place, Old Kent-road

THOMAS FREEN and CO. LIME BURNERS, Wouldham-on-the-Medway. Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal-road, Kingsland-road ; Queen's Wharf Great Cambridge-street, Haggerstone ; or King's Wharf, New Wharf-road, Battlebridge. N.B. Laths, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c. &c.

THOMAS FREEN and CO. REGENT'S CANAL, KINGSLAND-ROAD, beg to inform their friends and the public that, since the late fire on their premises, they have entirely REBUILT THEIR MANUFACTORY, and are now prepared to supply ROMAN CEMENT and PLASTER OF PARIS in any quantities, direct from their mills. T. F. and Co. further beg to state, that having made great improvements in their machinery, these articles, they trust, will be found fully to support the high character they have always hitherto borne in the trade.

ROMAN and OTHER CEMENTS, Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.
Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.
As used at St George's Hospital, Hyde Park Corner.
JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.
JOHNS and CO.'S STUCCO CEMENT. This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, through above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a Sponge and water.
The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 22, Steel yard, Upper Thames-street. A liberal allowance to wholesale dealers.

GEORGE and THOMAS EARLE, CEMENT MANUFACTURERS, HULL.
Light and Black equal to any made.
Also, Manufacturers of PLASTER, MASTIC, &c.
Importers of MARBLE and POZZOLANA.
Dealers in Slates, Slate Slabs, Hair, Welch Goods, &c.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring. Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccos dry quickly, and may be painted in from a few days Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel. Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT, in Casks of Four Imperial Bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and strength, and possessing before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not crack, turn green, or crack, combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Medio Cements, French and English Plaster, &c.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT. - Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvements in its manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.
March, 1852.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by C. J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PATENT PORTLAND and ROMAN CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for the above of the above Cements, which they are quite prepared to prove exceed any others in their cementitious qualities at present manufacturing. Many highly respectable references can be given where their Cements have been successfully used Orders addressed to their Works will be punctually attended to, and terms sent. Where quantities are used a superintending price will be made. Agent at Southampton, Mr. GEORGE SHARPE, Union Wharf.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS, AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover new pier, to unite the masonry. The foundation of the eastern pier of the Tubular Bridge, over the Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.
CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.
Agent for Southampton, R. L. FLUDER, American Wharf.

TO ARCHITECTS, BUILDERS, &c.
ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 48, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

WINDOW BLINDS.—TYLOR and PACE, Window Blind Manufacturers, 313, Oxford-street, adjoining Hanover-square, and 3, Queen-street, Cheapside, London, submit the following PRICES OF WINDOW BLINDS, which they can recommend as being made in the best manner:—Venetian blinds, per square foot, 8d.; best holland blinds, on rollers, 6d.; best ditto, on spring rollers, 8d.; gauze wire blinds, in mahogany frames, 1s. 10d.; perforated zinc blinds, in ditto, 1s. 8d.; outside blinds of striped cloth in cases, 1s. 9d. Transparent blinds in great variety. Engravings, with prices and directions to builders and the trade, forwarded on application, post free.

The Builder.

No. CCCCLXXXII.

SATURDAY, MAY 1, 1852.

ON the 27th ult. the Lyceum Theatre was filled in every part to overflowing, by the subscribers and friends of the Art-Union of London, to receive the report of the Council, and distribute the amount subscribed for the purchase of works of art. Lord Monteagle being unable to attend in consequence of the appointment of a committee of the House of Lords, the Right Hon. Lord Londesborough was requested to preside. On taking the chair, his Lordship said,—I shall begin the business of this day by expressing to you my regret that the chair should not be more ably filled, by a nobleman who is so much better known than myself, as connected with the fine arts of this country. I shall reserve any observations that I may have to make till a later period in this meeting; and I shall now merely call upon our honorary secretary, who has given up for us so much of his time, to read the report.

Mr. Godwin, F.R.S. then read the following

REPORT.

The Council are again able to congratulate the members of the Art-Union of London on the increasing prosperity of the Corporation. The subscription of the year amounts to the sum of 12,903*l.* showing a considerable increase on the amount collected in 1851. Each member received, on payment of his subscription, the engraving of "An English Merry-making in the Olden Time."

The plate of "Queen Philippa and the Burgesses of Calais," engraved by Mr. H. Robinson, after Mr. H. Selous, is now fast approaching completion, and promises to be a fine and interesting work. Those who became entitled to proofs of this at previous distributions will receive them speedily. The delay which has occurred was caused by the illness of the engraver, and, although greatly regretted by the Council, could not be avoided.

For the ensuing year, it is proposed to give to each subscriber an impression of this plate. Arrangements will be made to prevent a repetition of the engraving to those who may have gained a proof by offering the choice of some other print. Each subscriber will further receive a *fac-simile* engraving of the design in *basso-relievo*, by Mr. Hancock, "Christ led to Crucifixion," which will serve as a companion to the "Entry into Jerusalem," previously distributed.

The plate of "The Crucifixion," after Hilton, is completed, and is now at press. The right to 488 impressions of this large and costly work will be determined to-day.

For a succeeding year "The Piper," after Mr. F. Goodall, and "Richard Cœur de Lion," after Mr. Cross, are nearly completed, and promise to be very satisfactory productions.

The illustrations of "The Traveller" having proved agreeable to the subscribers at large, the Council propose to obtain and issue a series of wood engravings from eminent artists, illustrative of "Childe Harold." They further contemplate a series of engravings from a selected number of the best works of deceased British artists, with the design of forming a series of the best examples of the English school of painting, a work which the Council hope will prove acceptable and at the same time instructive to the subscribers.

For the convenience of the subscribers of last year who had the choice of two prints ("The Burial of Harold" and "The Villa of Lucullus"), and are anxious to make their series complete by the addition of the print they did *not* select, the Council have arranged to allow each subscriber the right to purchase one impression for a small sum.

The medal commemorative of Inigo Jones has been ably completed by Mr. Carter, and impressions have been delivered to those prizeholders to whom they were due.

The lamented death of Mr. Wyon, R.A. has unfortunately prevented the execution of the Flaxman medal. The Council have made arrangements, however, to obtain it from other hands; and they suggest that the prizeholders entitled to receive it should accept, in lieu, any one of the medals already issued by the Society. The Council propose to add to their series—which has now taken an important shape—a medal commemorative of the eminent medallist England has lost, and they have entrusted the execution of it to his son, Mr. Leonard Wyon.

Amongst the prizes in the present distribution will be found twenty-five sets of the medals already issued, five in number.

The prizeholders of last year purchased 110 paintings and drawings, and a bust in marble by Mr. M'Dowell. The presence of many strangers in London led the Council to desire to enlarge the Society's Exhibition, by including in it as many of the principal prize-works of former years as could conveniently be obtained, and, the prizeholders kindly assenting to their wish, a very interesting and beautiful collection was formed in the Suffolk-street Gallery, kindly afforded by the Society of British Artists for that purpose, and was visited by a large number of persons of all ranks, notwithstanding that the postponment of the close of the Royal Academy Exhibition had driven the opening of it late into the season.

The Council have always a satisfaction in recording that, although during a part of the time the public were admitted without any restrictions whatever, not the slightest damage was done, or impropriety committed.

His Grace the Duke of Northumberland, Vice-President of the Corporation, opened his collections at Northumberland House, and at Syon House, as did the Earl of Ellesmere at Bridgewater House, and other distinguished owners of works of art. Very large numbers of persons availed themselves of the privilege afforded.

The Council have before now pointed attention to the numerous fine collections of works of art which England possesses; but which are scarcely thought of by some who travel long distances to study others, of less importance. It is the same with many of our buildings, which, being at hand and constantly before us, are often disregarded. The ancient monuments in Westminster Abbey, for example, to the state of which public attention has been lately drawn by a member of your Council, offer examples of various sorts of art of the rarest kind and greatest beauty:—

> "And thus 'tis ever; what's within our ken,
> Owl-like, we blink at, and direct our search
> To farthest Inde in quest of novelties;
> Whilst here at Home, upon our very thresholds,
> Ten thousand objects hurtle into view,
> Of interest wonderful."

The death of his Royal Highness the Duke of Cambridge having left the Corporation without a President, the Right Hon. Lord Monteagle has been elected to the office. His Lordship said, in reply to the request of the Council that he would accept the appointment:—"I feel much honoured by your choice, and shall be happy to serve you in any position in which you are pleased to place me. But pray consider that I hold my situation as a trust for your benefit; and if, at any time, you can replace me by one whose name and influence will be more useful to you, do not hesitate to make such a conviction known to me, and I shall be equally ready to promote your interests by resigning, as by accepting the office of President."

The council were glad to be able, by this election, to show their appreciation of the services long and zealously rendered to the Art-Union of London by Lord Monteagle, and they feel sure of receiving your cordial assent to the appointment.

The Right Rev. the Lord Bishop of Ely, long a member of the Council, has been elected Vice-President.

The retiring members of Council are John Britton, esq. (whose increasing years lead him to cease the active course of life he has long pursued), W. C. Macready, esq. and W. Duckworth, esq.

The vacancies have been filled by the election of H. A. J. Munro, esq.; Charles Hill. esq.; Mr. Alderman Salomons; and W. Leaf, esq.

The subscribers will remember that in reply to premiums of 100*l.* and 50*l.* offered respectively for the first and second best model in plaster of a single figure, fitted to be afterwards produced in bronze, forty statuettes were submitted to the Council, and by arrangement with the Royal Commissioners formed a prominent part of the Great Exhibition in Hyde-park. At the close of the Exhibition the Council selected "Satan Dismayed," found to be by Mr. H. H. Armstead, of Great Queen-street, Lincoln's-inn-fields, for the first premium, and "Solitude," by Mr. J. Lawlor, of Wyndham-street, Bryanston-square, for the second. The Council further expressed their approbation of a third, "Ephialtes Chained," found to be by Mr. Hunt, of Harrison-street, Gray's-inn-lane, and would, moreover, now offer their thanks to all the other artists who responded to their invitation. "Satan Dismayed" is being executed in bronze, together with the figure on the base; though the latter was not included in the consideration of the design in competition. One finished copy is now before you, and is by far the most important work in bronze yet issued by the Society.

"Solitude" has been placed in the hands of Messrs. Minton, to be produced in Parian statuary. The distribution to-day will include five of the bronzes "Satan Dismayed," the actual cost of which will be 50*l.* each, and thirty statuettes of "Solitude."

Very considerable increase has taken place in the preparation of bronzes in England since the Art-Union commenced the production of them; but this material still offers a very profitable field for artistic industry, at present scarcely worked. The desire to erect permanent testimonials to the late Sir Robert Peel has led to larger use of bronze than has hitherto been the case. It is to be hoped that sculpture generally is about to find means for completer development amongst us than has yet been afforded to it. At present we have raised statues only to the Heroes of War: we are but beginning to remember the Heroes of Peace,—that those who lengthen life, elevate the condition of the masses, and increase the sum of human happiness and good, equally deserve the gratitude of their fellows, and that statues in testimony of this may properly be set up to awaken emulation, and incite others to a similar course of usefulness.

The local honorary secretaries have continued their valuable efforts in behalf of the Society, and are entitled to the best thanks of all interested in the progress of the arts, and the prosperity of artists. Fresh co-operators have been found in Cadiz, Palermo, Prince Edward's Island, Launceston, Van Diemen's Land, Geelong, Port Phillip,—notwithstanding the excitement consequent on the find of gold there, which promises to give fresh power to the country,—Newfoundland, and Alexandria. From Boston, in the United States, through the exertions of Mr. W. H. Dennet, our local agent, as many as 405 names have been received. The Council have always felt strongly the importance of connecting by the arts of peace and refinement our brother Saxons on the other side of the Atlantic with their mother country; and they watch with interest the progress the fine arts are making amongst them. The Council propose, as a means of rendering the operations of the Art-Union of London more completely known in America, to forward to the Great Exhibition of Industry and Art, which is about to be opened in New York, a cast of "The Dancing Girl reposing," and such other of the Society's works as can conveniently be sent.

The reserved fund now amounts to 4,740.

The following is a statement of the receipts and expenditure:—

Amount of subscriptions	£12,903	9	0
Set apart for purchase of pictures, bronzes, statuettes, tazzas, and prize engravings	6,449	0	0
Cost of engraving of the year	3,610	19	4
Printing, advertising, and other expenses, including reserve of 2½ per cent. required by the charter	2,813	9	8
	£12,903	9	0

The accounts have been audited by two members of the general body of subscribers —Mr. Stewart Pixley and Mr. William Walker (to whom thanks are offered), and three members of the Finance Committee.

The sum set apart for prizes to be selected by the prizeholders themselves will be thus allotted, viz. :—

		Each.
24 works of art, value		£10
20	,, ...	15
20	,, ...	20
20	,, ...	25
20	,, ...	40
12	,, ...	50
10	,, ...	60
4	,, ...	70
8	,, ...	80
3	,, ...	100
2	,, ...	150
1	,, ...	200

To these are to be added :—

5 bronzes, "Satan Dismayed;"
40 Parian Statuettes, "Solitude;"
30 tazzas in iron;
25 sets of medals;
488 impressions of "The Crucifixion."

The total sum appropriated to the purchase and production of works of art, including the cost of the engraving, is 10,089*l*.

The bronzes, Parian statuettes, tazzas, and medals, will be allotted to the first 100 names drawn consecutively at the close of the general distribution. The engravings of "The Crucifixion" will be allotted to the names standing one hundredth in the list preceding and succeeding that of each of the prizeholders determined as above stated; with the proviso that a prize have not fallen to that number to-day; in such case the prize will pass to the next succeeding name. Notice will be sent to those entitled to the statuettes, tazzas, medals, and prints, in the course of two or three days. The other prizeholders will be informed of the result by to-night's post.

It is occasionally suggested by subscribers who have not inquired particularly into the working of the Society, that the printed receipts given to subscribers should be numbered consecutively, and that the number on the receipt should stand against the subscriber's name in the list, so that he might be certain when a number is announced as entitled to a prize whether or not it appertains to him. When it is remembered, however, that receipts are sent out during the year in large numbers to the various agents and secretaries throughout the world, and are only partly used, the remainder being returned, it must be seen that this course could not conveniently be adopted. The Council would add, though it can scarcely be necessary, that should any subscriber feel a doubt on the subject, the list of names numbered for the purposes of the distribution will lie at the offices of the Corporation, and may be examined at any time.

The Council would urge upon the prizeholders, as of old, great care in the selection of their works of art. With a view to procuring for them all the advantages possible, the Council have addressed to the Royal Academy a request for the admission to the private view of that exhibition of all prizeholders of 40*l*. and upwards.

The Council, in their annual reports, without pretending to teach, have constantly sought to urge the want of artistic teaching,—to show the importance of bringing art to the aid of our manufactures,—to incite our rising painters to the serious consideration of the real capability and great destiny of the fine arts, and the necessity of earnestness—if they would do their duty in the profession they have adopted; —to urge upon authorities that it is their part to assist in developing the artistic talent of the country: further, to make for the artist an appreciating public, and to obtain for the multitude the pure enjoyments of art by making cheap art good, and good art universal. The extensive publication of their reports, and the repetition of them through the kind offices of the periodical press of the country, have spread these views throughout the length and breadth, not merely of this kingdom, but of others, and have unquestionably had considerable effect in forming public opinion. What that public opinion in respect of the arts now is, as compared with what it was when the Art-Union of London began its work, it is unnecessary to point out: the difference in tone, the difference in knowledge, is observable in every society. Still we have but commenced to move. There is great want of information on the theoretical principles of art; educated men are still to be found, who acknowledge without any feeling of disgrace, that they know nothing of the subject. The foundation of the Taylor and Radcliffe Institutions at Oxford, and of the Fitzwilliam Museum at Cambridge, may be expected to produce beneficial results in this respect amongst those who should be teachers.

We have in this country no minister for the fine arts: the tangibly useful has mainly had our attention; the usefulness there is in the beautiful is still sadly overlooked. The establishment of a Government "Department of Practical Art" must be regarded as a step in the right direction; the spread of schools of design throughout the kingdom, the establishment of the Suburban Artizan School at Camden-Town (where from 100 to 160 of the operative classes are sedulously instructed in drawing and modelling at a nominal cost), and the endeavours making to increase the number of elementary drawing-schools throughout the country, cannot fail to have a very beneficial effect on our manufactures and our taste. It may be suggested, too, with reference to these, that although the greater proportion of the artistical talent they may evoke will be directed to practical art, yet some of the greatest of it will diverge into other paths, and soar into the higher regions of fine art. Much of this talent must either long struggle with discouragement, or even finally sink, unless a mart exists for the productions of such ambitious individuals. The Art-Union affords an opportunity for such encouragement: every subscriber, therefore, in giving his contribution, may feel that he is stretching out a helping hand to some rising artist who may yet acquire fame and fortune for himself, and ultimately enhance the glory of his country. In order to maintain an army of veterans, the recruits must be cared for. In Edinburgh, it seems, large bodies of young men and boys, brought together by the abstinence movement, meet in the evening for instruction in drawing, and are making considerable progress. This general spread of artistic skill will necessarily react, too, upon the higher branches of art. An indifferent artist in a community of draughtsmen would scarcely be tolerated. Of artists capable of the highest purposes of art there will still be few; but by universal cultivation the chance of developing them of course becomes greater. "What is individual and particular may be everywhere found, and may always be evidenced to the senses; but that which is universal and general, can only be grasped by thought, or the action of the mind. The general as regards imitation can only be defined by the understanding, and genius alone can imitate it."

In closing their report the Council appeal with confidence to the public for renewed co-operation in furtherance of the important objects of the Art-Union of London.

GEORGE GODWIN, } Hon.
LEWIS POCOCK, } Secs.

Sir C. Lemon, Bart. in moving the adoption of the report, said,—The report is so complete in itself, that I should be wasting your time, if I were to expatiate upon it. I must, however, in a very few words, before I sit down, express my concurrence in it on two points. I must offer to join with you in congratulation to the Council of the Society, for the way in which its affairs have been conducted in the course of the last year. This society I look upon as the Militia of art, and it has been organized in a way which I cannot but think is of national importance. The objects of the Society, as set forth in that report, appear to me to be two;—first of all to improve the artists themselves, and to give them opportunity of bringing to the test of public opinion their own judgment; but I may say, a more important object is the second alluded to in the report, namely, that of enabling the public themselves to appreciate art. It would not be fair to attribute to the Art-Union all the effects of the efforts made of late years to disseminate and diffuse a love of art through the different classes of the people; but the test that is alluded to in that report, as to the progress which has been made, is, I think, exceedingly satisfactory. At the present time it is perfectly clear that art is appreciated by the public generally; objects of art may be now exhibited to the public view without fear of injury, in a way, which a few years ago could not have occurred; and, I think, referring to the glorious incidents of last year, when not only objects of art, but of the highest interest and value, generally, were exhibited in so generous a way to the public, it is very satisfactory to know that so very little injury has been done.

Sir Gardiner Wilkinson seconded the resolution.

The Chairman then said,—Ladies and gentlemen, in putting to you the question whether this report should be received, permit me to congratulate you upon its favourable nature. We may fairly consider it as not merely a matter of congratulation to ourselves, but also to our country. We must consider that this report shows that there is an increasing wish on the part of the public to become possessors of works of art; and we must consider that this desire will increase the demand for those works of art; and, guided by the increasing good taste of our country, will improve the school of art in England. Ladies and gentlemen, our school of art is supported by the public alone; the Sovereign or the aristocracy may smile upon and encourage the artist, but the artist is supported by the public alone, and, therefore, by his country. Go into any public exhibition of works of art—of modern works of art, in this metropolis—admire any remarkable picture, and inquire the name of its fortunate possessor, and you will generally find that it belongs to some well-known professional gentleman, or to some other individual who has attained well-merited wealth by his own honourable exertions. Go into any one exhibition of paintings in any provincial town, and you will find that the modern works of art there exhibited are not sent in by the great noble of the neighbourhood, but, in general, by the professional or mercantile gentlemen of the town itself. I need not weary you by descanting upon the close and most important connection of our school of art with our manufactures; but I shall merely congratulate you and the country on this increasing patronage of our artists, as having the effect of gradually bringing our British school of art to its own proper position—that of being the first in the world.

The resolution having been carried unanimously,—

Professor Hosking said,—Ladies and Gentlemen, your honorary secretaries have added another to the many claims they have upon you, by calling upon a man who cannot make a speech to move a resolution. The resolution, however, is one which will be its own recommendation. It is to propose to you that the best thanks of the Association be offered to the Council for their past exertions, and for their valuable services during the year. I have one remark to make for your consideration, that it is the Council who perform the labour. You have the pleasurable part, to contribute the trifling sum which is called for from each member; and you have the pleasure of receiving the consequences of your contributions; but the labour is that of the Council, and for the excellent spirit and taste in which their labours are performed, and their services rendered, I call upon you to give them your thanks.

Mr. J. A. Arnold seconded the resolution, which was unanimously carried.

Mr. Serjeant Thompson.—I beg to acknowledge the kindness which the Council have always met

with hitherto, as well as on this occasion, from the members; and I hope that the same consideration may be given to us for the exertions and the labours that we have gone through. Certainly, whether successful or not, there is great satisfaction in the approval of a meeting of this kind. The Art-Union began under many disadvantages, and for a long time they were not subdued, except very gradually. One of the first prejudices against the Society was on the ground of that principle which we now have to put into effect—that of a lottery; against which there were various objections made, until we ourselves were happily incorporated, and got an Act of Parliament, by which this mode of allotment is rendered as legal as anything can possibly be in this country. We had also an objection made to us with regard to the power that the prizeholders were to exercise with regard to the paintings they were to select. Gentlemen, if ever there was an advantage to be derived by a society of this sort, it could not be derived in the same degree by any other principle than by that which has so long been in practice in this Society—that of the prizeholders themselves exerting themselves in the selection that is to be made. Gentlemen, it is not very long ago that it happened to me to see a selection of prizes abroad, which had been made by a committee, and I was perfectly astonished with the sameness of all the pictures. They might have been, and probably many of them were, by the same artists; but at any rate the same taste was used in the selection, and with a very unsatisfactory result. The Council fully appreciate the value of your approbation. The works that have been produced by the Art-Union of London are a proof that their labours have not been unsuccessful; I may call your attention not only to "The Dancing Girl," which is a most admirable work, but to the statuettes in porcelain produced by this Society, which, I believe, are perfectly unrivalled in their kind in this country. I would also call your attention to the engravings of the "Villa of Lucullus," and others; and the large engraving of the "Merry-making in the Olden Time," and also the engravings of "The Smile" and "The Frown." You are not aware, and cannot be till you have had some practice, of the great difficulty by which the Council of the Art-Union are met in effecting these productions. It is very easy to suppose that a certain sum of money will produce certain effects;—people are too apt to suppose that it is so; but if you come to see the various situations in which artists are placed,—undoubtedly in some cases from the misfortunes alluded to in the Report, which they must necessarily incur; you will find all these things interpose difficulties in the way of the Council. You have now yourselves the power of spending some thousands of pounds to your own satisfaction in the selection of works of art, and I need not say how great the responsibility is on those who have to select them. I am sure you will be aware that the Council could not produce the effects they have produced, without looking to persons who should be themselves devoted entirely to art, and, moreover, willing to labour for the sake of art; and I propose that the thanks of the Society be given to the Honorary Secretaries.

Captain Vernon briefly seconded the resolution, which was unanimously carried.

Mr. Godwin, in returning thanks, said,—It is always a necessity that I should come before you so often on these occasions, that I generally refrain from occupying your time, unless when it is absolutely required; or such an audience as this, and such a means of giving publicity to suggestions and thoughts, would tempt one into making a very long speech; however, that cry of "Time, time," just now, renders me fearful of a repetition of it to myself. The Art-Union has been successful,—it has spent 150,000*l.* in the advancement of the arts, and for the benefit of artists; it has gradually quieted all its enemies,—you scarcely hear now of an objection to it,—and with a steady income of 12,000*l.* or 14,000*l.* a year, and your kind countenance and support, we may hope to go on doing what we originally proposed to ourselves,—disseminating a knowledge and love of art, making an art-loving and art-knowing public, and by that, the best means, advancing art and artists. With regard to sculpture, I will take this opportunity to observe that a proposition has been made by the City Architect to the Corporation of London, to fill the niches in the Egyptian-hall at the Mansion-house with sculpture,—by a series of commissions spreading over a number of years. Now it certainly would be a great point to achieve this; for if the Corporation of London were seen spending some of their money annually in the promotion of the fine arts, it would set an example to the other great corporations which they could not very well get away from; and it would enable them, by benefiting posterity, to show their gratitude to those who went before them, and left them their large funds. I am exceedingly obliged to you for the kind manner in which you have received the mention of my name, exceedingly; it is always a sufficient return for any exertions I may be able to make. I beg to return you my thanks, and to make some reference to Mr. Watson, our assistant-secretary, a most able and excellent officer, to whom we are greatly indebted. And I will, if you please, bring one other gentleman under your notice, and move a vote of thanks to Mr. Charles Mathews, for the very kind and liberal manner in which he has again given us the use of this theatre. In the letter he wrote to us, he did not merely state, "the theatre is entirely at your service," but he added, "I am exceedingly glad you are going to make use of it." Now this, I think, a very interesting additional act in his "Chain of Events," and one which I am sure you will appreciate.

Mr. Pocock said that he had the greatest pleasure in seconding the resolution proposed by Mr. Godwin; and he need not say how grateful he felt for the very kind manner in which his name had been received.

The vote of thanks to Mr. C. Mathews having been unanimously carried,

Miss Caroline Griffith and Miss Henrietta Hertslet consented to assist in the distribution of the prizes, and Mr. Arnold and Mr. T. E. Watts to act as scrutineers. The distribution was then made, and thanks having been voted to the ladies, the scrutineers, and to Lord Londesborough for the kind and efficient manner in which he had discharged the duties of chairman, the meeting separated.

The following is a

LIST OF PRIZEHOLDERS

Entitled to a Work of Art of the Value of Two Hundred Pounds.

Sibthorpe, Rev. H. Washingboro'.

Entitled each to a Work of Art of the Value of One Hundred and Fifty Pounds.

Berens, Ven Archdeacon, Shrivenham.
Lucas, I. D. Maize Hill.

Entitled each to a Work of Art of the Value of One Hundred Pounds.

Mitchell, A. Manchester
Swanson, W. Walworth
Walton, J. Bolton.

Entitled each to a Work of Art of the Value of Eighty Pounds.

Bonney, P. jun. Boston, U.S.
Boogast, F. A. Dorset-ter. Clapham-road
Collins, W. J. Clerkenwell
Rankin, D. Kilmarnock
Richard, H. jun. Grenada
Richardson, F. Harbottle
Shippery,—, Worthing
Stuteley, M. Cambridge-ter. Regent's Park.

Entitled each to a Work of Art of the Value of Seventy Pounds.

Caird, M. N. A. Stranraer
Foxton, Mrs. J. G. Melbourn, Port Phillip
Morgan, G. S. Mornington-crescent
Wyatt, J. Bedford.

Entitled each to a Work of Art of the Value of Sixty Pounds.

Batteson, J. Barnsley
Bright, E. Leamington
Brown, G. Glasgow
Ellis, Rev. C. E. Lougham
Iles, J. F. Leatherhead
Laurie, R. Dunfermline
Lynch, Mrs. Tralee
Searle,—, Wilmot-street
Smith, S. Gray's-inn-square
Smith, J. B. Demerara.

Entitled each to a Work of Art of the Value of Fifty Pounds.

Greville, A. Lowndes-sq.
Hawkins, H. Sherborne
Hiley, Rev. S. St. John's College, Cambridge
Kidder, J. H. Boston, U. S.
Lloyd, Bros. Ludgate-hill
Muzio, J. Highbury
Scott, H. S. Quebec
Sopwith, H. L. Tunbridge W.
Telford, Miss, Reigate
Wood, F. G. Stanhope-st.
Wingrove, E. W. Calcutta
Young, G. F., M.P. Walthamstow.

Entitled each to a Work of Art of the Value of Forty Pounds.

Barrett, H. Albert-street
Cooper, H. Guist
Fabian, C. Trinidad
Goodwin, W. S. Princes-st.
Jaffray,—, Birmingham
Johnston, P. Fleet-street
Mair, H. Glasgow
Miller, W. Charleston, U.S.
McQueen, G. P. Tottenham-court-road
Mitchell, T. Bougong, E.I.
Morris, W. Chester
Mosse, T. Carlow
Pace, E. G. Pershore
Scott, Robert, Outlands, Plymouth
Stuart, E. M.D. Chirnside
Tippetts, J. B. Size-lane
Wallis, C. E. Great Marlborough-street
Walley, J. Manchester
Webb, W. D. Haseloin
Wetherbee, Mrs. C. Boston, U.S.

Entitled each to a Work of Art of the Value of Twenty-five Pounds.

Baker, E. (per Denny) Austin-friars
Churchill, H. B. Raymond's-buildings
Earl, W. Hull
Ellyard, S. Upper Tooting
Elliott, E. Christchurch
Goodwin, C. W. King's Bench-wall
Hamilton, Rev. W. J. Tring
Harrison, Mrs. Fleet-street
Kirchner, F. A. L. Bridge-street, Borough
Merrill, G. W. Boston, U.S.
Miller, W. H. Lambeth
Powell, Rev. S. H. Ripon
Rogers, W. S. Gosport
Simons, K. L. Charleston, U.S.
Tagliafero, Chevalier, Malta
Travis, Chr. Stockport
Walkington, W. Grantham
Williams, Capt. Cheltenham
Williams, C. C. Goswell-st.
Wright, Jno. jun. Oxford-st.

Entitled each to a Work of Art of the Value of Twenty Pounds.

Aske, W. H. St. George's-road
Campbell, W. H. Demerara
Coakley,—, Bath
Eastmam, W. T. Windmill-street
Edwards, Jno. Bampton
Forster, T. G. Newcastle
Gardner, E. B. Paternoster-row
Humphreys, Miss, Walcot
Johnson, F. Barnsley
Marshall, Robert, Dundee
Mercer, Samuel, Maidstone
Mitchell, A. W. Philadelphia U.S.
McBean, A., H. B. M.'s Consul, Leghorn
Nesie, J. Islington
Payne, J. Leatherhead
Rees, T. Llandanny
Ridgley, D. G. Lexington, U.S.
Roumieu, R. L. Lancaster-place
Seaton, G. Greenwich
Willick, C. M. Suffolk-street.

Entitled each to a Work of Art of the Value of Fifteen Pounds.

Ansted, Ed. Gutter-lane
Aimers, Mrs. T. Kilmarnock
Bawtrey, J. jun. Colchester
Benham, D. Regent-street
Blake, John, Littlehampton
Bowler, J. Fortess
Clapham, R. Lancaster
Croxford, H. Norwich
England, E. Lloyd's
Franklyn, F. Exeter
Hamilton, H. Dorcas-terrace
Hewett, J. Leamington
Nichols, Mrs. Walpole-st.
Morehead, W. A. per Smith and Elder
Robins, G. jun. New York
Sharpe, R. M. Lower Thames-street
Talbot, W. Weymouth
Tucker, E. G. Boston, U. S.
Wace, Jos. Melbourne, Port Phillip
Wright, E. Bedford-row.

Entitled each to a Work of Art of the Value of Ten Pounds.

Ackers, Jas Gloucester
Bell, Ed. jun. Stamford Hill
Bokenham, W. General Post Office
Burrows, R. jun. Ipswich
Carter, R. Epsom
Coates, H. A. Vauxhall
Coward, W. jun. Bury, Lancashire
Dickins, W. Daventry
Drewett, Capt. St. Saviours
Ellice, Rt. Hon. Edwd. Arlington-street
Farquhar, Sir M. Gloster-sq.
Flashman, Geo. Dover
Hazeon, R. Ampthill square
Hutchinson, R. St John, N.B.
Kelly, Jno. Plymouth
Kitchen, J. R. Falmouth, Jamaica
Lloyd, Brothers, Ludgate-hill
Mechanics' Institute, Downham market
New, Mrs. L. Market Weighton
Nunneley, J. Market Harborough
Pilkington, J. Liverpool
Slater, W. Leeds
Turner, W. C. Bicester
Woodd, R. B. New Bond-st.

Entitled each to a Group in Bronze, "Satan Dismayed."

Goulding, Thos. Petersfield
Langton, G. St. John's, Antigua
Macey, Jas. Drury-lane
Tudman, E. Whitchurch, Salop
Wyles, Jas. Grantham.

Entitled each to a Tazza in Iron, modelled from a Greek Design.

Banks, Jno. Howden
Baylis, G. Evesham
Bosanquet, P. Fenchurch-st.
Challis, W. Cornhill
Christian, J. Baldock
Clear, Mrs. C. Borough
Coles, R. Southampton
Cochrane, Mrs. Pentonville
Cust, J. D. Lisle-street
Dawson, Mrs. Westgate, Wakefield
Dent, Mrs. Lee
Elkin, J. L. Devonshire-pl.
Fearnley, D. G. Dewsbury
Gardner, J. M. Charleston
Gourlay, D. A. Yarmouth
Haynes, H. W. Cambridge, U. S.
Hendrie, John, Airdrie
Kitchen, J. P. Old Broad-st.
Lloyd, R. G. Caldicot
Loveland, M. R Dursley
Mason, B. Ashton under-Lyne
Peck, Samuel, Liverpool
Rapen, W. C. Leeds
Roberts, Mrs. Cardington-street
Sharman, W. Melton
Sear, Capt. R. Accrington
Taylor, John, Upper Gloucester-place
Thompson, W. H. Dalston
Wallis, A. Calcutta
Wix, W. St. Bartholomew's Hospital.

Entitled each to a Parian Statuette of "Solitude."

Bath, W. M. America-square
Bingham, Josh. Sheffield
Birch, Miss, Avenue-road
Cock, W. Burton
Dalton, Capt. per R. C. Lepage, Whitefriars
Davies, R. Menni-bridge
Davies, Rev. G. T. Bournmouth
Davis, R. Dorchester
Dreer, F. S. Philadelphia
Earl, G. F. Hull
Emmott, Capt. Bromsgrove
Eyres, J. W. Leeds
Fraser, J. per Messrs. Grindlay
Fullwood, J. Cork
Hincks, T. Ramsgate
Judd, W. Sussex-terrace, Hyde-park
King, H. Hackney-road
King, W. Dover
Long, W. Chancery-lane
Lowe, R. W. Lewes
Maddock, W. Lewisham
Milne, N. Leicester
Oliver, G. A. Twickenham
Ollivant, J. T. Manchester
Patterson, J. N. Leith
Rouse, B. Fish-street-hill
Russell, F. M. Cwn Avon
Rider, W. Maidenhead
Saunders, W. Overseal
Sharman, J. Leighton Buz.
Slater, W. Manchester
Smith, Mrs. C. Boston, U.S.
Stephen,—, Chippenham
Stewart, J. R. Inglewood
St. Paul's, Very Rev. Dean of
Tanner, G. Crediton
Turner, J. H. Brighton
Usher, J. K. Jamaica
Watson, J. Port Phillip
Wilson, I. Middlesborough.

Entitled each to a Set of Five Medals in Bronze.

Amator Artium, Metropolitan-buildings
Armstead, H. H. Percy-st.
Brackenbury, W. Shoulhamthorpe
Coupland, W. M. Streatham
Duncan, Miss K. Nottinghill
Emly, H. New-square, Lincoln's-inn
Garland, W. Leeds
Kernan, P. Clifford-street, Bond-street
Knight, W. J. Strand
Lee, R. Aldgate
Levien, J. Guildford-street
Lovejoy, G. Reading
Mackenzie, K. per — Richardson, Cornhill
Mercer, H. T. Cheltenham
Montefiore, J. Geelong, Port Philip
Napier, J. York-road
Oldham, Rev. R. Bromsgrove
Pratt,—, Hollington
Quincey, R. Basing-lane
Rungalin, B. Port Louis
Seaman, W. M. South Audley street
Stone, Miss, Chesthurst
Tarratt, Mrs. Wolverhampton
Taylor, John, Harrington-sq
Williams, A. Castlenau-villas

NORFOLK AND NORWICH ARCHÆOLOGICAL SOCIETY.—On Thursday in week before last, the quarterly general meeting of the members of this society was held in the Council Chamber at the Guildhall, Norwich. The Bishop presided. Mr. J. H. Druery read a paper on the residence of Sir Thomas Erpingham, in World's-End-lane, St. Martin at Palace, about to be pulled down. Mr. Harrod then read a paper on Caister Castle, near Yarmouth. The Rev. J. Gunn next read a paper on the influence of painted glass on ecclesiastical architecture. The Rev. J. Bulwer read some old letters which Dr. O'Callaghan exhibited. Mr. Harrod read a communication from Mr. Barton, of Threxton, reporting the discovery of a Saxon cemetery at Saham.

CRITICAL REMARKS UPON SOME OF THE MONUMENTS AT VENICE, AND IN OTHER PLACES ON THE ROUTE THITHER.*

PREVIOUSLY to describing the monuments of Venice, I will offer a few remarks upon the architecture of the other places which occur on the route thither.

The numerous cities of Belgium possess a mine of domestic architecture of picturesque and excellent character, and from which many a hint might be gained for the improvement of our modern practice, as their effect is in most instances gained in the material we ourselves use,—namely, in brickwork, and that without greater thickness of wall than is required by our present Buildings Act. Picturesqueness is the general characteristic of their buildings, even those which are ecclesiastical, but there is very little of pure and perfect design to be found in them. The greater part of the Gothic architecture is of the late Flamboyant style, which is very rank and coarse, and far inferior to that which prevailed in France at the same period. The interior of the churches is in general lumbered with elaborate pulpits and marble (or sham marble) Renaissance altars and monuments of most execrable design, which, however, produce a certain richness of colour and effect, striking to a superficial observer. In general the famous hotels de ville are of the worst Flamboyant: some, as at Ghent, Alost, &c. are picturesque: others, as at Louvain, are almost without that redeeming quality, being spotted all over with equally bad ornament, which even restoration is powerless to render worse. Yet, nevertheless, there are a few buildings of a first-rate class to be found, among which I may mention Les Halles, at Bruges; the cathedral tower at Malines (about to be desecrated with four corner turrets, which, however, it may be hoped in days of better taste will be knocked down again); the Bishop's Palace at Liege; of Romanesque architecture, the cathedral of Tournay; in Holland, the cathedral and curious church of Notre Dame, at Maestricht; and for richness of colouring only, the interior of St. Jacques, at Liege.

Of German architecture, particularly that found on the border of the Rhine, the works of Cologne first attract attention. The Romanesque buildings are generally of the finest character—effective from their simplicity and size, particularly the churches of St. Martin, the Apostles, St. Gereon, and St. Maria in Capitolo; yet the colour of the exterior is poor in them, as also in the cathedral of Bonn, which I think is the worst of the style, excepting the churches at Coblenz. The cathedrals of Mentz, of Worms, and of Spires are, perhaps, the most stupendous of all. These have apsides at each end, and the exterior outline of the first and last is fine: that of Worms, having two towers at each end, is wanting in good proportion, as is the church of Andernach, which is of the transition to Gothic, and good in detail. Boppard church is of this class. Bacharach old church, and the Crux of Strasburg cathedral, are fine, of Early Gothic; but this style soon in Germany became wiry, poor, and ineffective, and inferior to its English or French developments, *e.g.* Cologne cathedral; the churches of Oberwesel and Oppenheim; St. Werner's ruin at Bacharach; the west front and spire of Strasburg cathedral, and Friburg minster. The tabernacles, of elaborate design, and stump tracery, are the very degradation of Gothic. The modern buildings at Cologne, Frankfort, &c. show considerable elegance: they are adaptations of Classic architecture, but somewhat weak in effect, and show but little daring in their design. Some of the railway stations are most conveniently arranged, and though the decorations are of the same timid character, they are often exceedingly pretty.

Passing Switzerland with a commendation of the bold richly coloured and suitable cottages of its peasantry, which, nestling in the lovely valleys, and upon the sides of the vast mountains, add a charm even to that gorgeous scenery, I dwelt next upon the monuments of the city of Milan; in which, of course, the cathedral demanded the first notice, despite the vile character of the Gothic of which it is composed. The colour of its white marble, backed by the brilliant sky of Italy, its exceeding richness, and a certain excellence of proportion, produce a charming general effect, and passing from the glare of the square around, to the interior, I know no sight so imposing by its richness of colour and superficial grandeur: the less one dwells on the details for its own sake the better. Far more worthy of study, though possessing not the same meretricious attractions, is the church of St. Ambrogio, with its quadrangular cloister in front of it.

From this city, being pressed for time, I hurried towards Venice, passing through Brescia at midnight, nor stopped, except in Verona. It were useless to dwell now upon numerous buildings of interest which this fine old city possesses, as I have not time to do them justice, but may make an occasional reference to some of them while speaking of similar works in Venice; for thither I then proceeded in haste, anxious to behold

> "That glorious city in the sea,"

where

> "The sea is in the broad, the narrow streets
> Ebbing and flowing; and the salt sea-weed
> Clings to the marble of her palaces."

And thus leaving on the one side Vicenza bosomed in hills, and the many domes of Padua on the other, with the intention, which was never realised, of returning to visit these places, I at last arrived at Venice.

Around this ancient city, fallen and degraded as it is at present, there still lingers such a halo of poetry and association, uniting, with the charms of its romantic situation, the beauties of nature and the embellishments of art, in producing a deep impression upon every mind; and although it is seldom that when the expectations concerning any place have been greatly raised by glowing descriptions, the reality equals that which had been anticipated of it, in this case all the ideas which I had previously formed concerning it were more than realised.

It is true that when we attempt to recall the descriptions of ancient writers, and to rebuild in imagination the various edifices which have been destroyed, and to redeck those that exist with their perished frescoes, to multiply a hundredfold the gondolas which glide through the canals, we feel forced to exclaim, "Oh! what a falling off is here!" Yet while the glorious group of buildings around the Piazza remain, and the pale domes and towering campaniles of St. Mark, of St. Giorgio Maggiore, of the Redentore, the Madonna della Salute, and others of her noble churches, are still lifted serenely above her roofs, and are flushed, as I have seen them flushed, with a deeper hue against the golden sky of sunset, as if the firmament had left a legacy of its day-purple among them, she may ever assert with truth her title of "Beautiful Venice."

Of late, however, the monuments of this most exquisite city have acquired an interest beyond what their own intrinsic beauty and their romantic situation had previously excited with regard to them. This has arisen from the importance of the position which it has been perceived that they have held in relation to the general development of art during the mediæval ages, and from the strange differences in the opinions and criticisms which have been pronounced concerning their relative degrees of excellence. The controversy which has arisen upon this question is one of the greatest import to the prospects of architecture in our own time and country, and I may therefore be excused if I thus briefly refer to it.

The point at issue is between the architecture of the mediæval ages and of the period of the Renaissance, examples of which, in every phase that each of them assumed, are found there side by side, as if inviting a comparison of their merits. To decide between them, since the distinctness of their own records is somewhat blurred by the injuries inflicted upon them by neglect, by wantonness, and injudicious restoration, it is necessary to refer to the corresponding testimony of the eventful annals o the city, the character of which should be re flected by the works erected therein. Thi has been well explained by Mr. Ruskin in th opening chapter of the "Stones of Venice; but it may be well here to recall to your mind the principal points which bear upon the sub ject. It was in the commencement of the fift century that, of the inhabitants of Norther Italy,—

> —— "A few in fear,
> Flying away from him whose boast it was,
> That the grass grew not where his horse had trod,
> Gave birth to Venice. Like the waterfowl,
> They built their nests among the ocean waves;
> And where the sand was shifting, as the wind
> Blew from the north or south,—where they that came
> Had to make sure the ground they stood upon,
> Rose, like an exhalation from the deep,
> A vast metropolis".... "a dominion,
> That has endured the longest among men."

Here, then, being thus settled upon the island of the Lagunes, they chose from each isle tribune for their common government. Th power of these, however, was, in the year 69 A.D. concentrated into the hands of a sing elective Doge, and thus it continued for the spac of 600 years, during which the prosperity of th state continually increased, and its commer cial spirit was developed in a manner whic was often strangely at variance with the un selfish generosity of her sons. Profiting b the crusades, she became the mart of Europ till, when the armies of the west, foiled in thei schemes of conquest, for the last time recoile from the sacred shores of Palestine, th Ottoman power, freed from the aggressiv wars, relaxed like a bent bow, swept westwar over Europe, and would have overwhelmed in ruins, had not Venice and Poland becom the vanguard of Christendom, withstood th shock for a while, and baffled their Paynir foe. But, alas for the gratitude of nations having spent their strength and energy in th struggle, they each fell a victim to the grasp ing tyranny of those they had saved. Y Venice fell not by an undeserved fate: th elements of decay had been long in he self: her government had changed to a oligarchy in A.D. 1297 when it became pe fidious and cruel, and at the same time th religion of her citizens had been effectuall sapped, and art survived not the change in it truth and purity. Until this period, in a ages of the world, it had been the most faith ful of records, in that men had unwitting piled up, with massy stones, memorials themselves, and stamped them with an indel ble impress of their own feelings and charac ter; but then first (as if at the birth of print ing their historical value had been forgotte they began to copy the works of past age This change commenced with the corruption of the Roman church, was of a piece with he other Pagan innovations, and though terme the Renaissance, was in truth but a galvani revival of the corpse of that of the Classic ag

How strange it appears, then, from thi review of their history, that the productions this later and degraded era are those whic have attracted the greater admiration, an which have alone been thought worthy of imi tation by our architects; whereas those of th earlier and better days, full of the intens energy and fine feeling of their builders, hav been passed by them almost unnoticed, c looked upon merely in the light of a quain and perhaps picturesque, but half barbarou class of art. Surely it is time to learn whethe or not this be a false judgment, and if it be so to cast it from us, regardless of the prejudice which still seem to be deeply rooted amon us. I hasten, therefore, to give you the con clusion which I have arrived at from a per sonal and attentive examination of these seve ral buildings.*

JOHN P. SEDDON.

* Read at a meeting of the Architectural Association on the 16th April.

THE ENGINEERS' DISPUTE.—From a address by the executive council of the Opera tives' Amalgamated Society, just published, w observe that the latter now fully admit tha "hostile resistance of labour against capital i not calculated to enhance the condition of th labourer," and that all opposition on thei part is at an end.

* To be continued.

AN ATTEMPT TO DEFINE THE PRINCIPLES WHICH SHOULD DETERMINE FORM IN THE DECORATIVE ARTS.*

IT would be difficult to imagine a more just and comprehensive view of the extent of direct imitation admissible in each department of the fine arts, than that which was presented in the Appendix to the Third Report of the Commissioners, by Sir Charles Lock Eastlake, and republished in his "Contributions to the Literature of the Fine Arts." In a note to one of those important essays the writer observes, that "the *general* style of the formative arts is the result of a principle of selection, as opposed to indiscriminate imitation. It consists, therefore, in qualities which may be said to distinguish those arts from nature. The specific style of any one of the arts consists in the effective use of those particular means of imitation which distinguish it from other arts. Style is complete when the spectator is not reminded of any want which another art, or which nature could supply."

Now, the specific style of architecture is especially worthy of study, since not only do similar conditions pervade all branches of design into which structural forms enter as principal elements, but of all the arts it is obviously the least imitative, and the most abstract. The effects of delight which can be produced by it, are dependent not upon a reproduction of any objects existing in creation, but upon a just display by the architect of his knowledge of those subtle general conditions, a few of which we have recognised as pervading every perfect work of nature. The beauty of Civil Architecture, we are told by the best writers upon the subject, depends upon—1st. Convenience; 2nd. Symmetry, or proportion; 3rdly. Eurythmia, or such a balance or disposition of parts as evidences design and order; and, 4thly. On Ornament. In too many modern buildings, alas! we find that either convenience has been attended to and all other qualities left to chance, or, what is still worse, ornament alone aimed at and all other considerations disregarded. Let us, for the sake of example, trace the operation of the principles to which we have alluded, all of which will be found to have their origin in the provisions of nature. The wise architect will begin by considering the purpose of his building, and will so contrive its plan and leading form, as to fulfil all the utilitarian objects for which it was proposed to be constructed; in other words, he will be governed by a sense of *convenience* or *fitness*.

He will then consider how all the requisites can be most agreeably provided, and harmonious proportion combined with an expression of purpose. He will find, on recurring to nature, that every substance suitable to be employed in construction, exhibits endless *variety* in strength, weight, and texture. He will study these various qualities, and by experiment ascertain that each material posseses a certain scale of proportions and a certain series of solids, by the employment of which, in fixed positions, its functions may be at once most economically and most fitly employed. Acting on such data, he will distribute his lines of substructure, his columns of support, his load supported, his wall to resist the driving of the elements, and he will assign to each its special proportion and form—never confounding those of one substance with another—never using iron as he would stone, or wood as glass should be. Thus aided by his sense of the functions of each portion of the structure, the material of which it may be constructed, and its condition of relative importance, the architect adjusts the appropriate dimension of every part. His work is as yet, however, only half done; his materials require bringing into graceful and regulated distribution. At this point, Eurythmia, the original of "the fairy order," steps in, bringing Geometry in her train. Doors, windows, columns, cornices, string-courses, roofs, and chimneys, are instantly disposed so as to contrast with, and balance one another, showing, by the symmetry of their arrangements, the artist's application of that method and evidence of design which indicate the restraining power of mind over matter throughout all nature—wild as her graces may occasionally appear. The crowning difficulty yet remains behind in the adjustment of appropriate ornament. For all other departments of his art, the architect employs only pure abstractions, harmonised with his general deductions of leading principles of beauty: in his application of ornament, however, his resources are somewhat more expanded. All decoration, the forms of which are borrowed from nature, to be pleasing, must undergo a process of conventionalising; direct imitation, such as that which would be produced by casting from a gelatine mould, would infallibly disappoint, since the perfect reproduction of the form would lead to demands for reality in colour, in texture, and in other qualities which it might be utterly beyond the power of any other material or processes to render, than those which nature has herself employed in the original. The duty of the architect is, therefore, to study first of all to employ such forms as harmonise and contrast with his leading lines of structure,—and then in those few instances where, for the sake of adding more immediately human interest to his work, or for explaining its purpose more directly, he may desire to suggest the idea of some object existent to nature—then and in such a case it is his duty to symbolise rather than to express, and to strive to convey an idea of particulars and qualities only, instead of to make a necessarily imperfect reproduction which conveys no idea at all.

The exact amount of resemblance which the hieroglyphic may be permitted to bear to that object, some ideal property of which it is intended to express, must depend upon so great a variety of circumstances that it obviously becomes one of the most delicate operations of the artist's skill to adjust the precise form in which he shall work out his ornament. The treatment of the honeysuckle by the Greeks, and the lotus by the Egyptians, are probably the happiest existing illustrations of refined appreciation of the mysteries of judicious conventionalising.

As a general rule, the less closely the artist attempts to embody nature, the more safe he will be; but as there are, we conceive, some few cases which justify a nearer approximation than is generally admissible, we shall proceed to enumerate the most important of them, premising that, paramount over every other consideration, must reign an exact regard to the conventionalities incident to the material employed, and the absolute necessity of arranging the forms of the ornament so as to contrast rightly with the adjacent geometrical lines.

1stly. That imitation may approximate to nature only in an inverse ratio to the resemblance of the material in which the work is to be executed to the object to be copied. Thus, the smoothness of flesh may be imitated with delicacy in white marble, and the idea of rock-work only conveyed in the same material by a completely formal and geometrical method of representation.

2ndly. That as imitation in all cases interests and attracts attention, it becomes necessary to restrict its use sparingly to particular situations; thus, we may, on the one hand, with propriety employ decorations suggestive of natural types, in those few important points on which we wish the eye to dwell, such as the centre of a façade, the principal doorway, or window, the starting of a staircase, or the end of a boudoir; but if, on the other hand, we employed in such situations mere conventional patterns, and in less important parts, ornaments in convention approaching imitation, then we should find attention concentrated on those meaner portions of the structure, and the really principal features of the design passed over and neglected. A striking illustration of the consequences of this want of discrimination was shown by the sculptor Lequesne, in his various groups in the Great Exhibition; the care he bestowed in working up his accessories, his weeds, foliage, rocks, earth, and everything else, almost entirely neutralised the interest which should have been excited by the finished treatment of the flesh of his unhappy mother and her miserable infant. The admiration which might otherwise have been given to his two groups of dogs and boys was completely absorbed by admiration at the patience with which "each particular hair" was made to curl. To all the above-described faults the works of M. Etese offered a truly remarkable contrast, the labour in them being applied at exactly the right points.

3rdly. That where ornament is contrasted by evident connection with geometrical lines of structure, conventional imitation may be introduced. Thus, in many of the marble chimney-pieces in the Exhibition, and in much of the furniture, the structural forms of which made regular panels, or conventional framework, the introduction of nicely-carved flowers or fruit, of the size of nature, and in low relief, produced an agreeable effect. Where, in others (and more particularly in some of the Austrian), the foliage, scrolls, cupids, and all sorts of things, completely ate up the whole surface, and made up the whole structure, the effect was eminently objectionable.

4thly. That where the copy differs absolutely in bulk from the original, minutiæ of surface detail may be introduced. Thus, when we reduce a subject, such as a bunch of grapes, from the round or full relief to the lowest rilievo, much of the conventionality which would otherwise be essential may be dispensed with.

5thly. That considerable differences of scale in things of unvarying dimension, justify an approach to natural form. Thus, when we materially diminish in our reproduction any object the smallest size of which is generally known never to equal that to which it is lowered in our copy, we may safely attempt as close a conventional transcript as the material in which we work admits of. On this account delicate flowers, such as those which decorate small Dresden china vases, and which are executed with such skill in biscuit by Mr. Alderman Copeland, Mr. Minton, Mr. Grainger, of Worcester, and others, form not unappropriate ornaments, when confined to a scale considerably smaller than nature. In cases, however, such as that of the Dresden white Camellia-tree of the Exhibition, where an attempt is made to copy nature on her own scale, the effort altogether fails, and the labour, so far from giving pleasure, utterly fails, and becomes a trick not less inimical to good taste than the veiled figures.

6thly. That where in ornament the leading forms are geometrically disposed, so as in regularly recurring scrolls, or other curves, which could never take so formal a position in nature, a rendering of her spirit, though not of her substance, may be permitted in the leaves and accessories. Thus, in much of the elaborate wood-carving produced by Mr. Rogers and others, the artificial disposition alone of the beautifully-executed objects, redeemed many of the groups from the charge of too close a reproduction of nature.

We have dwelt at some length upon these special circumstances, which modify conventional treatment in ornament, partly because we felt that the data applied generally to most varieties of enrichment as well as specially to architecture, and partly because we felt it necessary to indicate some of the exceptions, the comparative rarity of which tends generally to a confirmation of the accepted dogma, which prescribes that architectural ornament shall be in a remote style of convention only.

Before proceeding to the subject of Sculpture, we would fain offer one or two remarks concerning what is called style in art; for fear lest our recommendations to systematic study of elementary principles should be misapprehended. In what are generally understood as styles in the history of art, such as the Grecian, the Roman, the Gothic, the *Renaissance*, &c. may be recognised deeply interesting accumulations of experience concerning the nature of men's instinctive affections for certain concatenations of form. Styles are usually complete in themselves; and, though not of uniform excellence, are still generally concordant among all the various members that compose them. Whatever may have been the dominant

* The following is a portion of a lecture, delivered at the Society of Arts, on April 21.

form in each, or whatever the favourite set of ratios of proportion, usually pervades each whole monument, as it may be generally traced in a few detached mouldings. Styles, therefore, may be regarded as storehouses of experiments tried, and results ascertained, concerning various methods of conventionalising, from whence the designer of the present day may learn the general expression to be obtained, by modifying his imitations of nature on the basis of recorded experience, instead of his own wayward impulses alone. Canova, Gibson, and many of the greatest masters in art, held and hold the creed, that nature, as developed in the human form, can only be rightly appreciated by constant recurrence to, and comparison with, the conventionalities of the ancient sculpture of Greece. Mr. Penrose has shown us what beautiful illustrations of optical corrections in zinc may be gathered from the study of her architectural remains. Mr. Dyce, who has made himself deeply acquainted with ancient styles, thus expresses himself on the subject:—"In the first place," he remarks, "the beauties of form or of colour, abstracted from nature by the ornamentist, from the very circumstance that they are abstractions, assume, in relation to the whole progress of the art, the character of principles or facts, that tend, by accumulation, to bring it to perfection. The accumulated labours of each successive race of ornamentists are so many discoveries made—so many facts to be learned, treasured up, applied to a new use, submitted to the process of artistic generalisation, or added to. A language and a literature of ornamental design are constituted; the former of which must be mastered before the latter can be understood; and the latter known before we are in a condition to add to its treasures. The first step, therefore, in the education of ornamentists, must be their initiation into the current and conventional language of their art, and by this means into its existing literature." By this last passage, we may fairly assume that Mr. Dyce would recommend first, the study of the student's specialty, and then, as much as life is long enough to learn. The great previous error in art-education has been to grasp at so much vaguely, and attain so little practically.

The modifications which nature receives at the hands of the intelligent sculptor are so various, and frequently so subtle, that it would require a volume to enumerate them and an Eastlake to write it. To night we can glance but at a few. The first condition of the highest class of sculpture is, that it should be allied with the noblest architecture, to which it should serve as an inscription, explaining to those capable of reading its ideal expression, those purposes of the structure which it is not in the power of architecture alone to convey. In all such cases *fitness* prescribes the subject—*simplicity* its sublimest treatment—*contrast* the general conditions of the lines of its composition. In order to give to his works that commanding language which speaks to the heart (the phonetic quality in Mr. Fergusson's admirable theory of beauty in art), the sculptor requires to select from his observation of the expression of individual forms, those precise lines, he learns from study and experience, invariably convey the peculiar sensations it is his office to communicate to the mind of the beholder. It is by some such process that an approach was made by the Greek sculptors of old to an embodiment of their conceptions of divinity, and arrive at the *beau ideal* in loveliness of form. Time will not permit a longer reference to this topic, but it may be found touched upon with the utmost acuteness and good taste in an article on physiognomy in the last number of the *Quarterley Review*, written, if any confidence may be placed in internal evidence of style, by one worthy in every respect to occupy herself in kindred studies to those which engage the attention of the president of the Royal Academy. Among the works of sculpture in the Great Exhibition which displayed the most perfect mastery over the just combination of ordinary and ideal nature, especial attention may be drawn to Gibson's and Jerichan's hunters; Foley's Ino and Bacchus, and boy at the stream; Bell's eagle-slayer; M'Dowell's Eve; De Bay's first cradle; and Wyatt's nymph, Glycera.

The peculiar refinements of form and texture which fall within the especial province of the sculptor to carry to their highest pitch of perfection, he constantly heightens by availing himself of the effect on the senses of the simultaneous contrast of form. Thus, he exaggerates the roughness of the hair and the coarse texture of every object coming in contact with his flesh, in order to give to it the exquisite smoothness of nature; he introduces straight lines, equally-balanced folds, and angular breaks into his draperies, in order to bring out the tender sweeping curves of the outlines of the limbs he so gracefully disposes. His is of a truth the happy art which begins by collecting all that is most sweet and fresh; and then, by one additional touch, one further artful contrast, adds still "more scent unto the violet." In sculpture, as in every other of the decorative arts, changing circumstances bring ever changing conventionalities, and as supreme arbiters over the propriety of one and all, still preside our original great principles—*variety, fitness, simplicity, and contrast.*

In turning to those departments of practical art into which sculpture enters as a predominent ingredient, metal-work first presents itself to our notice. Nothing can be more apparent than the variety of properties and qualities of the several metals, nothing more consistent than to prescribe a different mode of treatment to each. Sculpture in metal, partly on account of the much greater ductility and tenacity of the material, and partly on account of its peculiar colour and power of reflecting light, can rarely, however highly its degree of finish may be carried, be mistaken for that which it professes to imitate. Hence it arises that elaborate execution of details may, and indeed should, be carried in metal to the most minute perfection. Works in gold, or silver, should, as a general rule (except in instances where an overpowering display of wealth is intended, in which case art does not much signify), be confined to small dimensions, and those relatively correspondent to the associations of idea connected with the rarity and value of each. It was from inattention to these conditions that many of the largest pieces of plate in the Exhibition failed to interest us, and that the eye dwelt with much greater complacency upon the smaller than upon the larger objects.

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In several of the plastic materials, such as gutta percha, carton pierre, papier maché, canabie, stamped leather, &c. much good design was exhibited, although the tendency, more particularly in the gutta percha, was rather in the direction of a plethora of ornaments. Nature, it should be recollected, abhors monotony, even of beauty, and there is nothing so cloying and fatiguing as too much sweetness, from which perpetual plainness would be a haven of refuge. In respect to these materials a good deal of misapprehension has prevailed of late years; they have been called "shams," and a variety of names which they intrinsically in no wise deserve. When people paint and grain papier maché to make it look like oak or other valuable woods, or when they dust sand over carton pierre to make it look like stone, then certainly they perpetrate meannesses at which good taste is disgusted the instant the deception is found out; but when the materials are used simply as ornaments, either in a uniform colour, or picked out with any variety of tints, everybody recognises the nature of the material; and there can then be no more *sham* or *trick* in employing them than there would be in using Caen stone for a pulpit instead of marble, or iron for a column instead of gold.

There is, perhaps, no substance in the manufacture and design of which so great an improvement has taken place in this country within the last ten years as in that of glass. Witness, for manufacture, the glass palace and its wonderful fountain; and, for design, the exquisite articles contributed by Messrs. Green, Pellatt, Richardson, Bacchus, Rice, Harris, and others. The subject of glass, its materials, appropriate form, colour, and other conditions having been most ably treated in the last lecture of this series, renders it unnecessary now to make any further observation on the subject. We may be permitted, however, in drawing attention to some exquisite specimens of Messrs. Green's manufacture, to simply assert, that never at any other period has anything corresponding to the present perfect execution of glass-work existed; and that so soon as the cumbrous, lumpy decanters, tumblers, and rummers, in which our fathers delighted, shall have been all broken, there will be very little left to desire in respect to table glass.

With regard to china, and the group of analogous materials, such as porcelain, terra cotta, &c. time compels us to be brief. In all such objects, the fragility of the material warns us against rash projections, and yet we constantly recognise them stuck on, as though merely for the purpose of being knocked off. The primitive arrangement of the potter's wheel, and the plasticity of the material, yielding beneath his hand curves, which in Etrurian and Magna Grecian ware, we admire as exquisite, direct us, as it were, to simplicity in all works in such materials. So long as, by the readiest means, and by a little education of the workman, we might obtain forms quite as valuable and as various as those which we always have and always shall admire in the antique, there can exist no excuse for casting octagon and hexagon jugs, or making teacups up out of half a-dozen curves.

* * * *

Of the various appropriate modes of conventionalising nature, scarcely any is more agreeable than that which is frequently adopted by the skilful paper-stainer, in what are called panel papers. It consists in treating as a picture, flowers and other objects, grouped with scarcely any apparent artifice, in their natural form and sizes, and with all their lights, subdued shades and reflections, but with no cast shades. This, at first sight, would appear to be too direct an imitation of nature to be agreeable, and therefore liable to objection—and so, unless care is taken, it very frequently is. Now the method of preserving all that is requisite is effected by representing the flowers by successive blotches of body colour daubed on, with no attempt to soften the edges or conceal the method by which the effect is produced. Thus, at a little distance the decoration looks, not like a group of flowers, for that would be a mistake, but like a very clever sketch of a group of flowers framed and inserted in the panel. Where direct imitation of natural flowers, with endless tiresome repeats, are carried out, either in paper-hangings, block, or cylinder-printed goods, in carpets, damasks, or other woven hangings, the effect is rarely if ever agreeable, however marvellous the manufacturing power may be which can effect such elaborate reproductions. In woven goods, as was most clearly shown in an excellent lecture by Mr. Wornum, recently delivered at the School of Design, the conditions of manufacture constantly modify the structure of patterns; and those even which have been originally derived from nature, frequently become reformed to such an extent in putting on or draughting, that the best mode of convention, that which is induced by the process of manufacture makes that agreeable, which, if it could have been more perfectly carried out, would most probably have been extremely faulty.

The subject of surface decoration is one which involves such infinite varieties of conventional treatment, which demands so large a study of the effects of complicated geometrical subdivisions in mosaic, and, in fact, so large a field of vision, that we feel that within the limits of one lecture it is quite impossible to systematise a subject which could scarcely be fitly treated in half-a-dozen. We are fain, therefore, to draw to a close this our most difficult attempt to define the principles which should determine form in the decorative arts. In doing so, however, we would pause for a few moments to remark, that, although for the sake of perspicuity we have throughout this evening adopted the language of analysis, it must be borne in mind that our divisions are

altogether arbitrary, and have no existing prototypes in the great scheme of creation. In that, subdivide as we may, all is unity and omnipotence. *Variety, fitness, simplicity, contrast,* and perfect *truth,* are all swallowed up in one thing perfectly good, and therefore perfectly beautiful—Divine will. That Divine will, which in the beginning created the heaven and the earth, and saw that everything created was very good. Surely, we, whose privilege it is to be fashioned in God's own image, may strive to follow reverently and closely, though at an infinite distance, that great example which has been given us, and study, so far as lies in human power, to ensure that all we do, and all we make, may, like the great works of nature, be "very good."

M. Digby Wyatt.

CORPORATION GAS-WORKS.

"PROFITS OF GAS AT MANCHESTER."

In reference to a paragraph in our columns on 17th instant, wherein were quoted some remarks by an alderman, on "the position of Manchester with respect to advantages in the manufacture of gas," and in defence of the corporation charges for the article, which are practically a shilling a thousand cubic feet higher in Manchester than in London, we have received a communication from Mr. W. Pearce, explaining that the alderman's statistics are erroneous; cannel coal in London costing the gas companies 20s. per ton, and coke yielding only 5s.; leaving 15s. chargeable to the gas, instead of 2s. as alleged. It thus, and from other remarks of our correspondent, appears to be implied by him that the price of gas at Manchester ought to be lower than in London, in place of higher,—less than 4s. in place of more;—and we hope the Manchester press will keep in view the inference, thus fairly deducible, and the fact, that the Manchester corporation (short-sightedly, we think) compel every consumer to purchase his meter, and even a box to lock it up in. So long as they do this, they may depend on it they are limiting the extension of their manufacture and their profits, which would be immensely increased were they to allow private families, as well as shopkeepers, to rent their meters in place of purchasing them. We were not aware, however, of the *fact,* alleged by our correspondent, that "no gas company *dare* to practise" in these respects the system adopted at Manchester, &c.

As to the splendid profits realised in that town, and devoted to public improvements, Mr. Pearce observes, that "the large profits realised by the Manchester corporation out of the gas-works are constantly paraded before the public, as proving the advantages resulting from the supply of this important article being monopolised by the municipal authorities. If the question is only *superficially* examined, it may bear this construction; but those who have studied the details can *only* see in them an insidious system of taxing the gas consumer for purposes the expense of which ought to be supported by the entire population."

Now, in examining any question of importance, three degrees at least of penetrative sagacity may fairly be recognised in the studying of its details; namely, that which is merely superficial; that which goes in *medias res* beneath the surface; and that which *sees through* the latter themselves, even when purposely and insidiously muddified. True, the public improvements carried out with the profits realised from the Manchester corporation gas manufacture are for the general benefit, and ought, strictly speaking, to be carried out at the general expense,—and if, as it ought to be, every dwelling, even the most humble, were fitted up for the use of gas, this would be the case even with these very profits,—but would the Manchester gas consumers, who do enjoy, as do the non-consumers, the improvements carried out by means of these profits, be in any better position than they now are in, were the thirty to forty thousand pounds per annum of gas-profits *not* to be laid out in city improvements, but to be divided by a gas company?

Our correspondent's objection to the reaping of such a harvest from a limited number of gas consumers might have had some force in an argument simply for the further reduction of price down to the level of the bare expenses of manufacture; but his purpose is one of a very different character. For our own part, we do think that if a pretty long price be justifiable anywhere, it is in such a case as this; nevertheless, we by no means desire to uphold high prices even here, and willingly second our correspondent's only legitimate object, in showing that gas ought to be cheaper at Manchester than in London.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

GERRARD'S HALL CRYPT.

At a meeting, on Wednesday, April 28, the Treasurer in the Chair, Mr. George Vere Irving communicated some remarks on the original drawings by the Parliamentary Colonel Eyre, of the fortifications of London during the civil wars, which were exhibited at a previous meeting by Mr. Gould. Some doubt had been thrown upon their authenticity; but much evidence was brought forward on this occasion by Mr. White, Mr. Duesbury, and other members in vindication of them; and it was stated that the present proprietor of them, who is preparing them for publication, trusted shortly to be in possession of documents which would establish their genuineness beyond dispute.

A letter was read, from Mr. Butterworth, and a discussion took place respecting the threatened destruction of the crypt under Gerrard's Hall, which had been visited by the Association in October last. Mr. Bunning, the city architect, had on that occasion stated, that it was his most anxious desire to preserve the crypt, and that could any mode at all practicable be suggested of overcoming the difficulties he unfortunately saw in the way, he should most earnestly recommend its adoption. It had been found, however, that the crown of the arches was 4 feet above the level of the new street, and when to that were added at least 2 feet more of soil and paving, necessary for the formation of the road itself, it must be obvious that so great a rise could not be obtained without serious inconvenience to the traffic, to say nothing of the unsightliness of the effect.* It was suggested by Mr. White, that instead of idly protesting against what had become a measure of necessity, the Corporation of London should be solicited to adopt the hint thrown out by one of its members, Mr. Deputy Lott, which was to have the building carefully taken down and re-erected on a site adjacent to the crypt of Guildhall, a scheme perfectly feasible, and which would not be attended by a third of the expense consequent on sinking it bodily a sufficient number of feet, which was another mode of preserving it. It was ultimately moved by Mr. Egan, and seconded by Mr. Hayworth, M.P. that the Council of the Association should be requested to communicate with the proper authorities on the subject, and the chairman stated that at the next meeting the plans and drawings of the crypt made for the association should be exhibited, and a paper read on the subject.

Mr. Gunston exhibited some specimens of wood-carvings and encaustic tiles from the church of St. Andrew Chinner, Oxfordshire; and also rubbings from the inscriptions on the bells of that church.

Dr. Copeland exhibited a carved and iron-banded chest of the sixteenth century, and Mr. Pratt a fine sword of the fifteenth century, having on the pommel a shield charged with two bars. It had been recently found in Kent. The same gentleman also exhibited a beautiful specimen of iron work; being a portion of a railing formerly enclosing the altar, as he believed, of the cathedral at Aix-la-Chapelle. It was of the seventeenth century, and of exquisite workmanship; the flowers and leaves being as delicately formed as those in the finest Dresden china.

* A Report recently made to the City authorities says 4 feet in all.

THE CURVED LINES OF GREEK ARCHITECTURE.

As I have not the advantage of seeing your valuable journal except in its monthly parts, I trust you will excuse my referring in this communication to a subject so far back as one in your number for last February, viz. "the curved lines of Greek architecture."

In your review of Mr. Penrose's "Investigations," &c. I find that he states it as his opinion that "the origin of the horizontal curve was to obviate a disagreeable effect, produced by the contrast of the horizontal with the inclined lines of a flat pediment, causing the former (that is, the cornice) to appear deflected from the angles." This, of course, would hold good only where a pediment existed, and would not include every instance. You add, that Dr. Emil Braun suggested that the curvature in question was to make the lines harmonize with the sea horizon. And a correspondent, R. R. in p. 121 of the same part, endeavours very ingeniously to confirm this theory.

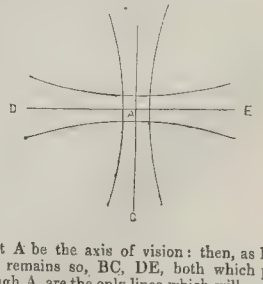
Will you allow me to suggest that this is a point in which one science may derive valuable assistance from another, though apparently quite unconnected with it. The difficulty is, I think, to be solved by the application of the simple principles of optics.

A column, we all know, if made of the same diameter throughout, will not appear so to the eye, but will have the effect of being thinner towards the middle than either at the bottom or top: in short, the lines of the profile will appear curved. Now, it makes no difference whether this column be seen perpendicularly or horizontally: the effect is the same in both instances. To make the perpendicular column appear of the same diameter throughout, you must make the profile convex, by the use of what is technically termed an *entasis;* so likewise, when two horizontal lines occur, so near one another as to strike the eye together, they must be treated in a similar manner.

The fact is, the eye does not admit of two strictly parallel lines being pictured on the retina: if the axis of the eye be brought on one of them, the other will immediately appear curved; and *any straight line not viewed with the axis of the eye falling on some point in it will appear curved.* Consequently the horizontal sky line of a Greek building, in order to admit of being seen as a straight line, while the eye contemplates the parts of the building below it, must be made convex on the upper side.

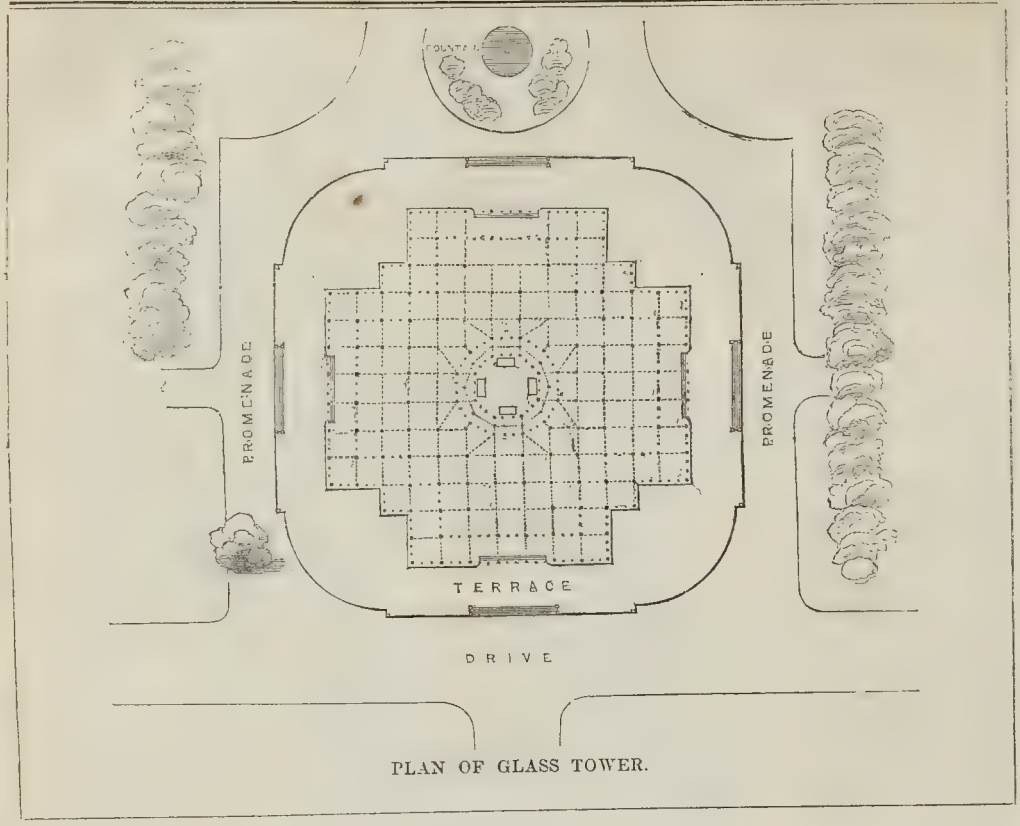
The human eye contains a double-convex lens, by means of which an image from external objects is thrown on the retina or screen at the back: if this screen were flat, our vision would be limited to a point: we should see no more than a point distinctly at one and the same time (for reasons which I could not make plain in a few words), but to enable us to see a considerable expanse at once, the retina is curved. It is this curvature combined with the aberration of the lens of the eye which gives the curved figure to lines not passing exactly through the centre or axis of vision.

The accompanying diagram will show this more clearly:—



Let A be the axis of vision: then, as long as it remains so, BC, DE, both which pass through A, are the only lines which will appear straight: all others will be curved. But the moment the point of sight A is altered, a corresponding alteration takes place in the curvature of the lines.

H. C. K.



PLAN OF GLASS TOWER.

PROPOSAL FOR THE CONVERSION OF THE GREAT EXHIBITION BUILDING INTO A PROSPECT TOWER 1,000 FEET HIGH.

It is proposed to build an enormous tower, illustrated by the accompanying engraving, of the materials of the glass palace, preserving, as much as is consistent with the new design, all the features of that structure, with a view of perpetuating the great event of the year 1851, and forming a depository of every branch of art and manufacture our own kingdom produces, as well as a choice collection of exotics from the four quarters of the globe, which the four parts of the cross in the plan are intended to represent. There never was so favourable an opportunity of erecting so gigantic a tower at so comparatively trifling a cost. The material is all ready at hand, and a site near might easily be found. The building, from the peculiarity of its design, forms its own scaffold, and the ground it would occupy is less than one acre, and, with the proposed terrace round the building, altogether under four acres. This economy of ground, when compared with the space the glass palace occupies, is an important consideration in such a place as London, where land is valuable.

In times anterior to the erection of the exhibition building, the value of iron and glass as building materials appeared to be scarcely understood, and many persons were to be found to declare that this light, fragile-looking building could not stand against the wind. That it has done so, and "done the state some service," answering entirely the purpose for which it was intended, is a fact now beyond dispute.

Before any remarks on the project are offered, it will be as well for me to give an explanation of the various means proposed to be adopted to render so vast a structure perfectly safe against the strongest hurricanes. This will be better understood by inspecting the plan. In the centre is a large octagon, composed of twenty-four columns, which spring from the foundation, in which they are securely imbedded, to the very top of the building.

Adjoining is a decagon, similarly constructed, forming the second tower in the elevation, and rising to the second gallery of 840 feet. The dodecagon tower also springs from the foundation, and is carried up to an altitude of 660 feet. We then see a square of columns measuring 120 feet on one side: this likewise rises from the foundation to where the clock is placed, and is surmounted by four turrets, which lend their aid in supporting the building, and screen in some measure from the wind those adventurous visitors who arrive at this aërial promenade. Another square of larger dimensions abuts on all these, and rises to a level of 198 feet, upon which four galleries, each 120 feet in length, are to be constructed. Similar small turrets are to be placed at the four corners. In addition to this accumulation of strength in columns and girders, a portion of the south front of the transept is added to each side of the square, forming a cross; not only as an abutment, but with a view of perpetuating the most elegant part of the present building, and handing down to posterity the entrance through which so many thousands passed.

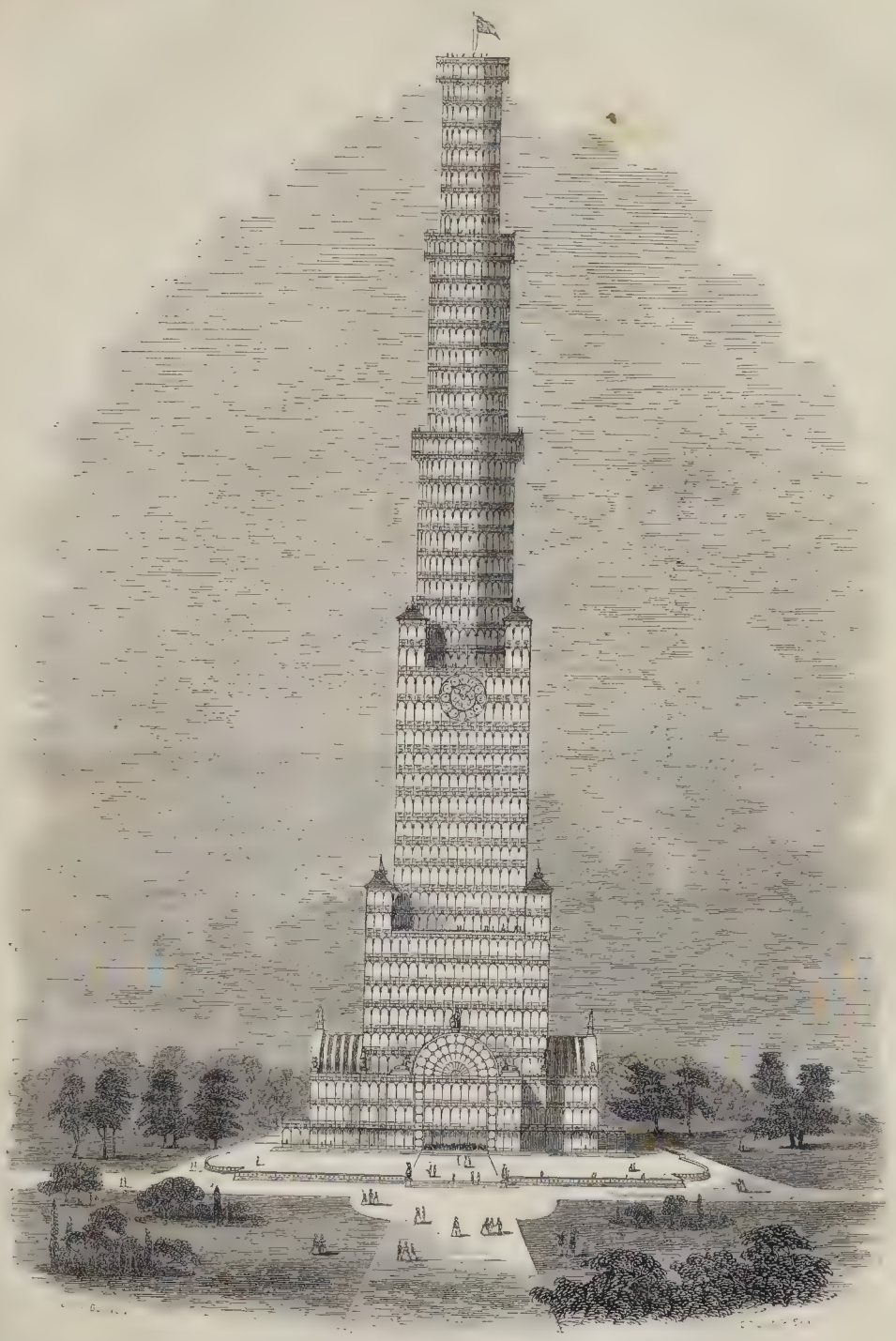
The four halls of glass formed by this cross might be reserved for choice plants, &c. with appropriate statuary ornamenting the outside and relieving the general effect. If we suppose four of the upright columns, with four of the girders attached, and bolted to firmly-fixed cradles in the foundation, it will give a notion of a hollow cube of brick or stone of similar dimensions. Were the building constructed of such cubes, it would not be so strong or durable as of the material so opportunely presented. If we imagine a give-and-take line passing through the section from the outer colonnade columns curving up through the towers towards the top of the octagon, a figure similar to the outline of the Eddystone Lighthouse will be presented to the mind.

The clock is of proportional size to the tower, being 44 feet in diameter, with figures 10 feet long; its elevation about 440 feet above the terrace, and many feet above the cross of St. Paul's; the gallery over it is somewhat lower than the Great Pyramid of Egypt; and were St. Paul's Cathedral placed on the top of St. Peter's, there would then be room for the Nelson's Column, which would about reach the crystal tower's summit.

The little squares in the octagon represent four carriages or ascending rooms, which are to be continually running on, or rather up, a vertical railway, to the glazed gallery at the top of the octagon, where the visitors may observe the view around, sheltered from the wind. There is also a platform gallery on the very summit for the more adventurous. The view from any of the galleries would be magnificent in the extreme.

The writer has passed over London with Mr. Green, in the celebrated Nassau balloon, and can speak feelingly as to the wonderful appearance of the Great Metropolis and the lovely scenery surrounding it, from an elevation of 1,000 feet. He has beheld with delight, mingled with a feeling of awe, half a mile of river hurled over a rocky precipice 160 feet in height, in the shape of the Niagara Falls, and yet hopes to be astonished by a sight of the country for a hundred miles round London, from the elevation of 1,000 feet, without the risk of a balloon descent. C. Burton.

P. S.—Messrs. Fox and Henderson have expressed their conviction that the project could be carried out.



DESIGN FOR THE CONVERSION OF THE EXHIBITION-BUILDING INTO A TOWER 1000 FEET HIGH.
By Mr. C. Burton, Architect.

NATIONAL INSTITUTION OF FINE ARTS, REGENT STREET.

THE Portland Galleries, opposite to the Polytechnic Institution, are now open to the public, and contain an interesting collection of 381 works of art. The advantage to be found in these galleries is, that every picture, being well hung and well lighted, is seen to advantage. Having given so much of our space to an account of the proceedings of the Art-Union, we must be brief on the present occasion in our notices of this and the other art-collections which have been opened during the week. Mr. R. S. Lauder's picture of "The Crucifixion" (72) is more powerful than pleasing, and is not likely to enhance his reputation with the multitude. The introduction of a mass of drapery about the figure of the Saviour is without justification. The genius which is seen in the picture does not compensate for its defects. "Christ teaching Humility" (167), by the same painter, is a better example of Mr. Lauder's art. Mrs. McIan has a large picture (245), representing, under the title of "The Highlands, 1852," the embarkation of "old and young—men, women, and children," for Australia, after the "clearing away" of their homes. The group on the left side of the picture, in the foreground, has all the feeling and beauty which characterized some earlier works of this lady. One of the cleverest pictures in the collection is (255) "Free Companions," by Mr. Glass, and it shows, moreover, what is always satisfactory to notice, a very great advance on the part of the artist. The treatment is exceedingly clever. The bit of the first horse, by the way, wants a strap. There is a charming head by Mr. Inskipp (51), "A Young Villager;" and Mr. Barraud's "Go, and sin no more" should not be passed over. Messrs. Williams, sen. A. W. Williams, G. A. Williams, and Sidney Percy, exhibit a large number of pleasing, and in some cases admirable, landscapes. They paint, unluckily, so much like one another, and so often like themselves, that when seen altogether, the claims for admiration are less than when seen separately. (62) "Carnarvon Castle," by E. Williams, sen. (69) "Nant Francon, North Wales," by Alfred Williams, and (229) "View on the Thames at Medmenham," by G. A. Williams, have marks of commendation in our catalogue. Mr. Hulme has made a very considerable advance as a landscape-painter; in proof of which see (234), called "Tranquillity—Scene in North Wales;" and the same may be said of Mr. A. Provis, whose interiors, (272) for example, "An old Farmhouse at Pavinpol," are exceedingly clever in their way. Mr. A. Montague paints more carefully than heretofore: (12), "Delft," and (212), "A Dutch Port," are good specimens. Mr. Dibden's "Sketch in Hyde-park," (33), and Mr. Dawson's "London Sunrise," (296), are both clever pictures. Mr. Pasmore has some showy sketches: Mr. Wingfield some of his smooth bits of Hampton Court, &c.

THE NEW SOCIETY OF PAINTERS IN WATER COLOURS.

NOTWITHSTANDING some criticisms to the contrary, we have no hesitation in pronouncing Mr. Haghe's picture, the Magistrates' Room at Bruges (74), "Visit of Marguerite of Austria, Duchess of Parma," as the most wonderful painting in point of mechanical execution ever executed in water colours. The extraordinary room therein represented is in the *Palais de Justice;* a view is given of its elaborate fireplace in our fifth volume (p. 38). According to Mr. Haghe, the architect was Lancelot Blondeel, of Bruges, and the sculpture and carvings were executed by Herman Glosenchamp, Rogier de Smet, and Adrian Rasch. "A Hunchback Story-teller relating one of the Arabian Nights' Tales in a Coffee-house of Damascus," by Mr. Henry Warren, although less pleasing than some of his other works, is a truthful depiction of character and costume, which should be engraved. The hunchback will be remembered by those who saw the Syrian family at the Egyptian-hall. Mr. Wehnert has a thoughtful picture from Edgar Poe's "Raven,"—

> ——"Vainly I had sought to borrow
> From my books surcease of sorrow—sorrow for the lost Lenore."

Mr. Edward Corbould's "Godiva" (247) is a rich piece of flesh-colouring, but an awkward picture. Mr. Davidson has some excellent landscapes—"The Avenue," (210) is a clever specimen; and Mr. Bennett has produced a number of truthful transcripts of green country always pleasant to look on. Mr. Maplestone's works show a careful study of nature, with a satisfactory result. Amongst Mr. Fahey's agreeable contributions is a very pretty view (18) of "Selborne, Hants, with the House of Gilbert White." Mr. Chase gives an elaborate view of "The Cellini Drawing-room, Fontainebleau." Mr. Kearney's (No. 162) "She Sleeps: her Breathings are not heard," is superior to the same artist's rendering of Moore's

> "Rich and rare were the gems she wore."

(189) "Highland Reapers," by J. H. Mole, is a very good picture, reminding us a little too much of Topham. As to No. 243, "Nice," by Mr. C. Vacher, we should simply repeat it *à l'Anglais*, and add, very. His more important work, "Sunset from the Cornici, Gulf of Genoa," (180) is noticeable for high finish and right feeling. Mr. Howse's (177) "On the Quai St. Sever, at Rouen;" Mr. T. L. Rowbotham's views in Wales and elsewhere; Mr. McKewan's "Pembroke Castle," and many others would have notice if we had space.

Panorama painting and other calls have evidently interfered with the production of works for this exhibition on the part of some of the leading members.

We must postpone our notice of the Old Water Colour Gallery for a week.

SIGHTS AND SCENERY.

Royal Italian Opera-house.—For Donizetti's fine opera "I Martiri" some excellent architectural scenery has been prepared by Messrs. Grieve and Telbin. The story is laid at "Melitenes, capital of Armenia," under Diocletian; and we have in the second act a forum, with temples and statues about. In the third act is the temple of Jupiter, and, as a closing scene, the entrance (the *Peristylium*, as it is not quite correctly called in the books,) leading to the amphitheatre, with some clever iron gates. The whole are exceedingly well painted. In this opera Madame Julienne has made a decided hit, and Signor Tamberlik astonishes even those who thought best of him. A scene between these artists in the last act is as fine a piece of singing as was ever heard. The difficulties in the way of the appearance of Madlle. Wagner have not yet been removed. A letter from the lady's father entirely exonerates Mr. Gye from the imputation of any improper endeavours to take the new artist out of the hands of his rival, Mr. Lumley.

The Haymarket Theatre.—There is some nicely painted rural scenery in Mr. Mark Lemon's excellent drama "Mind your own business." The last scene, too, a room in a country house, with bow-window, cleverly managed, is very characteristic and pleasing. The piece itself more deserves to be called a "play" than some in five acts, which take that title by right, and it is so admirably set forth by Mr. Webster, Mrs. Stirling, Miss Reynolds, and Mr. Leigh Murray, that it should be seen by every lover of good acting and writing. The *ensemble* is perfect.

The Campaigns of Wellington—The diorama which has been opened at the "Gallery of Illustration" in Regent-street, depicting the Wellington Campaigns, takes the spectator (with a pleasant narrative by Mr. Stocqueler) through India, Portugal, Spain, France, and Belgium, ending of course with Waterloo. It is inferior to its predecessor, "The Overland Route," both in point of subjects and of art, and is not likely, we should think, to take the same hold of the public that the latter did, notwithstanding the magic in the title. It has, nevertheless, scenes of very great merit and beauty, and well deserves to be visited. We should have enjoyed it more ourselves if we had not been exposed to a draught sharp enough to cut one's hair. It is much to be regretted that those who have the arrangement of rooms of this sort, where the public assemble in large numbers, do not attend more to proper ventilation and the avoidance of draughts of wind. We found ourselves the other evening listening to Mr. Albert Smith's entertainment at the Egyptian Hall, and came out at the close with a positive congestion of the lungs. Enjoyment in such an atmosphere is difficult,—apoplexy probable.

The Marionettes have now fairly established themselves in the estimation of the public, and as an acknowledgment, the management bestow greater care on the appointments and scenery. What materially tends to the appreciation is the reliance that can be placed on the company—no legal injunction, no disappointment arising from the hoarseness of the tenor, or the sprained ankle of the *Première Danseuse*, occur: there is no crookedness of temper, whatever there may be of limb. "Aladdin" is in all respects capitally done.

The Amateur Musical Society held the third concert of their sixth season on Monday last, when were rendered, in a manner that would have reflected credit on a selected professed band, one of Haydn's symphonies, Beethoven's overture "Egmont," *inter multa alia*. It may not, perhaps, be invidious to particularise the finished fantasia for the violin by Mr. Louis D'Egville, on airs from "Lucrezia Borgia," or the charming performance of Mr. Pollock on the oboe, in the selection from "L'Elisire d'Amore," or in Mr. Osborne's Septett, in which the piano, played, we believe, by the Hon. A. Wellesley, bore so efficient a part. These concerts want but little to become *perfect*, and that little might be gained by another rehearsal.

MAGNETIC SCIENCE YET IN ITS INFANCY.

AN important discovery, it is said, has been made by Mr. George Little, the electrical engineer, in which continuous streams of electricity can be produced from single magnets, and be made to decompose water, precipitate metals from solution, produce constant power in electro-magnets, and work the chemical printing and double-needle telegraph. Magnetic science is but in its infancy, and we should not be surprised, as before said, to find it evolve almost magical results. Dr. Faraday lately showed the possibility of literally collecting the terrestrial magnetism, and accumulating its force in apparatus used for the purpose. This he showed could be done by revolving a wheel in a certain direction, cutting the lines of magnetic force or winding them up as it were on the disc or wheel while placed in the proper direction, and not in any other. Here is something that almost looks like that reality of which the circling manœuvres of the magician's wand were but a superstitious and vain fore-shadowing! To what pitch of intensity such a power may yet be evolved, or or where such discoveries may end, it is hard to say. We not long since noted other magical-looking experiments by Faraday, in which the diamagnetic force was brought into play so as to cause obvious resistance in moving copper blades, &c. through the air between the electro-magnetic poles.

The magnetic and diamagnetic forces are clearly those which stand next in co-relation to the mechanical forces of cohesion and elasticity, and to the cosmical force of weight or gravity and its antithesis or negative, and they may come to display *subversive* influences over these, ere long, that will astonish even a generation familiar with electro-telegraphic wonders. What would they say, for instance, to such a temporary subversion of the cohesive forces in a deal board, or a stone wall, as would enable a magician like Faraday to pass through it as if it were so much air, or so much dust in the sunbeam? Doubtless such an idea would be quite extravagant, as an expectation gravely entertained. We adduce it merely to

give a general idea of what may be possible with the complete control of forces so closely connected with the cohesive as we have reason to know and believe the magnetic and diamagnetic above all else to be. In fact, do we not already know that by electro-magnetic power the cohesive, or at least the adhesive, force of two connected series of iron particles, for instance, may *in a moment, and but for a moment, or for any given series of moments*, be temporarily and utterly paralyzed, although so intense as to be incapable otherwise of being torn asunder by a mechanical force equivalent to tons in weight? Let him who is ever ready to scoff where mist alone appears in his own foresight, see that his ready-made sneering apparatus be not screwed up the wrong way for right working in the present instance.

NOTES IN THE PROVINCES.

Grantham.—We lately announced an intention to erect a corn exchange here. There are now two parties prepared to erect corn exchanges.

Lincoln.—The Lincoln Gas Company have just declared a half-yearly dividend of 10 per cent. and the company have repaid the bank upwards of 2,080*l.* in two years.

Hilgay.—In the new chapel of ease on the Ten-mile Bank, Hilgay Fen, a font has been erected of Caen stone, with eight Purbeck marble shafts, forming an octagon in the Early English style of architecture. The shaft is diapered; the bowl is varied on each alternate side, the one having an arcade, the other a head carved within a quatrefoil, under a trefoil arch, the subjects being a knight, priest, queen, and bishop. The spandrils are full of foliage, cut in high relief; and above is the legend, "Suffer little children to come unto me, for of such is the kingdom of heaven." The font is by Wm. Lawrie, of Downham Market.

Bedford.—The Wesleyan chapel at Bedford has been enlarged and considerably improved, with much greater accommodation for the poor, and was re-opened on the 18th inst.

Chertsey. — On Easter Tuesday the new town-hall and market-house, lately erected here, was inaugurated. The building is in the Italian style, from a design by Mr. George Briand, of London. It is formed of red bricks and Caen stone, and has a frontage of 54 feet next the street, with a depth of 48 feet within the walls. The basement consists of an open market, with offices attached. Above is the town-hall, measuring 51 feet by 30 feet, attached to which are two retiring or committee rooms, with galleries over them. The hall is lighted with gas by two bronze eight-light chandeliers, from Messrs. Benjamin Smith and Co. of Birmingham. The total cost, with the fittings, will be about 1,600*l.* The builder was Mr. George Lee, of Chertsey.

Edenbridge.—On Easter Monday the foundation-stone of a new district church, to be dedicated to the Most Holy Trinity, at Markbeach, near Edenbridge, Kent, was laid by Mr. J. G. Talbot. It is to be of the Early English style, and will be built and endowed at the sole cost of the Hon. J. C. Talbot. Mr. Brandon is the architect.

Taunton.—Mr. C. E. Giles, architect, says a local paper, has just been engaged in a rather perilous piece of business, viz. making a survey of the tower of St. Mary's Church, previous to its undergoing a little renovation. Mr. G. had to be suspended in mid-air in a kind of basket, by means of pulleys.

Plymouth.—A commodious guard-house is to be erected in the Gun-wharf forthwith. As the estimates are passed, we may now soon expect to see the rebuilding of the Devonport barracks undertaken. The range of buildings will be three stories in height, and extend from the corner opposite the Royal Engineers' Office to the head of Fore-street, occupying the garden and grounds behind, almost in a line with the back of St. Aubyn Chapel. The barracks are to accommodate two battalions of infantry, and are estimated to cost 100,000*l.* out of which 10,000*l.* have been voted for the current year.—*Plymouth Times.*

Llanddarog.—The foundation-stone of a National School-room was laid on Wednesday week. The site was given by Mr. J. L. Puxley, near the old parish church, on the road from Carmarthen to Swansea. Mr. Puxley has also contributed towards the erection.

Whitford.—On Easter-Monday the foundation-stone of a new church was laid at Gorsedd, in the parish of Whitford, Flintshire, by the Hon. E. M. Lloyd Mostyn, M.P. and the Lady Harriet Mostyn. This is the second of the two churches to be built in this and the adjoining parish in lieu of the one erected by Lord Fielding at Pantasa, and transferred by him to the Roman Catholics. The land for the Gorsedd church and burial-ground, school, &c. has been presented by the Hon. E. M. L. Mostyn. The other church (in Holywell parish) will, it is expected, be ready for consecration by the autumn. It is intended to build a school and parsonage in connection with both churches, if the funds can be obtained.

Slough.—The name of Slough is intimately associated with the rise of our wonderful railway system, just as the names Rugby, Swindon, Crewe, &c. are; nevertheless a stupid attempt is being made to ignore this really now celebrated name by the substitution of "Upton-Ville," preferred by some of the Sloughites. The magistrates and gentry of this rising town have very properly set their faces against such an unwise change.

Birmingham.—A sum of 2,000*l.* was subscribed at the Jewish Passover towards the erection of a new synagogue in Birmingham.

Stockport.—The new Market Hall, built by Mr. Samuel Bann, jun. from the designs and under the direction of Mr. J. Stevens, of Macclesfield, and Mr. G. B. Park, of Manchester, at a cost of upwards of 4,000*l.* is now completed. The façade is 36 feet wide, executed in Yorkshire stone. The hall is fitted up, on each side of it, at the extreme end, with stalls for the sale of particular articles of consumption. The area is covered by a semi-circular roof of corrugated iron, 21 feet from the pavement to its base, with lights in the crown.

Warrington, Lancashire.—After a great deal of opposition from a portion of the Town Council, who were in favour of the removal of the market from its present situation, a majority of that body have at length decided (if the necessary funds can be obtained), that the present market-place, which is an open place, containing upwards of 800 square yards available for a covered market, shall be roofed over, and a committee appointed for the purpose have issued an advertisement for plans and specifications necessary for the work.—The contractors for the Warrington and Altrincham Railway have commenced operations on different parts of the line. The most expensive part will be the bridge over the Mersey here, which, after a lengthened discussion between the company, the late Duke of Bridgewater's trustees, and the corporation, is at length decided shall be a flat girder bridge of one span, 8 inches below the crown of the centre arch of the present Warrington Bridge. The line also from Garston and Widness Docks to Warrington is in rapid progress. A joint station at the "bridge foot" will serve for both of the above lines of railway.

Glossop.—A new Grammar School has been erected in place of the old one here at the cost of the Duke of Norfolk. The building, which is of stone, consists of a school-room, ranging east and west, with a transverse building at each end, the length of the whole being 140 feet. The principal room is 92 feet long, 32 feet wide, and 21 feet high, furnished with twenty desks, ten on each side, with an aisle down the centre, where an arrangement is made, by means of a sliding partition, to separate it into a Sunday school for both boys and girls. Externally is a porch, divided into two rooms for the bonnets, hats, &c. The transverse building nearest to the church will be occupied by one of the masters. The building at the west end consists of two rooms, one to be used for girls, and the other as an infant school. On the north side are two yards, fitted with suitable conveniences. The schools are approached through a centre gateway, with a smaller one on each side. The principal frontage is to the south, where a declivity is covered with a plantation. The buildings are chiefly in the Early English style. The porch is surmounted by a belfry. The cost, exclusive of land, is between 2,000*l.* and 3,000*l.* The building was designed by Mr. M. Hadfield, of Sheffield; and Mr. T. Wagstaff, of Glossop, is the builder.——The Old Hall of Glossop has been taken down, and a new edifice erected in its place.

Hathersage.—The parish church of St. Michael was re-opened for Divine worship on the 15th inst. Alterations were commenced about a year ago, the architect being Mr. Butterfield, of London, and the contractors Messrs. Ash and Taylor. The church has been re-roofed and in some parts rebuilt. The whitewash was removed, the outer pillars and buttresses repaired, or renewed, and the interior entirely refitted and embellished. The church has been repewed throughout, with open seats, giving about fifty additional sittings, chiefly for the poorer classes. A stained-glass window has been erected by Wailes, at the east end of the chancel, the centre compartment, at the top, representing the crucifixion, with St. John on the south and the Virgin Mary on the opposite side: the lower compartment represents the Nativity in the centre, with Hannah and Simeon on the sides. The cost of this window has been defrayed by subscriptions collected by Mrs. James Morton. A second stained-glass window, called the vicar's window, has been presented by the Rev. H. Cottingham. A third window, in the south aisle, in which are embodied representations of St. Peter and St. Paul, has been raised by the working classes, whose subscriptions have been collected by the Misses Elliott. At each side of the chancel arch is a scroll-work imitation of Aaron's rod, with the inscriptions, "Blessed are they that hear the word of the Lord, and keep it;" and, "A new commandment I give unto you, that ye love one another." The brasses and tombs of the Eyre family have been cleaned and restored at the expense of the Earl of Newburgh. An organ has been promised by Mr. Eyre, of North Lees. The floor of the church is paved with encaustic tiles manufactured by Messrs. Minton. Improvements have been carried on in the churchyard also. The total cost of the alterations is estimated about 1,575*l.* chiefly raised by private subscriptions.

York.—A monument to the memory of Lieutenant-Colonel Oldfield, of the Indian army, has just been erected in the south aisle of the choir of York Minster. The design is of the Italian school. The base is of vein marble, having in the centre a Roman shield and helmet, with cross-swords, inclosed by a wreath. The tablet and upper portion generally is composed of statuary, being surmounted with a combination of military trophies, in the centre of which are the arms of the deceased veteran, emblazoned on a shield. The pilasters are decorated with falls of fruit, flowers, &c. The whole is placed on a ground of Galway black marble. The tablet bears an appropriate inscription.

Banff.—The new lodge of St. Andrew's Freemasons, begun about a year ago, is now completed, and was formally opened on Friday week. The building, which is fully described in the *Banffshire Journal*, was erected from a design by Messrs. Mackenzie and Matthews, of Banff, architects. It stands at the south corner of the new street leading through the Castle parks. It fronts Castle-street. The style of architecture is the Palladian. The structure, which is faced with Burntisland freestone, consists of two stories. The ground-floor is in the Roman Doric order, with columns on each side of the principal entrance, and with corresponding pilasters at the subordinate openings. The upper floor, containing the hall, has five windows in front, and one Venetian window at the end. These windows are all of lofty proportions, with fanciful Corinthian pilasters and pediments, supported on pedestals with balustrades between. The whole building is crowned by a cornice projecting 2½ feet from the line of wall, and supported by blocks and trusses, after the manner of the ancient Roman palaces. The

roof is flat, and is continued to the points of the cornices. A Roman archway connects the lodge with adjacent buildings. The Palatial style is new in the north. In the interior of the building a handsome vestibule leads to the grand staircase, which has a centre and two side flights. The staircase is of stone, with a massive balustrade, and lighted from a Venetian window opposite the entrance. The ceiling is lofty. At night it is lighted by a globe of about 2 feet diameter. Ascending the staircase, wide folding-doors open into the grand hall, which is 56 feet in length by 26 feet in breadth. The height is 22 feet. The room is lighted by twelve classic female figures, of life size, bending from the roof, six on each side, and appearing to support the ceiling, while they each hold suspended in their hands two large globes containing gasiliers. From the centre hangs a chandelier, containing twelve globes similar to those hung round the room, and ornamented with a profusion of lustres. The ceiling is pannelled with the egg-and-dart ornament. The walls are of a warm stone-colour; the ceiling, figures, and finishings all white. The orchestra is above the entrance to the hall, with a balustrade of white on a ground of crimson cloth, and supported with semblance of brackets and trusses. The windows are all hung with crimson curtains and gilt cornices. The centre window, fronting the entrance, is filled in on three sides with large mirrors the full height. The south end of the hall is occupied by a full-length portrait of the lady patroness of the lodge. The mantelpiece is of Peterhead granite, polished, and is surmounted at each end by a classic figure. A door from the upper end of the hall opens into the refreshment-room. This room is 30 feet long by 20 feet broad, and contains three windows. It is done up in the same style as the hall. On the other side of the staircase is the ladies' retiring-room of a smaller size.

INTRAMURAL BARRACKS.

Unless troops quartered in cities are billetted on the inhabitants, there needs must be barracks for their accommodation; so in this free country, as elsewhere, we find that there are numerous buildings with that designation, but very few with any pretensions to architectural effect, and many of them wholly inappropriate for the object. The Guards' barrack, in Birdcage-walk, is the best in appearance, and, for its vicinity to the palace and park, the best in position; but, as for those at Charing-cross and Portman-street, nothing could be worse devised for the accommodation of the men, or for the convenience of the citizens. Into Portman-street are crammed and jammed many troops, within a sunken mews, overtopped and surrounded by houses looking into the drill-yard—a nuisance to the neighbourhood—and an intramural incarceration for the men, as unwholesome to the health of the latter as to the comfort and morality of the former. St. Martin's, though a solid structure, is little less noxious; and on the nuisance of the old caserne for two troops of Horse Guards at Knightsbridge, public opinion has of late been fully expressed through the press.

The proper place for Horse-guards would be in the outskirts, say three or four miles distant, at Wormwood Scrubs, near to a parade ground; and the Foot-guards, save only two or three companies for state service, might also be advantageously removed, both as regards the health of the soldier and the service of the Metropolis.

At the St. James's-park Barrack there is ample room for all the household troops required for ordinary occasions; and there large additions are in progress for the accommodation of 400 more, while there yet remains space for the construction of buildings large enough to lodge the whole of the Foot-guards, a locality which is certainly much more suitable for the prætorians of royalty. As to all other purposes beyond mounting a few sentinels and making up processional pomps, four miles from the centre would be in every sense better.

Now that Royalty has deserted Kensington Palace, no one can divine the use of retaining a light troop in that quarter, nor of keeping up the mean and unsightly sheds which still defile that agreeable suburb.

The deformity still maintained in the very centre of Hyde-park for the sergeant's guard on duty there, is an absurdity and outrage on common sense, and the respect due from the Government to the people. The only possible occasion for any military quarter here is to relieve two sentinels who protect the powder magazine—obstinately retained there, possibly, to keep the populace in wholesome terror of a blow up, which might volatilize the Crystal Palace, and with it some thousand houses!

St. John's Wood and Albany-street Barracks are perhaps not very objectionable, although the latter is too much encircled by a dense population; yet one might think these would supply sentinels enough and relief-guards enough for the few Governmental stations so honoured. It is well known by military men, and equally well imparted by them to the public, that a distance of seven or ten miles (at Hounslow, for instance), would be near enough for regimental stations. Electric telegraphs and railroads might even allow of a farther removal, since so short a march might admit of the collection of troops to a given point, at the notice of one hour and a half.

Lastly, as to the style of external architecture, there is a miserable exhibition in all the existing barracks, while at the same time all, without exception, are constructed on a plan as incommodious for the men and their adherents, as they are censurable in a sanitary point of view. The expense of a building is enhanced but little by attention to external symmetry and moderate ornament: the utility is vastly increased by a judiciously-arranged plan. In the plan and design of those barracks in progress the foregoing remarks are worthy of a thought. Why are not architects employed?

QUONDAM.

THE EDINBURGH ABATTOIRS.

The new abattoirs, designed by the city architect, approach completion, and are to be occupied at Whitsunday. The façade, as described by the local *Post*, is ornamented with projecting corbels of bullocks' heads, above the two archways which compose the front, and the spans of which are supported, at the points from which they spring, on rows of kneeling oxen, as caryatides. The porter's office is immediately behind the façade and the abbatoirs are arranged in the rear. A line of causeway penetrates to the present boundary wall on the Lochrin property, three out of four acres of which have been covered with buildings, the builder's contract for which alone amounts to 8,000*l*. This street of slaughter-houses is lined on the one hand by three blocks of killing houses for cattle and sheep, of the respective lengths of 100, 139, and 100 feet each. The total number of killing booths for cattle and sheep, arranged either in thorough lines or transverse blocks, is forty-two. In the slated roofing ventilation is secured by a raised ridge, with double louvre frames running from end to end of each block of building, in addition to the air slits and louvred windows in the side-walls. Large sky-lights, glazed each with a single pane of rough green plate, are also introduced into the front parts of the roofs, giving light to the interior, which is fitted up in its two divisions with new and powerful machinery. Each interior consists of two parts; the killing part in front, communicating with the sheep and cattle house behind. The rear terminates with a small court, enclosed by a stone half-wall, and having an issue to the back parts where the animals are admitted. The killing booth is flagged over with grooved scuppers at the back wall for the escape of moisture, the blood being saved in pails. In the centre rises a strong crane with toothed pinions and crank, for elevating the carcases to hooks (of which there are ten to each booth, suspended from iron beams) for the purpose of being dressed, and for lowering them upon the carts, which, in consequence of the front doors being constructed to rise vertically, instead of opening with leaves, can be passed right into the booths. Some of the smaller blocks of building on the east of the enclosure are turned at right angles to the principal buildings, but partly fitted up in conformity with the above: partly, however, they are devoted to the purpose of a store-house; and at the south-east angle a large court is entered, in which are the pig-killing houses, fitted up with furnace-boilers, and iron plotting troughs; whilst, adjoining these, accommodation is provided for the triperies. At the rear of the main line of killing blocks, are the weigh-house apartments; adjoining which, at a back exit to the dung wharf of the Union Canal (an opening to which will be cut in the wall), are the liquid manure tanks of 12 feet square, arched over, and capable of containing from 7,000 to 8,000 gallons; and the dung stance. Slaughter-houses extend over about another acre of the Lochrin grounds to the south; now, however, under lease of about four years' duration; so that, if requisite at the end of that time, the buildings are capable of, at least, one-fourth greater extension. There is a large iron tank near the entrance to the pig-killing booths, for the general supply of water to the establishment. It is raised on masonry to the elevation of the principal buildings, and capable of being constantly charged with 16,000 gallons of water; which will be conducted into each booth apart.

TIMBER AND EMIGRATION.

Lately meeting with the following paragraph, and not knowing whether the assertion it contains be a well-ascertained fact, I venture to ask you, or some of your readers connected with *woodcraft*, to put me out of doubt. The writer says:—

The Timber of the Mulberry.—Mr. Evelyn, in his *Sylva*, says that the timber of the mulberry-tree (*morus*) will last in water as long as the most solid oak; and that it suffers no kind of vermin to breed on it, whether standing or felled; nor does it harbour any caterpillar, except the silkworm.—*Darwin's Principia Botanica.*

I also stumbled over another piece of information, which may be of use to your readers, and therefore worth transferring to your valuable paper. The following is the paragraph in question:—

A Monster Forest.—"Mr. Trigg reports, with particular reference to mahogany (Australian), of which he appears to have considerable practical knowledge, that on leaving the Swan and Canning rivers, and exploring the mountain range near Rushy Stream, he found mahogany forests of four miles in depth, which are known to extend for a length of 140 miles, or to cover an area of 358,400 acres, giving timber enough to build 18,000 line-of-battle ships, or twenty British navies!"—*Western Australia, by John Buckton.*

A year or two ago, a project was talked of, for forming a company to fell the timber above mentioned, and export it to this and other countries. Do you happen to know whether the undertaking was abandoned or not?

Australian timber leads to emigration to Australia. On this subject I will, profiting by the occasion of writing, with your leave, say a word or two.

It is a common complaint, that persons of education, or accustomed to society more refined than that of the generality of working men, are, in consequence, deterred from emigrating; or, if they do so, become dissatisfied, and return to England. Would not Mrs. Chisholm's plan of *family colonisation* in a great degree be a remedy for the evil complained of? Ten heads of families, possessing capital, might not only form a *tything*, for the purposes of the voyage to Australia, but for the advantages of society and neighbourhood, and friendship, and perhaps of *partnership* in farming or commercial pursuits, in the colony in which they should settle.

Technicus.

Finsbury Park.—In answer to a previous inquiry, we may state that the late Government had prepared the plans, given the necessary notices, and made everything ready for bringing the Bill for this park into Parliament early this session. Everything now, of course, remains in abeyance till the present Government take up the project.

Miscellanea.

Boston, U.S.—The Fremont Temple, recently destroyed by fire, is to be at once replaced by another, and it is said a better hall. The drawings for the contractors, by last accounts, were finished, and the estimates going on. The music-hall is to be 130 feet long, 78 feet wide, and 65 feet high. The lower floor level, and 78 feet square. The orchestra rises from one extremity, and at the opposite, rises a wall supporting an upper floor, or end gallery. At the back of this rises another wall, supporting a second floor, and, from the end of these, two balconies are carried along the sides of the hall, projecting 8 feet 6 inches from the walls. The front stage of the orchestra rises 4 feet from the floor. The whole orchestra is 30 feet deep and 63 feet long. The walls of the hall have a series of piers which support the balconies, and which are formed, above the upper one, into Corinthian pilasters supporting the cornice of the wall and coving of the ceiling. The hall will be lighted at night by a series of gas-jets along the top of the cornice, which, being placed under the ventilators, will effect the ventilation as well as the illumination of the hall. Corridors are carried, on the level of the floors and balconies, all around the building, communicating with the hall by doors in the side walls at intervals of not more than 15 feet. It is estimated that nearly 3,000 persons can be comfortably accommodated in this hall.

A "Crushing" Scene in California.—The mill was in a state of "entire preparedness,"—so said the knowing superintendent. The stamps, weighing about 1,000 lbs. each, stood in perfect array ready to pulverise whatsoever was placed beneath them. As I approached the crowd about the mill, the "super" was eulogising steam-power, asserting its immense superiority over water-power, inasmuch as it was "so easy of control," and, under scientific management, gave to machinery a more steady and uniform movement. "Now, gentlemen," says he, "there's a good head of steam, and we'll give a little employment to the stampers and shaking-tables." The application of this controllable power (the steam) was made, and my first observation was that, not the tables alone, but the whole machinery and mill, were shaking. The crank attached to the "shaking-tables," which was to give to the quicksilver that "uniform, easy, oily motion," sure to absorb every particle of gold, gave a terrible jerk, and sent the quicksilver in shining globules far from the machines. Up shot one of those 1,000-lbs. stampers, not 12 inches, as had been anticipated, but nearly as many feet. Such a retiring from a "controllable power" and "oily movements" I never before witnessed. The "super" led the van; and up the steep hill side—amid the hissing of steam, the cracking of heavy timbers, the snapping of heavy rods and cranks, the terrible crash upon the descent of the ponderous stampers—the stockholders and spectators scampered. Do you wonder that quartz mining, under such management, should fail to pay?

Copperplated Iron.—It has been suggested that iron for many purposes might be coated with copper by the electrotyping process, thus forming a true galvanised iron.

Cast-Iron Stoves.—The objectionable character of the heat applied through the medium of metal surfaces, as is the case in iron stoves, has for some time past engaged attention: the air is decomposed and rendered unfit for the purposes of respiration: in many private offices I have known these stoves to be sent away; the argument being that they produced headaches, and had a sensibly bad effect in inducing a feeling of oppression in breathing. What I would particularly advocate, is, the use of porcelain and earthenware surfaces: the character of the heat emitted from these is of an agreeable nature, and wholly free from the objections attendant on cast-iron. In my dwelling, I have introduced fire-bricks and glazed tiles for the back and sides of my grates, the front being a simple Oxford front, such as may be obtained for a few shillings.—D. S.

"Steam Superseded."—This heading is so frequently repeated that we would advise the printers to make a standing title of it to save trouble in throwing down and making-up. The *New York Herald* has now got hold of it, in an announcement that "Messrs. Perine, Paterson, and Stack are constructing a vessel, called, after the inventor, the *Ericsson*, of 2,200 tons burthen, which will be fitted with an 'Ericsson' caloric-engine, the first ever placed on board a vessel. This kind of engine is worked by hot air instead of steam, and is said to be far less expensive in working, and to take up less room than those ordinarily employed." Another American paper announces an electro-magnetic engine that is to supersede steam. "Hundreds of visitors," it states, "have witnessed the operation of this engine, the invention of J. S. Gusten, of Trenton, New Jersey, a thing so simple, that the wonder is that its invention has been left until now for Professor Gusten to bring out, and at the same time so successful that no room is left for doubt that electricity as a motor has a practical value. The distinctive feature in this engine from all others heretofore made is, that the great force of attraction in the electro-magnet, with the armature in close proximity, is continued through any required length of stroke, exerting nearly an equal force at all points in the revolution of the crank, enabling the operator to start it as readily, and reverse its motion with the same ease and certainty that is obtained in the steam-engine."

Prevention of Water-Pipes Bursting by Frost.—Mr. A. Macpherson, F.R.S.S.A. has contributed a paper to the *Edinburgh Philosophical Journal*, descriptive of a self-acting apparatus for the prevention of the bursting of water-pipes during frost. The supply-pipe from the main source rises from the ground, forming a curve into a double-action valve box: this supply-pipe is continued into the cistern, which should be above; and a waste-pipe carries the extra water off when the supply is stopped. Under the valve-box is a copper-tube, containing a measured quantity of water, in which works a piston accurately fitted, and passing through a stuffing box, acts upon the valve. A strong air vessel is fitted over the bend of the supply-pipe. If frost acts on the small copper-tube, the water in it will be the first to freeze, expand, and elevate the piston, which pushes up the valve from its seat, and shuts it with great force against the projecting extremity of the ingress supply-pipe. The connection being now open between the continuation-pipe to the cistern and the waste-pipe, the water contained in them descends into the drain, while the air vessel allows of expansion for the water to freeze in the supply-pipe now closed. When the water becomes again liquid the whole pressure is exerted to depress the valve, shut down the piston, and open the supply-pipe.

Public Baths and Washhouses for Norwich.—A public meeting was held at Norwich on Wednesday in week before last, when the committee appointed to dispose of the fund presented by Madlle. Jenny Lind for behoof of the poor, laid before the public plans by Mr. Baily of baths and washhouses, which they proposed to establish if the fund in hand, 1,200*l.* could be increased by donations to 2,000*l.* For this purpose the meeting was adjourned for one month.

Extension of Farringdon-street.—This matter bids fair, after the already almost inexcusable and inexplicable delays, to be thrown over, *sine die*. Of the passing of Mr. Charles Pearson's scheme at present there is not a chance, however desirable this may be. The city authorities are apparently more bent upon the carrying out of improvements within the city, than in improving leading lines of communication without. Why make the street contingent on the railroad, or the railroad on the street? We may surely have both, and both better from being one unconnected with the other. If we are to have the street, let it be done forthwith. To make it in connection with an *in futuro* railway, something that may be some dozen years hence, is "a mockery, a delusion, and a snare," and is simply and virtually shelving the matter. Crito.

Gutta Percha Electrical Apparatus.—Mr. H. Dircks, in a letter to the *Mining Journal*, remarking upon the extreme electrical susceptibility of gutta percha, suggests its applicability to the formation of cheap electrical machines, by covering a disc of hard baked wood with a thin coat of gutta percha, neatly joined, so as to revolve smoothly. The electrophorus could be made of a single thin circular sheet of gutta percha, attached to a larger metal plate. One peculiarity of such a machine would be, that experiments might be made with the electro-negative force, about which, we will venture to say, much less is known than of the electro-positive. The relationship of the electro-negative to the actinic principle in the solar ray, we long since pointed out, and we do think that the suggestion of so cheap and easily got-up an electro-negative machine is a valuable one, even with reference to this view of the nature and relations of the electro-negative.

Alabaster Monument.—The tomb and effigy of the late Earl of Powis, executed in alabaster by Mr. Richardson, after a design by Mr. Scott, has been during the last few days safely fixed in its niche, in the north wall of the chancel of St. Mary's Church, Welchpool. The arch is carved by Mr. Phillip, and the brasses by Mr. Waller. The figure is in the robes of the Garter; and the portrait was obtained from a painting by Grant, at Walcot-park.

Liverpool Architectural Society.—At the fifteenth annual meeting of the Architectural Society, Mr. Verelest in the chair, Mr. Horner produced a design for placing the organ in St. George's Hall, the great object of the architect being to retain the perspective view from the Hall to the Nisi Prius Court. Among other papers, one was read by Mr. J. Boult, on "The Proposed Breakwater on the Mersey."

Society of Antiquaries of London.—At the anniversary meeting, last week, Lord Mahon announced a legacy to the Society of no less a sum than 16,000*l.* The following were elected the Council for the year:—Lord Mahon, President; Sir R. H. Inglis, the Bishop of Oxford, Mr. J. P. Collier, and Captain Smyth, Vice-Presidents; Viscount Strangford, Director; Mr. John Bruce, Treasurer; Sir H. Ellis and Mr. Akerman, Secretaries; and Mr. Joseph Gwilt; the Hon. R. C. Neville; Mr. James Prior; the Earl of Albemarle; Rev. Dr. Bosworth; Mr. George Godwin; Dr. Guest; Messrs. A. B. Hope, M.P.; T. W. King; Octavius Morgan, M.P.; H. Shaw, and B. Williams.

TENDERS

For the erection of a hotel at Southerndown, near Bridgend, Glamorganshire, the stone upon the estate. Mr. John P. Leddon, architect.

James (Cardiff)	£1,700 0 0
Davies (New Castle, Emyln)	1,453 13 6
Bowden (Bristol)	1,360 0 0
Brown (ditto), accepted	1,339 0 0
Jenkins (Bridgend), not in time	1,294 0 0

For villa residence near Reigate. Mr. W. Beck, architect. Quantities furnished to Reigate builders by Mr. Matthews, Reigate.

Cooper (London)	£1,327 0 0
Rees (Reigate)	1,112 0 0
Holdsworth (ditto)	1,047 0 0
Comber (ditto)	968 15 0
Smith (London)	964 0 0

(The cost of taking out the quantities was added to the Reigate and not to the London builders.)

For addition to the Corn Exchange, Mark-lane, City. Mr. George Legg, Architect, of Duke-street.

Higgs	£5,915 0 0
Holland	5,115 0 0
Locke and Nesham	5,117 0 0
Cubitt	4,980 0 0
Piper	4,780 0 0
Myers	4,761 0 0

For taking down and rebuilding house, Holles-street, Cavendish-square. Mr. Marshall, architect.

I'Anson	£2,086 0 0
Smith and Appleford	2,029 0 0
Burton	1,881 0 0
Roper and Son (accepted)	1,875 0 0

TO CORRESPONDENTS.

"C. F. D.," "C. W." (against our rule), "Nemo" (we will inquire into it), "J. N.," "A. G. H.," "P. C." (shall C.), "W. H." (shall be looked to), "Observer," "J. C.," "H." (the London Mansion-house was designed by G. Dance: the Privy Council Offices were altered by Barry), "R. B. G.," "J. C.," "Q." (will find a note at the office on Saturday), "T. C.," "J. H. C.," "G. M.," "J. T. W.," "H. W.," "W. P.," "E. H." (we hear a poor account of the window, and will look for ourselves), "Forward," "E. H. M." (please send address).

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

TO ARCHITECTS & WRITERS ON ARCHITECTURE.

THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publication of Works of the above description.

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SCHOOL DESIGNS, &c. WHITECHAPEL-UNION. — Any gentleman who has delivered Designs and Plans for the School at Forest-gate, and which are not decided by the motto "Fides" and "We'll try what we can do," may (the same not being approved) receive his Plans, &c. from the Master of the Union Workhouse in Whitechapel-road, but must previously produce to me a fac simile of his motto, and a note in the same handwriting as the address on the envelope, and must afford such other information as will satisfy me as to the identity of the applicant, such envelope containing his name, &c. not having been opened. By order of the Guardians,

40, Lyman-street, April 23rd, 1852. JOHN SMITH, Clerk.

MASONS' PROVIDENT INSTITUTION.—W. TITE, Esq. F.R.S. President.

A PUBLIC DINNER, in aid of the funds of the above Institution, will be held at out the latter end of MAY, at the FREEMASONS' TAVERN, Great Queen-street, Lincoln's-inn fields. The following gentlemen have already kindly consented to become

HONORARY STEWARDS.

Thos. Brassey, esq.	Geo. Godwin, esq. F.R.S.
W. Cubitt, esq. M.P. Alderman	Thos. Boshington, esq. M.P.
James Chadwick, esq.	P. Macfarlane, esq. R.A.
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John Carlile	Wm. Easterbrook	Wm. Leach
John Croker	W. J. Gilbert	G. Sansom
William Dix	Wm. Hannam	G. E. Thompson.

Further particulars, announcing the chairman and an enlarged list of stewards, will be announced in future advertisements. The committee meet on Wednesday evenings, from eight to ten o'clock, at Hawkstone Hall, Watt-row-road where every information may be obtained, or of the Secretary, at his residence, 1, Johnson-street, Westminster. JOSEPH T. WHITEHEAD, Secretary.

REMOVAL.—Mr. GRAYSON begs to inform his pupils that he has REMOVED from Southampton-buildings to more spacious and commodious offices, No. 68, CHANCERY-LANE, Holborn. Architectural and Civil Engineering Classes, established above forty years, for the study of architecture, civil and mechanical engineering, surveying, plotting, &c. The students of this academy will have access to an extensive and valuable collection of models and works on the fine arts.—For terms apply to Mr. GRAYSON, from 9 a.m. to 2 p.m. and from 6 to 9 p.m.

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WANTED, by an ENGINEER and MILLWRIGHT, who is a good Draughtsman, an ENGAGEMENT in an Engine Factory, or on a Railway. Address to A. G., Mr. Pope's, Church-street, Hackney.

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A. HAMILTON, Secretary.
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	£. s. d.	£. s. d.		£. s. d.	£. s. d.
15	1 11 0	1 15 0	40	3 13 0	4 6 8
20	1 13 10	1 19 3	50	4 0 9	4 10 7
30	2 4 9	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary.

FOUNTAINS, VASES, FIGURES, &c.—The new Spring Stock of the BOROUGH ARTIFICIAL STONE WORKS of these elegant articles, adapted for public and private grounds, gardens, lawns, &c., and for balustrading, is now on show for sale at the premises, Stones-end, Borough, and Borough-road, Southwark.

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The Builder.
No. CCCCLXXXIII.
SATURDAY, MAY 8, 1852.

THERE is no longer an "Architectural Room," we are sorry to say, set forth in the Royal Academy's Catalogue. The few designs that are exhibited on the present occasion are placed in the apartment formerly appropriated to them (not in the octagon room as last year), but its old title is discontinued, and it stands simply as "North Room." Nor, indeed, would the first appellation be correct, seeing that Architecture occupies but a small part of the space. There are but seventy-seven drawings, which can be claimed for her, the majority of them of small importance. Several of the principal works illustrated have been made public in our own pages or elsewhere; for example, 1178, "Geometrical Elevation of the Iron Gates leading into the Forecourt of the British Museum," by Mr. S. Smirke, A.R.A. an excellent drawing; 1192, "The Royal Freemasons' Female Charity Schools," by Mr. P. C. Hardwick; and others. The latter gentleman also exhibits design for the "Interior of the Coffee Room, Great Western Hotel," 1197; and 1175, "The College of St. Columba, near Dublin, with the proposed additional Buildings," the latter an appropriate design, admirably well set forth. In the coffee-room, the pendentive bracketing of the ceiling springs from female figures on corbels. Mr. J. Thomas exhibits a "Design for Sculpture to the Pediment," for the same enormous hotel now being executed, representing England, with Commerce and Science receiving the various nations. The hotel itself has now taken a shape, and, with its two towers, looks, as you approach it from the railway, like some enormous French palace. The bravery of one who will furnish and fit up such an establishment as this on speculation, cannot but excite wonder. "The Abbey Gateway and Houses about to be erected by the Dean and Chapter of Westminster, in the Broad Sanctuary" (1174), by Mr. Scott, will form a bold pile of domestic Gothic buildings, and make more apparent the incongruity in Wren's additions to Westminster Abbey than it is now. The houses have high "stepped gables." There is a very good design by Mr. Clutton (1154), for a "Gate-house and domestic Chapel," about to be built near the last, for the National Society's Training Institutions. It is in the Decorated style, and has a staircase at one side corbelled out over the footpath. 1199 shows the selected design for "The Cambridge Military Asylum, now erecting at Kingston-on-Thames," by Mr. Allom. The front is of red and white brick, in the mixed style which has been adopted by the author of it in some other buildings, and promises to be a creditable work. The usual amount of vexation, annoyance, and ignorance—if nothing worse—has not been wanting in the competition wherein this design was selected.

Of the designs which were submitted in competition for the proposed new Wax-chandlers' Hall, Gresham-street, City, two are here, namely, 1149, by Mr. R. M. Phipson (who has also an elaborate drawing of the interior of St. Peter's Mancroft, Norwich, now being restored by him), and 1234, by Wadmore and Mason, the first Italian, the second Perpendicular, and neither very characteristic. We must say here, that we have received several additional letters on the subject of this competition, but do not find ourselves in a position to publish any charges. The facts are simply these. The designs submitted were referred to Mr. C. Fowler, who is connected with the company, and on his report three were selected for reward. Ultimately, however, it seems the company decided on not carrying out either of these designs, but placed the matter in Mr. Fowler's hands, and that gentleman is now making fresh plans.

1202 is a design for, what we have often suggested, "Improved Dwellings for Clerks, Professional Men of moderate Means," intended to combine the economy of apartments with the privacy and convenience of self-contained houses, but it is so placed that examination is out of the question.

"Theberton Hall, Suffolk," by Mr. Cottingham, 1156, has more statuary in the grounds, according to the drawings, than usual.

In Mr. Robinson's prize "Design for a Marine Palace" (1163), the wings are connected by an arcade over an arched opening. The disagreeable effect of columns rising over an opening is seen in the river front of Somerset House. In 1165 we have six restorations in one frame, recently carried out by Mr. C. J. Clarke. The same architect also exhibits the design for Cockermouth Church, which, after many struggles, is now in course of erection. It is Decorated, and has a lofty tower and spire at the crux. This position for the tower, which is now being adopted very generally, is not advantageous to the interior distribution in a Protestant church. The "Proposed Church in Maida Vale" (1198), which has this same arrangement, is singularly ugly. "The Château now erecting at Cannes," by Mr. T. Smith, is castellated, with five large towers, but has nothing out of the common beyond its size, and the curious little figures stepping into air, which are under the angles of the marchicolated parapets. "The Town House now erecting in the Queen's-road, Kensington," for the Earl of Harrington (1,181), is flat and ugly, not worthy of Mr. C. J. Richardson. Mr. Street, in a sketch of the doorway of the Steeple about to be erected to the memory of the Rev. J. G. Lonsdale, shows the intention of introducing coloured materials in the construction,—brown and blue. M. Horeau, who seems to have invaded England, repeats in small the view of the principal works executed by him which he had at the "Architectural Exhibition" in Regent-street. No. 1211, "A Villa Residence, Esher, Surrey," by Mr. Roumieu, has a touch of originality which is agreeable, but has not benefited much by the removal of the window tax. Why has Mr. Burges, in his "Restoration of the Shrine of Edward the Confessor in Westminster Abbey," shown "mass" going on? Is one to entail the other.

The general collection is but of average merit, though it contains many excellent pictures. Of these hereafter. The works of art exhibited are 1,492 in number, one hundred more than there were last year; and if to these we add 544 in the British Institution; 670 in the Suffolk-street Gallery; 381 in the Portland Gallery; 660 in the two water-colour exhibitions; and about 300 in the exhibition of sketches recently closed, we have a grand total of 3,747 new works of art produced with a very few exceptions by British artists within the year, without reckoning some acres of panorama-painting, at least a thousand pictures rejected, and some thousands of book-illustrations.

At the dinner given on the 1st inst. both Lord Derby and the Chancellor of the Exchequer expressed more interest in the progress of the arts than usual: what they intend to *do* towards effecting it yet remains to be seen. "I am aware," said Lord Derby, "that in such an assembly I can ask for no sympathy or political concurrence, but I am quite sure there is one support which will be afforded to any Administration by this assembly, and by the great and rapidly growing majority of the people of this country, namely, that you will aid them in the attempt they may make by any support they can give to encourage the growing taste for the fine arts, to which, after having been long dormant, this country is at last happily awakening. And, whatever may be the term of duration of the Government to which I am proud to belong, I may venture to indulge the hope—and I believe I shall be supported by political friends and opponents—that we may have an opportunity of testifying our goodwill to a pleasing and delightful art by providing a more fitting and more adequate locality for those treasures of ancient and modern art which of late years this country has been rapidly accumulating, and for the more rapid accumulation of which little more is wanting than that which I hope Government may have it in their power to provide—a more suitable space for their accommodation." Let us indulge in the hope, echoed Mr. Disraeli (and we adopt the expression), that a palace may arise in this great metropolis, worthy of the arts, worthy of the admiration of the foreigner, worthy of this mighty people, as the becoming emporium where all the genius and inventions of man may be centred and celebrated.

ON THE NECESSITY OF AN ARCHITECTURAL EDUCATION ON THE PART OF THE PUBLIC.*

In all times but our own, all ornamentation resulted from architecture: in the present age we have no guiding principle in its design or unity in its application: the architect has abandoned to inferior hands that which was his especial province. There are two other points I would endeavour to establish,—first, that the education of our architects must undergo some change before we can hope that architecture and its attendant arts shall faithfully represent the wants, feelings, and faculties of our time; and, secondly, that this result can never be effectually obtained till a much higher amount of art-knowledge exists in us as a nation.

How is any change for the better to be brought about? It is certain that the production of a national style must be, as it ever has been, a work of slow development; yet, if never attempted, the problem never can be solved.

It seems to me,—now that we have so many schools devoted to the improvement of design as applied to manufactures, and that a movement in this direction, aided by this Society, is receiving a fresh impulse,—that if the Government were to undertake to gather together all the records of the past, and would disseminate that knowledge with correct prin-

* The following formed part of a lecture delivered at the Society of Arts on the 28th of April.

ciples for making use of it, a vast stride would be made in the right direction.

The system of architectural education followed in France is very superior to that pursued in this country. Here, the young architect is apprenticed to an architect in practice as to a trade, and is engaged for five or seven years on the works of his master: he gains thereby a good knowledge of construction and of the business of an architect, but has but little opportunity of studying architecture as a fine art. In France, on the contrary, there are, besides the drawing-schools which exist in every town, where the young may obtain much elementary knowledge, many studios (in Paris) where professors devote their time to the instruction of a large number of pupils, making them thoroughly acquainted with the works of every period, and giving them a thorough knowledge both of architecture as a fine art and of construction in theory.

The pupils of these various studios are mostly attendants at the Architectural Academy, where they once a month produce designs in competition for a given subject, and they are assisted in the formation of these by their professor. One consequence resulting from this system is, that we see in France at any given period a much greater unity in the character of their works; and there is not that disorder and waste of forces which we see in this country, where each architect is pulling in a different direction.

Works executed in France have a family resemblance not to be found in those of this country: the influence of the professor is much more felt; and schools of architecture are thereby formed, much as were the ancient schools of painting.

All these architectural students do not become architects: those who do so, when they have finished their studies, become clerks of the works under Government architects, where they learn the practice of their profession, and ultimately practise on their own account. Many of those who have not been sufficiently advanced, or who want Government influence to be so placed, turn to other professions connected with architecture,—become decorators and designers for manufactures. It is this cause which gives to the designs of France the superiority they have. Mostly all their designers have had an architectural education. I do not mean to say that the French have made much more progress towards the formation of a national style than we have: what they have done is, that, at any one period they have carried out the reproduction of any extinct style with much more unity. The fashion, as long as it lasted, has been general; and we do not see in France, as we see here every day, the building of one style of architecture, the decorations of another, and the furniture of a third, with every variety of age and period. However, it is the kind of education pursued in France which I think it would be useful if our Government could be prevailed upon to foster. The Schools of Design have not hitherto produced any marked improvement in the designs of our manufacturers, and have been conducted as if it were the intention only to make painters. The study of the human figure has been carried to excess, and much labour wasted upon it: useful as it is for refining the taste and teaching accurate observation, yet it is a roundabout way of learning to draw for the designer for manufactures. I may here remind you, that the Eastern nations, who appear to excel all others in their works of ornamentation, are forbidden by their creed to make any representation of the human figure; and it is, probably, to this cause that we may attribute their excellence in ornament.

I cannot but feel, that if the education of the Government Schools were made more architectural much real benefit would result to this country: besides that the study of architectural forms must be the best preparation for the designer of ornament, they would do more good in helping to make architects than painters, to whom individuality is less an evil. Architects should be educated in masses, because it is their duty to give expression to common wants and common feelings. The opposite system has been in use in this country, and has most assuredly failed. The knowledge we have acquired of the works of past ages has been procured by individual efforts, but unfortunately with but small results. Each has been tempted to exaggerate the importance of the style of his predilection, and which he undertook to illustrate.

That a little knowledge is a dangerous thing has proved most true in architecture and its attendant arts.

As each new architectural publication appears, it immediately generates a mania for that particular style. When Stuart and Revett returned from Athens, and published their work on Greece, it generated a mania for Greek architecture from which we are barely yet recovered. Taylor and Cresy did as much for the architecture of Rome. The travels of Belzoni and his successors produced the Egyptian-hall, and even Egyptian-faced railway tunnels. The celebrated French work on the architecture of Tuscany, and "Letarouilly's Modern Rome," have more recently inspired us with a desire for Italian palaces.

The works of the elder Pugin and Britton, with a host of followers, have flooded the country with Gothic buildings; with which, notwithstanding the learning and research they exhibit, I must frankly avow I have but little sympathy. I admire and appreciate the Gothic buildings, which were the expression of the feelings of the age in which they were created; but I mourn over the loss which this age has suffered, and still continues to suffer, by so many fine minds devoting all their talents to the reproduction of a galvanised corpse.

Instead of exhausting themselves in the vain attempt, who will dare say that had these same men of genius, as they certainly are, directed their steps forward instead of backward, architecture would have not made some progress towards becoming, as is its office, the true expression of the wants, the faculties, and the sentiments of the age in which we live?

Could the new wants to be supplied, the new materials at command, the new sentiments to be expressed, find no echo to their admonitions? Alas! iron has been forged in vain,—the teachings of science disregarded,—the voice of the poet has fallen upon ears like those of the deaf adder, which move not, charm the musician ever so wisely.

More than this, instead of new materials and processes suggesting to the artist new forms, more in harmony with them, he has moulded them to his own will, and made them, so to speak, accomplices of his crime. The tracery of Gothic windows, generated by the mason's art, have been reproduced in cast iron: the Doric columns of Greek temples, which owe their peculiar form and bulk to the necessities of stone, have been a hollow iron sham.

We have gone on from bad to worse: from the Gothic mania we fell into the Elizabethan,—a malady, fortunately, of shorter duration; for we then even worshipped not only a dead body, but a corrupt one.

We have had an Italian mania without an Italian sky; and we are even now threatened with the importation of a Renaissance mania from France. It would be most unfortunate if the attention which has been directed to the peculiar beauties of the East Indian collection of the Great Exhibition should result in an Indian mania; but if this disease, like measles, must come, the sooner it comes and goes the better. What we want to be convinced of is, that there is good mixed with evil in all these styles; and I trust, when each has strutted its brief hour on the stage, recording for posterity the prevailing affectation of the day, we shall. We want to be convinced that all these styles do but express the same eternal truth, but in a different language: let us retain the ideas, but discard the language in which they are expressed, and endeavour to employ our own for the same purpose. We have no more business to clothe ourselves in mediæval garments, than to shut ourselves in cloisters and talk Latin; to wrap ourselves in Indian robes than to sit all day on divans, leading a life of voluptuous contemplation.

After the expression of so much heresy, I must beg to say that the fault does not at all lie with the architectural profession, to which I esteem it an honour to belong. The fault lies with the public: the public must educate themselves on this question. Architects, unfortunately, can but obey their clients: this one will have an Elizabethan mansion: this clergyman can admit no other than a mediæval church: this club of gentlemen must be accommodated in an Italian palace: this mechanics' institute committee must be located in a Greek temple, for there alone wisdom can be found or philosophy taught: this railway director has a fancy for Moorish tunnels or Doric termini; this company, again, an Egyptian suspension-bridge—the happy union of the alpha and the omega of science: the retired merchant must spend his surplus in Chinese follies and pagodas. And, to wind up the list of these melancholy reproductions, I will cite the worst I ever saw, though, fortunately, not an English one. We have here a client, who, requiring a steam-engine for the purposes of irrigation for his garden, caused his architect to build an engine-house in facsimile of one of the beautiful mosque tombs of the caliphs of Cairo. The minaret was the chimney-shaft. Nothing was omitted: even the beautiful galleries, which you all know were used for the purpose of calling the Moslem to his prayers, here surrounded a chimney without a means of access.

I again repeat, the fault lies with the public: an ignorant public will make complaisant and indolent architects. Manufacturers, again, will always tell you, in answer to a reproach for the bad designs they produce, that they are only what the public require, and will have: let us trust that this excuse will no longer avail them. The Great Exhibition has opened the eyes of the British public to our deficiencies in art: although they were unable to suggest better things, they were found quite able to appreciate them when put before them. There must be on the part of manufacturers, architects, artists, and all who in any way minister to the wants and luxuries of life, a long pull and a strong pull, and a pull altogether: they have, one and all, like dramatic authors, written down to the taste of the audience, instead of trying to elevate it. The public, on the other hand, must do their part, and exercise a little pressure from without.

I know that I shall be told that the production of a new style of architecture is not so easy a matter; that it has never been the work of any one man, or set of men, but rather something in the shape of a revelation, for which, probably, we may be told to wait. Much of what I have said here will be set down as the ravings of folly. Some will say, Architecture is a thing of five orders, discovered and perfected once for all, beyond which we cannot go, and all that is left us is an adaptation of it to our own wants: others will tell you that a Christian people should have no other than Christian architecture, and will tell us to go back to the thirteenth century in search of architecture, and beyond this there is no salvation; but I answer that this architecture is dead and gone: it has passed through its several periods of faith, prosperity, and decay; and had it not been so, the Reformation, which separated the tie which ever existed between Religion and Art, gave to Christian architecture its death-blow.

To show how new styles are really formed, I will here give you an instance of the progression of an architectural idea.

The ornament known as the egg-and-tongue moulding, so common in Roman architecture, which we produce over and over again to such an extent that there is hardly a building or house erected where it is not used externally and internally,—let us see what the Arabs did with it: let us see if they were content to consider it as perfection, and to set themselves down before it with folded arms to worship it.

When the Mahometan religion and civilisation rose with such astonishing rapidity in the East, the Arabs, in their early mosques, made use of the materials which they found ready to their hands in the ruins of old Roman

buildings, or buildings which they purposely destroyed: they took columns with their Corinthian capitals, &c. and adapted them to the arrangement required for their own temples. In their subsequent works they did not, as we should have done, continue to copy and reproduce the models which were at first so convenient to them; but, applying to them their own peculiar feelings, they gradually departed from the original model, to such an extent at last, that but for the intermediate steps we should be unable to discover the least analogy between them. Yet by this process the capitals of their columns can be traced back to the Corinthian order, which they, in the first instance, found so abundantly for their use.

In the instance before us, who, at first sight, could see any connection between the egg-and-tongue moulding and the ceiling of the Hall of the Two Sisters of the Alhambra? Yet, by placing side by side the intermediate stages, we may be as certain of the process by which they arrived at it as if we saw them at work before our eyes. Look at a cornice very common on the earlier buildings of the Arabs. You will see that it resembles in all respects the egg-and-tongue moulding, save that what is here round in the Arabian cornice is straight. Some fresh mind at work upon it saw an opportunity for fresh beauty in doubling it, as you see here another in tripling it; and then there must have burst upon some other that this multiplication of a simple element was a mine of wealth to them. We now see this principle developing itself in the formation of pendentives the filling up of niche-heads and doorways.

It was reserved for the Moors to carry this principle to its utmost limit; and we see in the Alhambra capitals of columns, arches over large openings, and ultimately the ceilings of their halls were covered with the stalactite roofs, which are not more remarkable for their elegance and beauty than for their scientific construction.

The ceiling of the Hall of the Two Sisters is composed of 5,000 pieces, being combinations of the same seven, based upon three primary forms,—a right-angled triangle being the half of a square; a parallelogram, having one of its sides equal to the hypothenuse, and the other to one of the sides of the angle; and an isosceles triangle, also with sides, equal to the sides of the right angle; so that as all these seven pieces occupy the same space on plan, but are different in elevation and section, they may be used indifferently one against the other, and the most astounding varieties can be produced: in fact, they are infinite, like the combinations of the seven notes of the musical scale.

Similar progression may be seen in every architecture. Many of the types of Greek architecture may be seen in Egypt. The flutes on the Doric column were first simply corners cut off in the piers of the rock-cut temples of Egypt. They then became eight-sided, and so on, till some one must have suggested making the sides curve inwards; and lo! we have the flutes. A rude type of the honeysuckle ornament, so prevalent in Greek architecture, is seen on the Assyrian monuments discovered by Dr. Layard and M. Botta: in fact, any one so disposed, will find numberless instances of these progressions: but I have said enough to show that architecture, till now, has ever been progressive. What has been done in past ages may be done in this, if our minds are only so directed.

We have all the works of the past, as I said before, for our inheritance. We may use the principles and knowledge derivable from them, but may not parody the results of these principles. From the works of Egypt we may learn how to symbolise: from those of Greece we learn purity of form and grace of outline; from the Arabs and Indians, perfection of form, harmony of colouring, and more especially the conventionality of natural forms; from the Moors, in addition, the great powers of geometrical combinations, and the immense value of the repetition of the most simple elements, as producing grandeur and richness; and when fully impressed with this knowledge, have we not before us the whole range of Nature's works, furnishing us suggestions of endless variety? See what the Egyptians did with the lotus, the Greeks with the honeysuckle, the Romans with the acanthus, the mediæval artists with the trefoil, the maple, the vine, ivy, and oak. Have the plants and flowers of every clime been gathered together in vain for the architect? can they furnish him no hint for the development of new conventional forms?

There is but little hope that any but a slight modification can take place in the art of the present generation, but it is the bounden duty of all to help in the elevation of the future. We have movements going on around us to promote the knowledge, improve the morals, and preserve the health of our race. Philosophers measure the innermost recesses of the vault of heaven, or descend into the bowels of the earth for knowledge, which they disseminate by cheap literature to the homes of the humblest. Free-trade supplies food and raiment to all. The railway movement quadruples the power of locomotion. The sanitary movement seeks not only to prolong life, but to render that life a blessing rather than a curse. The movement in favour of the drainage and irrigation of the soil now dawning, promises to so far increase the productiveness of the country, by pouring on it the waste of towns, that what are now the luxuries only of the few will, hereafter, be daily supplied to the many. Shall we, then, be content to supply only the material and intellectual wants of man, neglecting that far happier portion of his nature, the sentiments? Shall there be no movement in favour of bringing art-knowledge within the reach of all? I would strongly urge, that there could be no more noble result springing out of the Great Exhibition than this; no more noble task for this society, which brought about the Great Exhibition, to set itself than this.

Every town should have its art-museum, every village its drawing-school: every parent should educate himself in art, as far as he can, and cause his children to be educated still further: it is as necessary for the refinement and the happiness of mankind to develope the innate poetry of his nature by the cultivation of the eye, as to develope his intellect by giving him the power of reading and writing. Do not say this is visionary or impossible: every movement now successful was once so regarded, was once but the philanthropic yearnings of the few.

The Government may, and ought to, assist in developing this movement: it should help with no niggard hand: a few thousands spent in forming art-museums, accessible to all, would save many thousands more from being spent in building gaols.

Although the evil passions lurking in the breast of man can never be eradicated, yet they may be subdued and charmed to slumber by the cultivation of his higher mental and sentient powers. Give a people healthy pleasures, and the tendency to crime must be diminished.

Owen Jones.

THE SANITARY STATE OF THE METROPOLIS.

It is gratifying to know that the House of Lords have pledged themselves to the cause of Sanitary Reform in the Metropolis, on the motion of Lord Shaftesbury, supported by a most able and unanswerable exposition of the horrors of life and death in London,—by resolving, "that the sanitary state of the metropolis requires the interposition of her Majesty's Government." And our gratification is not much diminished by the fact that this resolution was come to by the Lords in the face of rather a grumbling expatiation by the Premier himself on the difficulties in the way, combined with rather a lukewarm view of either the evils to be remedied or the benefits to be realised. His lordship looked not unlike a restive boy whose caputal stood much in need of washing, obvious to every one but himself, and was advised by his parents to scrub it immediately, notwithstanding all his got-up and fractious objections and excuses to the contrary. But that it is most devoutly to be wished that the head of the Government were as anxious to clear away all obstacles to the salubrification of the metropolis as he appears to be to exaggerate them, we are deeply conscious. This, however, the metropolitan public itself alone are likely to persuade him to be. His lordship, indeed, pointed to the apathy of those most interested as one of the very difficulties on which he delighted to expatiate. There is, unfortunately, but too much truth in this. The public, once fairly rid of one of the most salient of those dread evils under which they have been suffering,—namely, the pestilent cholera,—have sunk back into their usual apathy, and another visit of the same scourge alone, we fear, will rouse them to a sufficient amount of energy and determination to enable them to root out its abiding predisposing causes. That dreaded, yet it may be salutary, event, may be nearer than they imagine. *The pestilence has again broken out in the East precisely as it has done on previous occasions.* It is full time, therefore, that the metropolitan public were up and stirring. The gas of their graveyards, their cesspools, their sewers, is doing *its* work in preparation for the scene of horrors. Every year it is intensifying more and more, as every year its fruits are multiplying. The general mortality of the metropolis of late years has immensely increased, and we are fast retrograding to the state of things before the time of the great plague when the population of the metropolis would have actually become extinct in a brief series of years had it not been for constant replenishment from the provinces. Nay, the time has already come, according to statisticians, for "London, if not refreshed from the country, would be a desert in fifty years." Did we not say with truth, some time ago, that if ever Macaulay's civilised New Zealander stood on the ruins of London-bridge and beheld nought but a solitary, uninhabited, waste,—the poisorous filth from graveyards, cesspools, and stagnant sewers, with which the metropolitan site is saturated, must alone have done it all? The deaths of *the London born* already exceed their births. Their blood is poisoned. Their stamina is sinking. They are even dwarfed in stature and dimensions. And not all the healthier blood infused into London from the country can prevent its rapid decay unless the site be cleared of those abominations which breed disease and death and new abominations even in the midst of death to intensify the hideous fermentation of mortality.

The cesspool system alone, it has been estimated, yields a stagnant saturation equivalent to an exhaling surface or a lake 700 acres in extent, and constantly 6 inches deep, though weekly pouring 8,000 loads of poisonous filth into the Thames.

As for the grave-yards and vaults within the limits of the metropolis, 50,000 dead carcases are yearly cast into them to rot, in dense and crowded masses, both of the dead themselves and of the living,—masses of dead which, in perfect accordance with what we have repeatedly said, are now declared to diffuse around them putrefying matter enough to communicate "a putrefying process" to all who are exposed to it. Many of these sinks of corruption were chock full twenty years since, and ever since they have been, and still they continue—literally and emphatically—*overflowing*. Within the last single generation, of thirty years only, a million and a half of human bodies have rotted, steamed, and spread from these worse than cesspools, in ever-flowing streams and saturations of deadly vapours, gases, and fluids, throughout the ever-breathed air, and the ever-trodden site and soil, of the metropolis! Little wonder that the deaths of the London born so far exceed the births—that country blood alone keeps life in this dwarfed and dying carcase. Let emigration on the one hand, and repugnance or other preventive causes on the other, withdraw that staminal infusion, and what must be the inevitable consequence, even without the aid of positive pestilence?



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

In my last I spoke to you of Athens and of Pericles,—Pericles, whom Croly calls,—

"Of more than men, the more than king."

Let us return for a time to that wonderful state which still exercises such influence in the education and thoughts of nations.

Athens, you will remember, has seen numerous vicissitudes. It was first burnt by Xerxes; a year afterwards by Mardonius. It was destroyed in the Peloponesian war, injured by Sylla, and ravaged by Alaric, king of the Goths. In 1687 it was besieged by the Venetians, when a bombshell fell upon the Parthenon, which was at the time used as a powder magazine, and certainly did not improve it. The circumference of the city walls, when intact, was 7½ miles; may we not with justice exclaim—How small! how great! You will find in the British Museum a large model of the damaged Parthenon, and a second, showing what it originally was, according to the opinion of the artist. I will not pledge myself to all his details, but it is nevertheless an interesting work and may be usefully studied.

You may see there, too, amongst other important illustrations of our subject, a large Doric capital from the Propylæum at Athens (about 437, B.C.), and one from the Parthenon; an Ionic capital from the Temple of Diana, at Daphne, on the road to Eleusis, and some exquisite friezes.

The Acropolis of Athens was, without exception, the most interesting spot in the heathen world, and on the highest part of it stood the Temple of Minerva, or the Parthenon, which I have pointed out to you as illustrating the Doric order. Ictinus and Callicrates were the architects, and Phidias executed the sculpture. It is built of white marble, with excellent masonry, and displays the most minute attention in the arrangement of the lines with a view to obtain the most perfect effects. The columns lean towards the interior, partly, perhaps, to oppose the greater resistance to the pressure of the roof, and have a swelling outline, called *entasis*, which gives grace and greater apparent solidity. The horizontal lines are also slightly curved (it is the same, too, in some of the other temples there), but modern investigators have not yet agreed amongst themselves as to the exact motive for this arrangement. The Parthenon was the repository for the public revenues: at one time more than two millions sterling was placed there. There was then no "London and Westminster" or "Commercial Bank." In later times Westminster Abbey and other mediæval buildings were used for the same purpose. The principal sculptures from the Parthenon are, as you know, in the British Museum. They cost Lord Elgin 74,000*l.* and were bought by the trustees of the Museum in 1816 for 35,000*l.* All that Lord Elgin gained by the undertaking was the withering abuse of Byron and others for riving

"—— what Goth and Turk, and time hath spared."

It was not an act to be followed or excused, but it has nevertheless benefited English art. Here in the Parthenon stood the masterpiece of Phidias, the statue of Minerva, which had gold on it alone worth 120,000*l.* One of the tyrants took off the gold mantle and put on a cloth one, saying he thought it would keep the goddess warmer: it is seldom difficult to find an excuse for pursuing our own course.

I endeavour to avoid hard names as much as possible, but I will run the risk of telling you that a portico or colonnade is described as:—

Tetrastyle—when it has four columns in front;

Hexastyle—when there are six columns in front;

Octastyle—eight columns; and

Decastyle—ten columns: according to the Greek numerals.

The enclosed portion of a Greek Temple is called the cell. A temple is said to be—

In antis—when the side walls of the cell run out to the front, and finish with *antæ*, or pilasters, with two columns between. Fig. 15 will give you an example of this:

Prostyle—when there are columns in front only:

Amphiprostyle—columns in front and rear:

Peripteral—when surrounded by columns forming a walk round the cell:

Dipteral—when with a double range of columns on each of its flanks:

And *Hypæthral*—when without a roof.

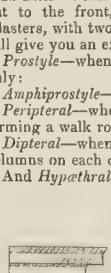


Fig. 17.

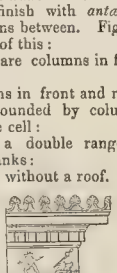


Fig. 18.

Fig. 16 represents the front of the beautiful little Ionic temple on the Ilissus: this is *amphiprostyle*—that is, it has columns in front and rear. The Ionic capital you know is distinguished by a spiral scroll on each side, called a "volute." Fig. 17 shows this peculiarity more at large. The General Post-office in St. Martin's-le-Grand and the British Museum will serve you as examples of the Ionic order in London.

Of the asserted invention of the Doric order by the Dorians, and of the Ionic by the Ionians, I need not here say anything.

The earliest known example of the use of the Corinthian throughout a structure is in the beautiful temple called the Choragic Monument of Lysicrates, at Athens, and here you have a drawing (Fig. 18) of the capital, entablature, and base of the column. This structure, which is often called "the Lantern of Demosthenes," was erected, 330 years before our era, in commemoration of a theatrical victory. It is now surrounded by crumbling modern tenements, and is scarcely to be reached by one with a nice sense of delicacy.

You have, doubtless, heard the charming story that Vitruvius tells concerning the invention of the Corinthian capital? How that a pretty maiden of Corinth dying, her nurse collected in a basket some trifles to which she had been attached, and placed it on her grave, with a tile upon it to preserve them longer: and how that an acanthus plant sprang up around the basket, and formed so beautiful a figure, that Callimachus, a Greek sculptor, happening to pass, was struck by its elegance, and evolved from it the Corinthian capital. There are Egyptian capitals, and even Greek capitals, long anterior to Callimachus, which approach more closely to the Corinthian than the nurse's basket: still we need not give up the pretty and touching story altogether, for it may have led to the perfecting of a form which may be called one of the most complete and beautiful works of man. For 2,000 years and more it has stood before the world, defying improvement.

The mildness of the climate of Greece allowed much to be done out of doors or under porticoes. As they did not use the *arch*, their buildings were narrow and contracted, or were open at top, and awnings were used temporarily. The public buildings were decorated with unbounded profusion, but perfect taste. The adornments were special for different purposes, and the garland of flowers, the lyre, the tripod, and the gilded shield had each its particular office and place, and were not stuck up indiscriminately and absurdly as we have used them in our imitations.

The leading principle of Greek architecture is *horizontality*; while *verticality*, as you will hereafter see, is the predominant principle in Gothic architecture. The long unbroken entablature on the top of the columns gave an unvaried rectangular outline, in Greek architecture, from which there was no getting away. It produced one structure of perfect beauty—the portico; but beyond this it did not successfully go: within this, however, all is faultless. Shall I stop to mention that all the mouldings in Greek architecture are distinguished by grace and beauty? They consist mainly of flowing curves, not parts of a *circle*, as in Roman architecture. What you know as Hogarth's "line of beauty" (technically the *cyma*) enters greatly into the composition of them, and it is not a little singular, as Mr. Hosking mentions in his valuable "Treatise on Architecture," that Hogarth, in his well-known *Analysis of Beauty*, although he did not know, and could not have known, the contours of Greek architectural mouldings has given the principle of them, and, under his line of beauty, has described many of the finest Greek forms.

Of their domestic buildings, their houses we know very little; the notices in the Greek writers are few and obscure. The houses were unassuming till a late period in Grecian history. Afterwards they became more luxurious. Demosthenes made it a charge against Midias that his house was more important than others in Eleusis. An *Illustrated Grecian News* of that period, which would give us a peep into the house of the Athenian, and his

* No. VII. Also pp. 100, 133, 164, 196, 228, and 260.

every-day habits, would be valuable! It would seem that in the dwellings of the better sort the rooms were disposed around one or more open courts or peristyles, and were divided into two distinct portions, those for the men and those for the women; and in some cases each had its own front towards the street, and its own entrance. The town-houses were built side by side: the fronts were often covered with stucco, and in one instance at all events, according to Plutarch, plates of iron were used as an ornament. The houses were very plain, and contrasted strikingly with the public buildings: they sometimes stood back within an enclosure of their own, and in front was an altar of Apollo or a bust of the god Hermes. Inside, the houses were but simply adorned: we hear of painted ceilings in the time of Plato, and, at a later period, coloured stones were used, and mosaics. I could almost wish that there was a memorial of the mythic Apollo before every Home to-day: Apollo, always youthful,—Apollo, the representative of music, and eloquence, and poetry! What do we find in too many of our houses? Not a picture, not "a thing of beauty" of any description; often not a thought of it. Even where reign thrift and carefulness, there sometimes shines no joy: and the clay-bound spirit never reaches its right elevation: the occupants groan instead of living. But there is a Bible on the window-cill, you will say: we want not Apollo. True. We have deeper consolation, purer teaching, higher incitement, than the poor, dark Greek; but The Book scarcely requires white ceilings, drab walls, and bare, gloomy looks; constant care; lamentations for ills which are not and never may be; thoughts only for the animal life; a shutting out of the light, and refusal to be joyous. If you do not know of such houses, you are lucky in your friends.

Let us try and induce them to put up Apollo in the court-yard.

I am, truly yours,

Reggeo.



Fig. 16.

ON THE FORM, TREATMENT, AND APPLICATION OF THE PEDIMENT.*

The marriage of Sculpture and Architecture is, I consider, the grandest art-combination that could be conceived: it has been resorted to in great works in all ages. Sculpture, as the highest embodiment of the mystery of form, is the crowning glory of architecture. Though the most limited in scope of the three arts of design, it is, perhaps, the sublimest of all in its material manifestation: what is within its capability to express it expresses in the grandest manner. Sculpture is the most magnificent of our sources of decoration, whether as an exterior embellishment by figures or groups, or an interior ornamentation of public or private edifices by statues and statuettes, a fact of which the Romans in the days of the empire must have been well aware.

The harmonious union, however, of sculpture and architecture, the duly proportioning and combining them with each other so as to secure unity of sentiment and design, is the greatest difficulty of the architect, and demands the highest effort of his genius. Sculpture must not be put in merely to discharge a phonetic office, though the subject must be such as to bear reference to the destined use of the building: it is an artistic embellishment, and is to harmonise in composition, and join issue with the architecture in expressing certain qualities of art—illustrating some phase of beauty.

All sculptural decoration of a building should be under the superintendence of its architect, and the choice of subject and general design and composition should indeed be given by the architect, who must be guided therein not by precedent, but by a due consideration of the qualities that constitute a work of art.

Sculpture should, I think, invariably appear as accessorial, not principal,—as if made for the architecture, not as if the architecture were made for the sculpture. Mr. Ruskin somewhere hazards a suggestion that the latter was the case with the Parthenon, on the assumed principle that high art sculpture could not be subordinated to a sister art, or become an architectural embellishment,—a suspicion I cannot myself entertain. Architecture is, I consider, capable of receiving into her bosom the sister art of sculpture in its highest manifestation; and in real *bonâ fide* edifices it must undoubtedly be principal, and the sculpture become as tributary to the general effect and embodiment of the architectural idea as the leaves or volutes of the capital. If the architecture be subordinate to the sculpture, it is not in a proper or full sense architecture at all. It is a part of the sculpture, and, like the Queen Eleanor crosses and other monuments, should be considered as a statue-case, or shrine of sculpture.

As to the *material* of our sculptural embellishments, statuary marble is a very beautiful one; the lighter the colour of an object of which form is the chief beauty, the more effective the light and shade. Besides, its whiteness enhances the ideal grace, and, as typifying purity, seems to add a moral halo to its subject. But in choosing a material for embellishment of our town and city buildings, we should remember that what suited in Greece will not be proper here; we must consider the climate and other circumstances, and seek the most durable one consistent with strength of effect. Bronze is much used in this country for its durability, but is, I think, very objectionable as a material for sculpture, presenting as it does great deficiency in play of light and shade, through its absorption of light. We should endeavour, also, to afford all the shelter and protection we can to our sculpture from the weather: this may be done in the case of the pediment by considerable projection of cornice, choice of favourable aspect, &c. The mediævalists placed their statues chiefly inside of cathedrals and porches, or, if outside, in canopied niches: we are not sufficiently careful on this point.

At any other time I should dismiss the subject of materials, or their relative tones, by remarking that the sculpture should be lighter than the architecture it embellishes, whether in the tympanum, by exhibiting sculptured subjects in light material on a darker ground, or detached on the exterior. But at present the subject demands some space, from the attention now directed to it by recent discoveries in Greek edifices. We are told by those who have made the necessary investigations that there is distinct evidence that the architects in the best age of Greece employed polychromy on the exterior of their temples, and painted their statues,—that they even painted ornaments on their mouldings, that they might appear as sculptured ones, as the egg and dart on the echinus. Now, though the practice of any artist or school of artists is not the source of those canons of art which are to be held binding upon us, yet the precedent of Greek practice is so formidable a one to all in the slightest degree acquainted with the productions of Greek genius, that it is, at least, worthy of serious examination.

To use differently coloured stones or marbles seems natural enough both in sculpture and architecture, and, referring to the former art, it is certain that this practice was resorted to in the best age of Greek production: witness their polylithic statues. A figure was also frequently composed of two different materials, such as marble and brass, ivory and gold, and sometimes they put gems for the eye-balls; and though we cannot form a very exact estimate of their effect, as no work so constructed has come down to us, yet we may venture to remark that as the substance of the eye in nature is so different from that of flesh, and that of flesh from drapery, to represent these by different materials in the sculpture, if not too contrasting, seems not irrational, but might add to the natural air of a figure without infringing upon its artistic dignity.

But their practice of applying colour to stone and marble is a widely different thing, and one which I cannot reconcile with the exquisite taste and feeling otherwise exhibited by these "arbiters of form," or with any principle deducible from nature and reason. Colour belongs properly to painting, because painting is an imitation of its subject: form in painting is only seeming; in sculpture, it is real: it is not an imitation of an object, but an abstract representation; an expression of it by one of its attributes,—form,—and is therefore partly a symbol. Being less imitative, it is more ideal than painting; and colour, as it appears to me, can only degrade it, as it deprives it of its distinguishing feature,—the poetic and ideal character arising from its abstract and ideal mode of manifestation.

Further, if we begin to colour sculpture where are we to stop? If we do not follow nature, what other guide have we? and if we do, who is to prescribe its limits? Colour, if admitted into sculpture, could only find its goal of perfection in complete imitation of its original, and our sculptors would have to sink into rivalry with Madame Tussaud. As to architecture, in my own opinion the best polychromy for *our* edifices, and it *is* polychromy, and harmonious polychromy, is the result of time and weather,—

> "Time, which gives new whiteness to the swan,
> Improves their lustre."

An embellishment this, however, the effect of which we can scarcely judge of in our large towns; as instead of the pure natural tinting of age and climate, we see but the artificial effect of their combination with smoke and other agents.

Painting is essential to the embellishment and finish of an interior, which we colour variously, because it is cut off from external nature, and dependant solely upon art for its means of giving pleasure. But exterior decoration, as it seems to me, is exclusively sculpturesque; for, on the outside, we have, besides the beautiful and harmonious action of time and weather, the free and ever varying effect of light and shade, from which interiors are partially, at least, excluded. There is in reality a necessity for abandoning the exterior to these agents, at least it is wise in man to content himself with their aid: the interior is to be made in itself beautiful, without reference to anything else; but the exterior, over and above this necessity of being beautiful itself, has to harmonise with the natural or artificial objects that surround it, and for which the common agents, time and weather, that are operating on all around, must be infinitely the best—infinitely, for they are unerring. The wise architect will, therefore, leave his work to be finished by Nature, who, when he has done all he can do, commences her operations, and produces a result he could never hope to obtain by all the polychromy that Greek or Barbarian ever saw. No painting could give the remotest approximation to that entire harmony with all around that time does. There is certainly no polychromic embellishment on most of those old buildings which, by their colour alone, captivate all eyes. Would the landscape painter regret that Haddon Hall or Melrose Abbey had been unpainted, or wish them anything different to what they are when he introduces them to his canvas?

The colours that Nature puts on a building are immense in variety, and what she does is

* See p. 253, *ante*.

sure to be in harmony with her other operations: a building abandoned to time and weather, *i.e.* when finished with materials of a natural surface, becomes adopted into nature's family, and *grows* into harmony with all around; and the greatest proof of the beauty of any work of man is given when it so unites with those of nature.

There can be no objection, however, to the use of two differently coloured stones, to recommend which is not to adopt polychromy, as the result of time and weather on the natural surface is very different to their effect on the coloured or painted one. Two differently coloured stones judiciously chosen may produce an immediate result of great beauty, and a combination of the kind I have observed in some buildings, where a yellowish or greenish-grey material, which most light stone is, has been employed in conjunction with a reddish or purplish one, producing in itself a beautiful harmony of colour. Moreover, give Nature a ground of two different colours to work upon, and she produces a greater variety of harmony. Though I would observe that it must be chiefly difference in colour, not in depth of tone; for if there be much difference between the depth of the local colour, it interferes with the light and shade, and produces patchwork; also, that the darker surface should not be at all equal in quantity to the light, or it destroys breadth.

These latter remarks have reference to small or medium works, for in the grand style of architecture I consider monotony of colour an essential, and fully agree with Mr. Garbett in his observations on this subject in his "Treatise on the Principles of Architecture." In viewing great buildings, we never feel a want of polychromy any more than we do the absence of it in great works of nature, as the elephant. There appears to be no natural call for it in the breast, at least, in this climate. If the form of a building be great and noble, it strikes us as complete. In viewing many large works I have felt the absence of sculpture, which seemed wanting to give emphasis to the idea of the architect, but never the lack of painting. Variety of colour, as I have just admitted, may improve a small work. We see colour sometimes advantageously applied to shop-fronts, and we are pleased with the two colours of stone or of stone and brick in small churches and villas, but we never feel the want of it in great works. Indeed, the feeling that prompts to it seems not to exist in the architectural mind in this climate; but if architecture ought in truth to be coloured, how is it that our greatest geniuses, who drew their inspiration from the same source as the Greeks, never thought of it? How is it that his genius, his art feeling, the divine afflatus never whispered to Wren that his cathedral exterior wanted painting? He sighed for other forms he was not allowed to embody, but not for painting. And Vanbrugh, who studied pictorial effects of composition and *chiaro scuro*, dreamed not of colour.*

S. H.

* To be continued.

METROPOLITAN WATER SUPPLY.

THE committee of the Metropolitan Sanitary Association lately issued a memorandum on the Government and Companies' Bills now pending before a select committee of the House of Commons, viewing with great alarm and apprehension the present posture of the metropolitan water-supply question. They draw the attention of the water consumers and ratepayers to the fact that the water from barren hill tops, such as the sandy hills of Surrey, suggested by the Central Board of Health, is invariably purer, softer, and better than water from cultivated valley bottoms, such as that of the Thames, whether above the Teddington lock, from which it appears determined that the public must take the least obnoxious future portion of their water supply, or below it, in accordance with the still more objectionable supply at present. The very fermentation whereby, as argued, such rivers as the Thames purify themselves of town fæces in their course, is pointed out as an influence poisonous and pernicious to health (if not in fact, as we suspect, fermentative of pestilent decomposition and putrefaction in the blood itself). The cost of pure soft water from the Surrey hills, it is noted, would not cost more than 2d. per house on the average, and would save more than a million a year in soap and soda, wear and tear, of linen, waste of tea, &c. The saving attainable by a centralization or combination of the water supply and sewerage on a right principle, and in one consolidated management, is noted as sufficient to buy all the water companies out. The water companies, however, it is remarked, are stated to command upwards of eighty votes in the House of Commons, while their great wealth further enables them to secure the attendance of numerous witnesses prepossessed in their favour, and to retain the ablest counsel in their defence; whereas no such resources are available in defence of the public interests, and the Commons have refused to allow the Sanitary Association to defend these interests before the water committee. The Association have therefore protested on behalf of the public against the finality of any decision emanating from a tribunal so inadequately constituted, so imperfectly informed, and so exposed to be misled by one-sided evidence, as the water committee, and they appeal to the metropolitan press for that free audience, and that impartial sifting of the question, which Parliament has seen fit to deny; at the same time warning the London water-consumers and ratepayers that their interests would *certainly* be overruled (as they since appear to have been) in committee, and one or more of the obnoxious Bills now pending become law, unless public opinion be speedily brought to bear *against* the threatened perpetuation of the water monopoly, and *in favour* of pure hill-top water, with consolidated arrangements for its *delivery* and *removal*, at a large reduction of existing rates.

ANNUAL GENERAL MEETING OF THE INSTITUTE OF BRITISH ARCHITECTS.

THE annual meeting was held on Monday, the 3rd, at eight o'clock, to receive the report of the council on the state of the property and affairs of the Institute. Professor Cockerell took the chair.

The Institute now consists of 122 fellows, 19 honorary fellows, 15 honorary members, 85 honorary and corresponding members, and 103 associates. The report, amongst other things, stated that,—

"The committee appointed to enquire for more suitable apartments have not been unoccupied during the last twelve months, and they have endeavoured fully and fairly to investigate the eligibility of several offers and suggestions that have been laid before them; but the council regret that no proposition has yet been made which they can lay before the members of the Institute for consideration.

The second committee formed to consider and report on the Metropolitan Buildings Bill, introduced by Lord Seymour, H.M.'s First Commissioner of Woods and Works, devoted much time and attention to obtain the opinion of the Institute generally on the subject, as desired by his lordship. Their report was considered and adopted at a special general meeting, and subsequently forwarded to Lord Seymour in the shape of an interleaved copy of the Bill, with remarks and proposed alterations.

Several questions affecting professional practice, laid before the council by individual members, have been, it is believed, satisfactorily answered, by reference to the mass of useful information in MS. on the subject, which a committee some time since collected and arranged. The subject of Competition has again been brought under their notice by a kindred society, with a proposition to lay down stringent regulations for its management. The opinions of the Institute have long been in the hands of members in a printed form, and strict attention to the recommendation so put forth would, the council conceive, tend more to prevent the abuses complained of, than any attempt at compulsory enactment. In whatever shape this and like matters may come before the executive of the Institute, their plain duty lies in the strict endeavour to carry out unreservedly and unflinchingly the object set forth in section I of the bye-laws—the establishment of uniformity and respectability of practice in the Profession.

The financial position of the affairs of the Institute is satisfactory. The balance in hand is 231*l.* 0s. 5d. more than last year; and 64*l.* 16s. 5d. stock has been purchased and added to the amount invested in the public funds."

The following is a copy of a memorial addressed to the Queen:—

"May it please your Majesty:

The Royal Institute of British Architects, who are honoured by the patronage of your Majesty and of H. R. Highness Prince Albert, having had their attention called to the dilapidated and perishing condition of several of the tombs of your Majesty's royal predecessors in Westminster Abbey, have, with the special permission of the Subdean and Chapter, examined carefully these memorials of an illustrious line of monarchs, and have found many of them in a state of mutilation and decay, threatening destruction within a few years, and derogatory to the memory of sovereigns whose names and deeds are justly dear to the English nation.

A select committee of the House of Commons on National Monuments in a report dated the 16th of June, 1841, expressed their opinion that increased attention should be paid to the preservation of those royal monuments, and the members of the Royal Institute of British Architects are strongly impressed with the conviction that unless means be immediately taken some of these precious and most valuable records of the past history of the kings and queens and of the arts of this country at periods now imperfectly known, will ere long be irrecoverably lost.

The Institute, therefore, humbly and earnestly pray that your Majesty will be graciously pleased to direct enquiry to be made into the condition of the royal monuments in Westminster Abbey, and to order such steps to be taken as in your Majesty's judgment may be best calculated to preserve and worthily perpetuate these venerable and deeply interesting memorials of past sovereigns."

The following is a list of the new council and office-bearers.

President.—Earl de Grey.

Vice-Presidents.—T. L. Donaldson, W. S. Inman, D. Mocatta.

Honorary Secretaries.—J. J. Scoles, C. C. Nelson.

Ordinary Members of Council.—J. B. Bunning, T. T. Bury, G. Godwin, R. Hesketh, J. Jennings, J. T. Knowles, R. W. Mylne, J. W. Papworth, H. Roberts, E. Woodthorpe.

Auditors.—J. H. Good, jun. Fellow; James Fergusson, Associate.

THE OLD WATER-COLOUR GALLERY.

THE collection now exhibiting by the Society of Painters in Water-colours, at Pall-mall East, is very excellent, all the members being in full force. The frequenters of this gallery know so well what they will see when they hear the artists' names, that description is scarcely necessary. Mr. Copley Fielding has his usual large number of landscapes and sea-pieces, many of them of great beauty. Mr. John Lewis exhibits an extraordinary piece of manipulation, "The Arab Scribe" (139), second only, in this respect, to his "Hhareem" of last year. Mr. W. Callow has advanced considerably in the delineation of architectural subjects. Branwhite's "Frozen Ford" is a wonderful work;" and Bentley, Gastineau, Duncan, V. Bartholomew, and D. Cox, have all good specimens of their respective styles. 38, "View of the Temple of Neptune, Pæstum," by A. Glennie; 60, "Lake of Como," by T. M. Richardson; "The South Aisle of Rouen Cathedral" (188), and "The Lake of Thun," both by W. C. Smith, are amongst our favourites. Hunt's Fruit and Flowers beat Nature, but we cannot endorse the great admiration of some of our contemporaries for his "Village Pet."

ADVERTISING ARCHITECTS.—We find the following in an American newspaper:—"John W. Priest, M.A. Architect, having determined to confine his practice to a few kinds of buildings, devotes particular attention to the preparation of designs and working drawings for country houses; and, while using one general style, makes it his study, in every work that he undertakes, to accommodate his design to the nature of the proposed site and material, as well as to the extent of the proposed expenditure."

EXHIBITION OF DRAWINGS BY AMATEURS.

THE gallery at 12, Pall Mall, is again opened, with a collection of drawings and sketches by amateur artists, containing no fewer than 300 original productions by 109 exhibitors. Many of them are very beautiful works, and might make some professionals look to their laurels. We have a remembrance of some one saying in a farce,—"Amateur! ah, that means impostor," but this exhibition contradicts the definition. The ladies take the lead, indisputably, and though gallantry would avoid comparisons in such a case, we may mention as amongst the most striking productions (18) "Naples, with Capri in the distance," and others, by Mrs. Bridgman Simpson; (48) "La Cava," by Mrs. Davidson; (142) "Convent of Amalfi," and others, by Miss Blake; Miss Brereton's "St. Mary's Church, Beverley;" (86) a female head by Miss Louisa Percival; several by Mrs. Salvin, Miss Emma Seymour, Miss Houlton, and others.

This exhibition was a happy idea, and can scarcely fail to promote the cultivation of the arts in families. The gentleman to whom it is due has long since entitled himself to the thanks of the public by his disinterested efforts in the cause of art. As to the financial results of the exhibition, the catalogue says,—"The large amount which was expended last year beyond the receipts derived from the visitors to this gallery precludes the probable expectation, or even the hope, of any surplus at present to be rendered available for the advantage of art: the promoters of this design, however, feel assured that the time is not far distant when, in addition to the many other important results of these periodical exhibitions, by their means a fund may be realised, to be employed for the advancement of that desirable object." Our readers should aid in bringing this about.

THE ENCYCLOPÆDIA OF ARCHITECTURE.

THE second edition of Mr. Gwilt's "Encyclopædia of Architecture," recently published by Messrs. Longman, Brown, and Co. contains an appendix of forty pages on Pointed architecture, not in the first edition. This consists of five sections, viz.—1. General remarks on Pointed architecture in relation to its symmetry and stability; 2. Different periods of the art, and Flamboyant style; 3. Pendants; 4. Vaulting; and 5. Shafts. In this last section are given some remarks on windows, symbols, and on the secular architecture of France, from which we take the accompanying engravings, as examples of the manner in which the work is illustrated. Fig. 1 is the *portail* of the Palace of the Dukes of Lorraine, at Nancy, the date of which is called 1476. It is much more "debased" than works of the same period in England. The author says—

"The shell-sculptured gable, with the candelabra-shaped ornaments bounding it, exhibit in an interesting way the contention between the past and coming styles. In the *balcons* the Flamboyant takes it place, and the foliations of the principal feature under the reigning pointed arch are inverted, though set upon a ground in which the trefoils are in their proper position. The finials are inordinately large, and the elliptical form of the arch over the gateway is a step beyond what we call the Tudor arch. In every respect the example is one of great interest; and those persons who do not approve of an admixture of styles, must, at least, admit that it is highly picturesque."

The well-known Hôtel de Cluny at Paris, completed at the end of the fifteenth century, is of the same character, but has less intermixture of styles. A portion of it is represented by Fig. 2.

Fig. 3 represents the Hôtel de Ville at Brussels, one of the most admirable adaptations of the Pointed style to town architecture that we have. It appears to have been completed in 1445.

"The whole of the tower seems rather later than the date above given, which accords well enough with the northern wing. The authorities we have looked into scarcely, however, admit us to doubt its correctness. One of the puzzles attending this example is, why the tower and spire do not stand in the centre of the front. We are of opinion, on this head, that the northern wing is of the length originally intended for each side of the centre, and that it was, in execution, lengthened out on the southern side for the acquisition of more room Certainly the southern wing is rather later, and there is a carelessness about the detail which would seem to indicate that the burgomaster of the day found there was not enough space for the offices, and that, *coute qui coute*, he was determined to supply them. The proportions of the front would clearly have been more congenial to the style, had the southern wing been restricted to the same number of bays as the northern. As the building stands executed, taking one of the bays on the northern side as a measuring unit, we have three measuring the central space for the tower, ten for the north wing, and eleven for the south wing; the height, to the top of the parapet, nine; to the ridge of the roof, thirteen; to the top of the spire, thirty-three. The tracery on the spire is very elegant, and is pierced throughout. It is 406 feet high, and crowned with a copper gilt colossal statue of St. Michael, the patron of the city, 18 feet high, which is so well balanced upon the pivot on which it stands, that it is susceptible of motion with a very gentle wind. The interior of the edifice has a quadrangular court, with two modern fountains, statues of river gods with reeds and vases, as usual in such cases."

All who have visited Louvain will remember the Town-hall there, one of the most interesting structures of its kind that can be found. Fig. 4 shows the upper part of one end of it. It was commenced in 1448, but not completed till 1493.

"The façade towards the Place extends rather more than the height, and is pierced with twenty-eight windows and two doorways, being ten openings in each story, the spaces between the windows being decorated with canopies and groups of small figures from the Old Testament, some whereof are rather licentious. This charming edifice, which, in its delicate rich tracery, had suffered much from time and the elements, when we last saw it, four or five years since, had at the joint expense of the town and government undergone a complete renovation. This had, stone by stone, been effected with great care and artistic skill by a M. Goyers, and religiously accurate it appears to be. The new work has been saturated with oil: it is executed in very soft stone, which hardens with exposure to the air."

Its appearance was not at all improved by the application of the oil. When we last saw it, it looked very much like painted compo.

In connection with the Belgic town-halls, we may quote the curious rebus of the Canon Charles de Bovelles, in which the date of the Hôtel de Ville at St. Quentin is facetiously given:—

D'un mouton et de cinq chevaux
Toutes les têtes prendrey . M.CCCCC
Et à icelles, sans nuls travaux,
La queue d'un veau joindrez . . . V
Et au bout adjouterez
Tous les quatre pieds d'une chatte . . IIII
Rassembiez, et vous apprendrez
L'an de ma façon et ma date MCCCCCVIIII—1509.

Mr. Gwilt's "Encyclopædia" contains an immense amount of information very clearly arranged and indexed. "An attempt to produce a *complete body of architecture*," says the author in his preface (and we quote the passage because it will bring under the notice of our younger readers several works which they ought to know), he

"Believes to be entirely original. In his celebrated work, 'L'Art de Bâtir,' Rondelet has embodied all that relates to the construction of buildings. Durand, too ('Leçons et Précis d'Architecture'), has published some admirable rules on composition and on the graphic portion of the art. Lebrun ('Théoried'Architecture') has treated on the philosophy of the equilibrium, if it may be so called, of the orders. The 'Encyclopédie Méthodique' contains, under various heads, some invaluable detached essays, many of which, however, suffer from want of the illustrative plates which were originally projected as an appendage to them. All these, with others in the French language, might, indeed, be formed into a valuable text-book for the architect; but no such attempt has hitherto been made. Neither in Germany nor in Italy has any complete work of the kind appeared. In the English, as in other languages, there are doubtless several valuable treatises on different branches of the art, though not to the same extent as in French. In 1756, Ware (London, folio) published what he called 'A Complete Body of Architecture.' This, though in many respects a useful work, is far behind the wants of the present day. It is confined exclusively to Roman and Italian architecture; but it does not embrace the history even of these branches, nor does it contain a word on the sciences connected with construction. The details, therefore, not being sufficiently carried out, and many essential branches being entirely omitted, the work is not so generally useful as its name would imply. From these authorities, and many others, besides his own resources, the author of this Encyclopædia has endeavoured to compress within the limits of one closely-printed volume all the elementary knowledge indispensable to the student and amateur; and he even ventures to indulge the belief that it will be found to contain information which the experienced professor may have overlooked."

That this is really the case, we bear willing testimony. We have now had several years' experience of the book, and can say there is no work to which we refer with greater certainty of finding what we want. Of course it has its weak places, and in the first edition the weakest of these was in respect of Gothic architecture. The appendix in the new edition is intended to remedy this, and will be found valuable, especially in a constructional point of view; but Pointed architecture is not the author's *rôle*: all his studies and all his prejudices lead him the other way. We are forced to regret, too, throughout the book, the want of any generous recognition of the labours of contemporaries, an omission which in some cases amounts to injustice.

The body of the work, we should say, is the same as in the first issue: it is probably stereotyped. In a future edition, the revision of some parts will be desirable. The author's views on drainage, which brought on him some abuse and probably pecuniary loss, would seem to remain the same. A recent discussion amongst the civil engineers shows that there are still others of his opinion.*

Notwithstanding flaws, the "Encyclopædia" is indispensable for all who are engaged in the study or practice of architecture; and if there be a student who can only afford himself one book, this is the volume he must buy.

ST. THOMAS CHARTERHOUSE SCHOOLS, GOSWELL STREET.

THE foundation-stone of these schools was laid on Wednesday, 28th April, by the Marquis of Lansdowne, K.G.—the last school grant of his administration having been made to this institution. The building will consist of a basement and three other stories.

The front part of the basement will be occupied as a kitchen and laundry, and, with the vaults under the street, will form an industrial department for teaching girls household duties. The back part will be a play-room.

The front rooms of the ground and one-pair stories will be school-rooms for 198 girls.

The back room of the ground story will be an industrial room for the instruction of 173 boys in different trades.

The back room of the one-pair will be a school for 250 infants, and the top story throughout will be occupied as school-rooms for 366 boys.

Altogether, the building will accommodate upwards of 1,000 children.

Except the basement, the stories will be 15 feet high in the clear. The floors will be constructed with wrought-iron girders, and hollow brick arches, and covered with metallic lava.

The Byzantine style is adopted, and the facings will be of red bricks. The architect is Mr. Robert Hesketh.

ARCHITECTURAL PUBLICATION SOCIETY.—The annual general meeting of this society will be held on 10th May, to receive the report of the committee on the general affairs of the society, when a proposal will be made to the members respecting the Cyclopædia. It is to be hoped there will be a good attendance.

* On this occasion pipe-drains, and the system of back drainage, were objected to. The form and internal smoothness of a drain were said to be of no consequence; and Mr. Hawksley denied the correctness of the experiments on the flow of water through pipes, published by the Board of Health.

DOMESTIC BUILDINGS IN FRANCE AND BELGIUM.



Fig. 1.—PALACE OF THE DUKES OF LORRAINE: NANCY.



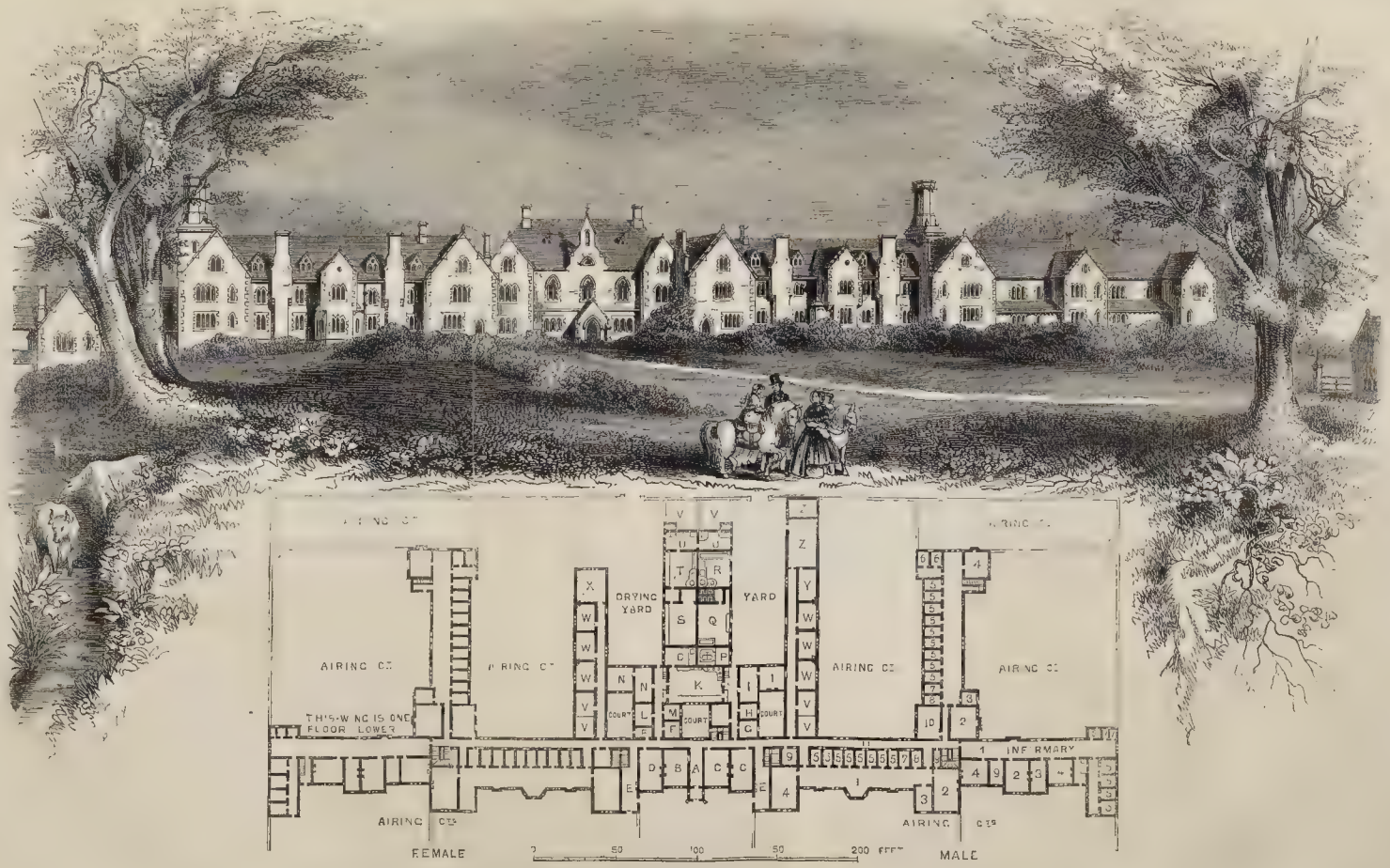
Fig. 3.—HOTEL DE VILLE, BRUSSELS.



Fig. 4.—HOTEL DE VILLE, LOUVAIN.



Fig. 2.—HOTEL DE CLUNY, PARIS.



LUNATIC ASYLUM, ABERGAVENNY.—Messrs. Fulljames and Waller, Architects.

LUNATIC ASYLUM FOR THE COUNTIES OF MONMOUTH HEREFORD, BRECKNOCK, AND RADNOR.

ANNEXED are a view and plan of the Abergavenny Lunatic Asylum, erected from the designs of Messrs. Fulljames and Waller, architects. With the exception of a few internal fittings and the erection of the lodge, this building is now completed, and partly occupied by patients. The plan is linear with receding wings, a form said to be peculiarly adapted to the nature of the ground and aspect. The general arrangement of the first floor of the wards is similar to that in the ground floor: over the entrance-hall, committee-room, and superintendent's sitting-room, is a large chapel, with chaplain's-room attached; the rest of this floor is used for bed-rooms for the superintendent and matron, and for the officers and servants of the Institution. There is accommodation for 250 patients, 125 of each sex. The offices are built large enough for any future extensions of the building. The Asylum is situated in a large tract of land, which is being ornamentally laid out and cultivated for the use of the Institution. Our artist has taken a little liberty with the foreground. The estimated cost of the building alone was 25,000*l.* which amount, we understand, will be exceeded.

The references will explain the plan.

GENERAL REFERENCES.

A Entrance-hall.
B Committee-room.
C Superintendent's Sitting-room.
D Matron's.
E Visiting-room.
F Stores.
G Surgery.
H Clerks'-room.
I Steward's-rooms.
K Kitchen.
L Servants'-hall.
M Pantry.
N Dairy and Larder.
O Scullery.
P Boiler and Engine-house.
Q Bake-house.
R Brew-house.
S Laundry.
T Wash-house.
U Wash-house for foul Linen.
V Coals and Wood.
W Work-rooms.
X Sorting-room.
Y Carpenters' Shop.
Z Gas-works and Smithy.

WARDS.

1 Corridor.
2 Day-room.
3 Attendants'-room.
4 Associated Sleeping-room.
5 Single.
6 Padded-room.
7 Lavatory and Water-closet.
8 Baths.
9 Stores and Sculleries.
10 Sweetening-rooms.
11 Low Passage of Communication.

NOTES IN THE PROVINCES.

Saltaire.—Tenders have been received for first and second contracts for woodwork required in the erection of mill, warehouse, and weaving sheds, &c. at Saltaire, for Mr. Titus Salt.

	Carpenters' work. £ s. d.		Sashes. £. s. d.
Neil (accepted)	5,989 0 0 ..		1,690 0 0
Pickard and Ogden ..	6,177 0 0 ..		1,725 0 0
Hill	6,270 0 0 ..		1,497 9 0
Ives	6,728 17 8½ ..		1,695 19 9½
Beaulands....	6,840 0 0	(accepted)	1,394 0 0

The mill is to be fireproof, 540 feet long by 56 feet wide, and six stories high. The warehouse 300 feet long and seven stories high; and the weaving sheds to cover 10,000 superficial yards. The chief part of the work to be fireproof. This establishment, when complete, will be one of the largest in England. In addition to the mill, warehouse, and works, it is contemplated to erect this year accommodation for the work-people, in the shape of six or seven hundred cottages, a chapel, market-place, baths and washhouse, lecture-room, &c. with houses of a superior class for the overlookers and managers,—all thoroughly drained and ventilated. The road down to the works includes three bridges, and one over the Leeds and Bradford railway; another over the canal, with viaduct therefrom to the one over the River Aire, making a continuous length of tubular girder bridge of 420 feet. Messrs. Lockwood and Mawson are the architects.

Birmingham.—Aston Park.—The value of this hitherto rural property appears to be developing itself. At a sale during the last week, nearly five acres were offered in twenty-eight suitable lots, and realized about 7,000*l.* The prices per square yard for the general lots ranged, a correspondent states, at 5s., 5s. 3d., 5s. 6d., 5s. 9d., 6s. 3d., 6s. 6d., 7s., 7s. 1d., 7s. 8d., and 8s. 6d. while for two corner lots 9s. 9d. and 12s. 3d. per square yard respectively were paid.

Dover.—At a recent sale of property in seventeen lots, which realized 2,784*l.* odd, lot one consisting of 14 feet frontage, with buildings on it, says the local *Chronicle*, not worth the cost of pulling down, realised nearly 29*l.* per foot frontage. Amongst the lots were various leasehold and freehold tenements, realising sums varying from 100*l.* to 460*l.*; but unfortunately our local authority, the *Chronicle*, does not provide us with any thing like tangible details. A Dover pavement bond for 100*l.* bearing interest at 4 per cent. per annum, brought 101*l.* and the shares in the Dover Gas Light Company, and the Waterworks connected therewith, fetched 71*l.* 10s. and 72*l.* each.

Willenhall.—A company has been started, with a required capital of 4,000*l.* more than a moiety of which has already been subscribed, for the purpose of furnishing a cheap and ample supply of water to this place.

Devonport.—The tenders for contracts to construct the new market here were as follows:—Mr. Clift, 17,914*l.* 7s. 7d.; May and Greenwood, 18,528*l.* 12s. 11d.; Roberts and Co. 18,574*l.*; Hoskyn and Co. 19,987*l.* 15s. 11d.; Thomas Perkins, 20,983*l.* 2s. The lowest tender (Mr. Clift's) was accepted, and the necessary arrangements for carrying out the plans will be proceeded with as soon as possible.

Risca.—The ancient church of this secluded parish, says the *Cardiff Guardian*, having fallen into decay, it has been determined to rebuild it, and the old edifice having been removed, the foundation-stone of a new one was laid on Thursday week by Lady Morgan, of Tredegar Park. The new church is to be in the Early Decorated style of thirteenth century, and will, when completed, consist of a nave, chancel, two aisles, and a tower at the south-east corner. Its length, from east to west, will be 80 feet, and its extreme width, 50 feet. The height of the walls to the plate inside will be 22 feet, and to the ridge, 45 feet. The spire will form a prominent object in the landscape, as it is to be 96 feet high. Accommodation will be provided for 450 persons, half the sittings free. The former church could only seat 110 persons. The estimated cost is 1,800*l.* of which 800*l.* have been voluntarily contributed. In making the excavations for the foundation, it seems, the workmen came to some remarkable Roman concrete, and to a brick which bore marks showing it had been made in the reign of Augustus Cæsar. A skeleton was also found with the remains of a rosary attached to the neck-bones.

St. Dogmell's.—On Thursday in week before last, according to the *Cambrian*, the new church at St. Dogmell's, county of Pembroke, was reopened. It adjoins the ruins of the ancient abbey of St. Dogmell's. Mr. Ashpitel furnished the design of the edifice, which consists of a nave of five bays, with a couplet of lancets at the west end, with jaumb-shafts and hood mouldings. On the north side is a small vestry. The several dimensions are,—nave, 77 feet by 26 feet 6 inches; chancel, 34 feet 6 inches by 18 feet. The western gable is surmounted by an ornamental bell-turret. The east window is filled with glass, of a design by Mr. Bell, of Bristol. The pulpit is of stone, and the reading-desk of wood. The seats are of simple design, and are all open. The building was contracted for and executed by Messrs. John Davies and John Thomas, of Llechryd, near Cardigan. About 50*l.* of the cost still remain unprovided for.

Meifod.—At Port Robert, parish of Meiford, Montgomeryshire, says the *Shrewsbury Chronicle*, the first stone of a church was laid on Friday week, by the Countess of Powis. The architect is Mr. R. K. Penson, of Oswestry. This is the first of three churches, with schools, to be erected in this district; a second being to be built at Pont Dolanog, and a third at Pont Llogell.

Carnarvon.—The Government have agreed to give 6,000*l.* for the purpose of blasting the Swelly-rocks, so as to improve the harbour. On the announcement being made, a good deal of powder that might have made the nucleus of a local supply, and have gone a good way in blasting, independent of the Government, was wasted in "a continuous discharge of artillery kept up from Porth-y-Aur."

Wenlock.—The foundation stone of a corn market and reading-room was laid here on Wednesday week, by Miss Wayne, in honour of the nuptials of Sir Watkin Williams Wynn, M.P. who gave the site. The style of the building will be that of James I. and it will occupy an area of 70 feet by 44 feet. The ground floor will form the corn-exchange, which will be opened in front by four stone arches, protected by iron railing. At the back will be a large stone staircase, the Librarian's residence, and the corn-exchange quadrangle; and the arches at the back will be glazed, with folding doors opening on the quadrangle. The exchange will be 15 feet high. On the first floor will be a reading-room, 42 feet 6 inches by 24 feet, and 14 feet high, and a small room for geological and other specimens. Mr. S. Pountney Smith, of Shrewsbury, is the architect.

Bilston.—The local gas works and mains are to be enlarged at a cost of about 3,000*l.* so as to enable the company to manufacture and distribute twenty million cubic feet of gas per annum. In proposing the measure, the manager said that "the enlargement of the works would ensure a remunerating profit, as well as benefit the consumers, by giving them a purer gas, which would lead to its more general introduction into private houses;" and one of the shareholders remarked that "the proposed improvements might possibly diminish their dividend for the next year or two, but he was satisfied that ultimately the increased outlay would pay them very handsomely, and he did not think they should be at all justified in resisting the outlay merely for the sake of maintaining a *dividend of eight per cent. (which was a most unreasonable rate of interest in these days*, even with Californian gold)."

Liverpool.—The application of the Baths' Committee for 5,000 square yards of land at the end of the north docks, for erecting apparatus to pump salt water, has been refused by the dock committee.—*Liverpool Times.*

Otley.—A stained glass window has been put into the east portion of the chancel of the parish church at a cost of 150*l.* In the centre is a figure of our Saviour, having on his right Matthew and Mark, and on the left the other two evangelists.

Doncaster.—It is intended to fill another window in the parish church with stained glass, in this case to the memory of Mr. T. S. Foreman.——A small hospital, to be called St. James's Hospital, is about to be erected by Dr. Dunn, at his own cost, on a site presented by Mr. F. W. Fisher, at the junction of Clevelandstreet and St. Sepulchre-gate, in this town. The plans have been prepared by Mr. Haughton, architect. On the ground floor it is proposed to have a casualty ward for four beds, rooms for the surgeon and matron, kitchens, &c. On the second floor there will be a fever ward also for four beds, together with sleeping apartments for the surgeon, matron, and servant, and a bath-room.

Hull.—The plans for the new synagogue in this town, sent in by Mr. W. D. Keyworth, architect, having been approved, the building committee, after consideration of the numerous contracts sent in, decided to select separate tenders for the different works. The building will be plain, with a gallery at the west end. The style of the interior will be Grecian, and the fittings of oak. From peculiarity of site, the synagogue will have an

extensive lantern glazed with large sheets of ground plate glass. It is intended, also, to have a large school-room attached.

Grantham.—The mayor has been exerting himself to induce the two rival Corn Exchange committees to amalgamate, but without success. The promoters of the proposed building in the Market-place were willing, but the other committee declined, alleging that all their shares were taken, and their project progressing favourably. They have entered on the site in Elmer-street, and sold by auction some of the old building materials purchased with the ground. The market-place committee have resolved to forward their scheme, and have appointed ten directors. A drawing of the intended building has been exhibited. It is said to be "a fine and imposing edifice."

Eamont-bridge.—Lord Brougham has commenced collecting materials for the purpose of building "a splendid gymnasium" in a suitable field at the village of Eamont-bridge, in Westmoreland, a great part of which will be of glass, after the fashion of the "Crystal Palace." It is not known whether his lordship will throw the gymnasium open to the public, or whether it is intended exclusively for his own family and visitors when at Brougham Hall.

Newcastle and Gateshead.—It is the intention of the Union Gas Company to reduce the price of gas from 4s. 6d. to 4s. per 1,000 cubic feet, to commence from the 1st of August next. We hope to be enabled, ere long, to announce further reductions, by which the probability of competition will be materially diminished.—*Gateshead Observer.*

Stairkaven. — We understand, says the *Galloway Advertiser*, that the Earl of Stair has contracted for an addition to this useful harbour in the bay of Luce, at an expense of about 1,000*l.* The effect of this harbour has already been much felt in reducing the price of lime, slates, coals, &c. at Glenluce, and elsewhere in that neighbourhood.

ARCHITECTURE IN CHINA.

Do not imagine, fastidious reader, that I am about to inflict upon you a profound essay on the architecture of that ancient people whose monarchs have claimed such intimate relationship to the heavenly bodies, nor even to suggest so much as the modern application of the spire and lattice-work so much in favour in the celestial empire. Vitruvius forbid. The days are past of such monstrosities: we are grown wiser now. Grecian art and Antipodean extravagance are alike discarded, and have given place to confusion. No, it is not of that I wish to speak, but merely to make an observation on a custom in China. The remarkable uniformity of all edifices in that region has been observed by every traveller: go where you will, the convex roof, trellis work, and octagonal door eternally presents itself, with scarcely any variation. The natives have been accused of servile copyism and lack of invention, but it has been found that this monotony is not to be attributed to the disciples of Fo-Hi (who would probably make as good architects as the English at least), but to the restrictions of certain laws or Building Acts which define the class and style of house for every grade with studied exactness. These laws are strictly enforced by officers who, as Mr. Bury observes, "may be properly designated district surveyors," only that their powers are more extended than those who hold that office in our land, and their injunctions are more difficult of evasion. The restrictions of our Building Act, and the decision of the official referees may, by a little dexterous manœuvring, be set at defiance; but it is not so with the barbarians. Now, I conceive that this institution is worthy of imitation in our enlightened nation, and would be productive of much benefit to architecture, at least one branch of it. Were this Chinese functionary in existence here, we might hope to see taste less outraged than it is at present in villa residences and similar absurdities that disfigure our suburbs. A man's purse would not then allow him to transgress all rule and precedent, pile Pelion on Ossa, or the Parthenon on the Elizabethan style, or *improve* ancient edifices, and convert them to his own purpose, and produce architectural abortions half Bucephalus, half Rosinante. When fashion in days of yore was even more blindly followed than she is now, and all sorts of excesses were perpetrated by her infatuated disciples, Government, warned by the past, and foreseeing the evils that must ensue, wisely checked the extravagant passion in dress by restricting the length of the boot-toe, and enjoining that no man under a knight should wear a tunic that did not cover his hips, and similar wholesome enactments, which were enforced by heavy penalties. Now, though I will not go so far as to desire the adoption of such arbitrary measures, I think that some similar regulations would be serviceable to check the errors of ignorance and caprice in building now-a-days. Why should an individual be permitted to mar our public ways, and shock the sensibilities of every man of taste as it is done wherever you turn? If a person has a passion for hideous structures, the world is wide, let him go to Australia, Tartary, the mountains of the moon—but let him not remain in Britain to spread his noxious distemper, and make us the jest and laughing-stock of our neighbours.

PALLADIO SECUNDUS.

IRISH ARCHITECTURAL AND ARTISTIC DOINGS.

THE Munster Exhibition is to open on the 10th of June, and will be inspected by the Lord Lieutenant, who has become the patron. A sum of 15,000*l.* has been contributed, and the alterations and additions which are being made to the Corn Exchange are progressing, and will shortly be complete. This building, which the trustees have placed at the disposal of the managing committee (with the grounds attached) inclose an area of five acres. The northern hall is 85 feet by 86 feet, leading to a gallery 320 feet long by 30 feet wide, lighted from above.

The Lords of the Treasury have agreed to ask Parliament for a grant of 26,000*l.* for the erection of a new custom-house at Belfast.

A new convent is to be erected for the Sisters of Mercy at Ballinrobe.

Extensive municipal improvements are intended by the present corporation of Dublin. Carlisle-bridge is to be widened, the pathways of Sackville-street are to be increased to 25 feet in width (like the Boulevards of Paris), a new line of street is to be opened from the terminus of the Midland Great Western Railway, the King's inns, and Town-hall barracks, to Richmond-bridge and the Four Courts. The grand jury have taken up the subject warmly, and this latter change is most desirable, as the approaches to the Galway terminus are not by any means adequate to the traffic of the line, which is likely to become one of the most important in the kingdom.

The Roman Catholic church of Adare, county of Limerick, is being improved and enlarged at an outlay of about 1,000*l.* to which expenditure the Earl of Dunraven was the principal contributor. The new portions are in the Early English style: the venerable looking tower of the old church still stands. The site is in the vicinity of the Earl of Dunraven's demesne, which contains many interesting and extensive ruins. Alterations and additions have been made to the castle.

The Waterford and Limerick line has been opened as far as Clonmel. A special engine, guided by Mr. Hemans, engineer-in-chief, and decorated with flags, brought a first-class carriage, containing some of the directors, and traversed the line. Mr. Dargan is the contractor.

The foundation-stone of a new Roman Catholic church has been laid at Ballinasloe, the drawings being furnished by Mr. J. J. McCarthy, architect.

The Dublin and Belfast Junction line is expected to be opened on the 10th of May (with exception of the Boyne Viaduct). A trial trip has taken place with satisfactory result.

The Irish Ballast Board have declared Messrs. Crowe, of Dublin, contractors for the erection of two new lighthouses on the Islands of Arran, one on the north and the other on Brannick Island. The lantern of the former will be 100 feet, and that of the latter 88 feet above the rock. The cost of construction will be about 10,000*l.* and they will occupy about two years in building. The plans have been furnished by Mr. George Halpin, C.E. and have received the sanction of the Trinity Board in London.

EXTENSION OF THE BUILDERS' BENEVOLENT INSTITUTION.

WITH a view of extending the operations of this Institution, a meeting was arranged by Mr. Joseph Bird with the principal builders of Brighton, invited by him to dine with a deputation of the committee from London, who volunteered their co-operation on the occasion, and this took place at the New Ship Hotel on the 21st ult.

The chairman, Mr. Higgs, entered into a detail of the objects for which the institution was formed, from its origin in 1847 to the present time, and concluded by suggesting that a committee should be formed by the builders of Brighton.

Mr. G. Cheeseman, jun. stated that he conceived the builders of Brighton to be honoured by the invitation, and gave his cordial adhesion to the rules and regulations of the society, believing the institution was founded for the benefit of the needy and unfortunate. The high constable, Mr. Beedham also addressed the meeting, assuring them of his hearty co-operation with the object they had in view; that he had always taken an interest in the welfare of the institution, and would use all his best energies to further its prosperity. After various addresses, the business was concluded by appointing Mr. George Maynard, hon. sec. for the Brighton committee.

RECOVERY OF SURVEYORS' FEES.

In the Whitechapel County Court recently, an action was brought by Mr. John Barnett, surveyor, to recover 32*l.* 5s. of Mr. J. H. Dew, builder. It appeared that Messrs. Sewell and Fox, solicitors to the trustees of an estate, called Cookson's estate, let on building leases various portions of the estate, and appointed the plaintiff as surveyor to that portion leased to the defendant. There were seventy-two houses on this portion of the estate, for which plaintiff was to receive 1*l.* 10s. for his services as surveyor, upon each house, as soon as it was covered in. Mr. Barnett had at various times been so paid.

Mr. Barnett said he was engaged by Messrs. Fox and Sewell, and afterwards by Mr. Dew and his partner, Mr. Blencairn. (Here a draft of an agreement was objected to on account of its being unstamped.) This was in 1848; and as the works progressed, it became necessary to raise funds to complete the houses. The defendants applied to him to make a report for that purpose, which he did, and upon that report they raised a considerable sum. For this he charged five guineas. He had received money for his services from Messrs. Dew and Blencairn, and afterwards from the defendant alone. Always considered the lessee and not the lessor had to pay the surveyor, although the lessor nominated the surveyor.

Cross-examined by Mr. Birnie.—Never received a letter of which this is, as you say, the copy. Has no such letter, dated 12th March, 1850, stating my services were no longer required. Had heard Mr. Chorner, the trustee, had sold the estate. Saw it advertised for sale in February, 1850. Remembers selling a piece of ground to the Metropolitan Building Society, and the society threatening law proceedings for the sale against the defendant. He settled the dispute to prevent a law-suit. Was never warned off the ground or requested to go off. Mr. George Dew said his brother was impressed with the idea that he, witness, had been overpaid. There were five streets. Did not claim the fees until the houses were covered in.

Mr. W. Blencairn, builder, said, in conjunction with Mr. Dew, he built forty-nine houses on Cookson's estate. Always understood Mr. Barnett was their surveyor, and in Mr. Dew's presence it was arranged the plaintiff should have 30s. per house. Gave plaintiff instructions to make a report, and something under 3,000*l.* was advanced by Messrs. Sewell and Fox upon that report.

By Mr. Birnie.—Mr. Chorner, the trustee, first sent him to plaintiff. Do not know if we had power to discharge plaintiff. The district surveyor is not sufficient for a builder: he is more a builder's

enemy than any assistance. It is the custom for lessees and not lessors to pay surveyors.

Mr. Birnie submitted that defendant did not engage the plaintiff, and if he had, he had paid him more than was due, for he was dismissed for negligence. He called Mr. J. H. Dew, who said Mr. Chorner, the trustee to the estate, requested him to call upon Mr. Barnett to ask him about the plans. Did so, but never made any agreement with him. If any agreement were made, it must have been as Mr. Chorner's agent, not on his, defendant's, account. Plaintiff's duties were defined by Mr. Chorner, and he, defendant, was to be guided by the surveyor. Would much rather be without a surveyor, for they are in a builder's way. We have a district surveyor, and have to pay him. In 1850, by instructions from Mr. Chorner, I dismissed the plaintiff. It was by letter. The letter stated that Mr. Barnett's services were no longer required. My brother posted the letter. Is prepared to prove that the plaintiff did not survey any of the houses after that letter. Mr. Barnett afterwards called and asked for payment, when he, witness, referred him to Mr. Chorner. Up to this notice there were only thirty-seven houses actually built.

Cross-examined.—Paid plaintiff for the houses for Chorner, the lessor or trustee. Paid with own money.

Mr. Chorner.—I am trustee of Cookson's estate, but have sold the greater portion of it. I recommended the plaintiff as surveyor, to see that the houses were properly built. I saw him before I saw Mr. Dew, and told him I wanted to let the land for building purposes. I do not consider I engaged the plaintiff. I unfortunately advanced several thousand pounds to the builders; and upon going over the estate was very much dissatisfied at the slow progress made, and with the way the houses were built. I spoke to Mr. Dew, who informed me that the plaintiff was very negligent. That he seldom came to see the works. I said, if he is neglecting his duty I will dismiss him; and I directed the defendant to apprise Mr. Barnett that his services were no longer required.

Cross-examined. — Is managing clerk to defendant's solicitors. Knows a Mr. Smith, to his sorrow. Considered Mr. Barnett appointed for the benefit of the freeholders. Is unfortunately a judge of building, and considers the houses run up in a slovenly manner. Old stuff was put in.

Plaintiff's solicitor here asked the witness, if the advertisement for the sale of the estate did not describe the houses as well and soundly built.

The Judge.—Oh! that is an every-day occurrence: it is done to gull the public.

John Buck was called to prove that he contracted for the brickwork, and seldom if ever saw the surveyor.

The plaintiff, on being recalled, said either he or his clerk went over the estate every week twice. He had once or twice stopped the work; but on the whole the houses were fairly built.

The Judge said it was clear the lessee, and not the lessor was liable to pay the surveyor, and that the lessor had the power to appoint the surveyor; for if the lessee appointed him, the object of having a surveyor would be stultified. The plaintiff had not, however, clearly made out the number of houses he surveyed previous to the sending of the note, and he should therefore deduct 10*l.* from the amount claimed.—Verdict 22*l.* 5s. and costs.

THE MASONS' PROVIDENT INSTITUTION.

THE supporters of the Masons' Provident Institution are organising a public dinner, with the view of making their operations more widely known than they are at present, and of enlisting public sympathy. The masons say truly in their address,—

"When we consider (in many instances) the dangerous nature of our employment, the vicissitudes to which many are subject, and the constant exposure to the inclemencies of the weather, frequently producing infirmities in earlier years, tending to bring on premature old age, it makes more apparent the necessity of establishing a 'Masons' Provident Institution.' With this view, the promoters felt it a bounden duty to embrace the opportunity of carrying such a noble project into effect, and although it has taken a lapse of time to bring their plans into operation, they trust such progression has been made which must insure its ultimate success, if fostered and encouraged by their fellow-workmen, for whom this Institution is more immediately intended."

From employers they have received many handsome donations, but if the workmen themselves came forward as they should, and made the small provident investment required, they would need no extraneous help, and would render themselves independent of accidents and infirmities. The Society does not interfere with trade arrangements, and wisely seeks to improve the good understanding between masters and men. Mr. Tite, F.R.S. is the president; Mr. W. Freeman, the treasurer. Many of our readers, by the way, will be glad to hear that the former gentleman, after an illness that left little hope to his friends, is now, in the softer air of Italy, fast returning to health.

Although we still look for the establishment of a large and comprehensive Provident Society, embracing all concerned in architecture and building, we offer in the meanwhile our best wishes for the "Masons' Provident Institution," and hope all who feel interested in the prosperity of the workmen will lend their aid on the approaching occasion.

Notices of Books.

The Acts for Promoting the Public Health, 1848 to 1851; to which is added, the Practice of the General and Local Boards of Health, with copious Notes and Tables. By CUTHBERT W. JOHNSON, Esq. Barrister-at-Law, Chairman of the Croydon Local Board of Health. Charles Knight, Fleet-street. 1852.

THIS little volume constitutes a useful compendium of sanitary regulations, and it ought to be in the hands of all members of local boards of health, town councils, and all others interested in such matters. It contains, besides the Acts and practice noticed in the title, various information in appendices as to mortgages, water-rates, highway-rates, value and uses of sewage and drainage water, &c. The Public Health Act, we observe, has now been applied to 134 districts or towns. With regard to the cost of applying the Act, and the control of the Central Board when so applied, very erroneous notions appear to prevail, and to aid in obviating these, and in promoting the extension of so useful an Act throughout the country, we will here quote from Mr. Johnson's remarks on these points:—

"With regard to the *cost* of applying the Public Health Act. The *average* expense by *Order in Council* has not been found to exceed 83*l.* By Provisional Order, which requires to be afterwards confirmed by the annual confirming Act of Parliament, the average cost has not exceeded 121*l.* Let my readers contrast this expense with that of an ordinary Act for the improvement of a town, the average taxed costs of which (in the House of Commons only), in 1849 and 1850, amounted to 2,042*l.* 6s. 2½d.; the *least* expensive (Brighton) being 1,307*l.* and the most costly (Bilston) 3,463*l.*

An opinion is sometimes entertained, that when the Act is applied to a district, thenceforward that district becomes completely under the the direction and control of the General Board of Health at Whitehall. It is of great importance that it should be well understood that this is a baseless conclusion. It will be found in practice that the Act must be applied for under sec. 8, in a petition signed by at least one tenth of the inhabitants. On this petition being received by the General Board, an inspector is appointed; and if, after a careful survey and publicly hearing evidence, his report is favourable, an Order in Council or a Provisional Order is issued, under which (provided the Provisional Order is confirmed by Parliament) authority is given, under sec. 12 of this Act, for the ratepayers to elect a Local Board of Health from amongst themselves.

Now, when the Local Board is thus formed, to that board almost all power and authority are committed. Its members may see fit to carry out vigorously and conscientiously the public objects of this Act: they may raise by rates, or by mortgage of these rates, sufficient money to satisfy the sanitary demands of the electors, or they may be a timid or a too parsimonious board: they may meet, debate, but do nothing that involves an outlay of any money on permanent improvements. In such a case there is no remedy but for the ratepayers to elect more useful members of their board. . . . All the controlling powers are introduced to guard against errors or abuses: they are all, moreover, powerless as regards *commencing* any operation: they are only available against corrupt or erroneous practices and misreadings of the Act.

It will be seen, then, that the Act, so far from enforcing a system of centralisation, as it is sometimes urged, merely ensures a full, uniform, and efficient system of sanitary improvement by a willing local board; and that, in practice, the invaluable office of the General Board is to collect information, to condense and test the value of the practical knowledge it acquires, to diffuse that knowledge amongst, and to counsel and aid, local boards in their sometimes rather difficult labours. A considerable experience as chairman of one of the first and most efficient local boards elected under the Act, warrants me in the assurance that we have on many important occasions felt the value and advantage of having the power to refer for counsel and support to the General Board of Health."

Miscellanea.

THE SHOP SUN-BLIND NUISANCE.—As will be seen by reference to the very useful "Guide to the Proper Regulation of Buildings," by Mr. Hosking, pp. 13, 14, the London Commissioners of Pavements are *authorized*, but unfortunately not *required*, by the statute (57 Geo. 3, c. 29), commonly called Michaelangelo Taylor's Act, to regulate or remove all such things as are "inconvenient or incommodious to any passengers along the carriage or foot ways of any of the streets," &c. It so happens, however, that many of these commissioners of pavements are the very men who commit the nuisance in question: *hinc illæ lachrymæ*. Thirty years' continuance of it in the face of such authorizement shows pretty clearly that however excellently well commissioners of pavements may be able to carry out the principle of *self*-government, they require some *central* stimulus to move them where their own self-interest or convenience induces them *not* to move. As remarked by Mr. Hosking, they are sharp in vision where poor hucksters stop the public way, while interfering with their shopkeeping interests. Something really must be done to get rid of the abominable nuisance of shop sun-blinds. This is a nuisance which prevails in towns throughout the whole country. The Act, however, which we lately quoted, namely, 10 & 11 Vict. c. 89, applies to such towns, &c. as have or shall have an Act incorporating this one, and in it, therefore, some towns have, or may have, their remedy; but it appears that Michaelangelo Taylor's Act is that on which London in the meantime can alone rely,—an Act which in this respect has for thirty years remained a dead letter. It is for the London public to say, then, whether they will "require" their pavement commissioners to do what that Act only "authorises" them to do,—namely to insist on the abatement of the shop sun-blind nuisance.

ECONOMICAL INCREASE OF POWER AND SPEED.—On Saturday week an exhibition of a mechanical application to hydraulic and steam-engines invented by Mr. J. Nye, for the purpose of increasing power in machinery without increasing the power of the prime mover, took place at Mill-pond Wharf, Surrey Canal, in the presence of several eminent engineers who were specially invited. We had also an invitation, but could not attend. We learn, however, that Mr. Braidwood and staff, with a picked engine from the West of England Fire-office, attended to test the invention as applied to pumps, with the following results:—Twenty-five men at the West of England engine, throwing respectively 1¼ inch and 1¼ inch columns of water, are said to have been beaten by eighteen men at Nye's patent engine. The invention was also shown as applied to a steam-engine of six horses' power, and with a piston working a 6-inch stroke, which is said to have produced a 15-inch throw of the crank in the same time and with less power than would be required to produce a 3-inch throw of the crank upon the old principle. The invention applied to a pile-driving engine, is said to be capable of yielding seven blows of the monkey struck with the same power and in the same time that the machines hitherto constructed perform one blow.

ST. GEORGE'S, HANOVER-SQUARE.—COMPETITION.—The first premium for plans for the St. George's, Hanover-square, Workhouse, is awarded to Messrs. Wehnert and Ashdown, and the second premium to Mr. Blore.

PROTEST AGAINST SUBJECTS OF PAINTED WINDOWS IN ST. LUKE'S CHURCH, ST. HELIER'S.—The *Jersey Times* of 30th ult. has a supplement, containing a memorial, signed "Philip de Carteret," on behalf of himself and other subscribers to the St. Luke's building fund, and addressed to the bishop of the diocese, protesting against the designs, representations, and inscriptions on the painted windows recently put up over the communion-table and on the south side of the chancel of the church. One of the windows over the communion-table contains a representation of "The Virgin Mary and our Saviour;" a full length figure of St. Luke; "Christ in the Manger." Another contains a representation of the "Ascension of our Saviour," a full length figure of "Christ, Salvator Mundi," and "Christ on the Cross." Another has the representation of St. James, and "The Agony of our Saviour in the Garden." A window on the south side of the chancel has some smaller figures, with the following inscription at the bottom, all in continuation:—"In honour of God, in memory of James Hemery, Jane Hemery, and Jane Dupré." The protesters consider all such representations, and particularly those of the second and third persons of the Trinity, objectionable, and contrary to the Act of the 3 & 4 Edward 6, "for abolishand putting away divers books and images," which Act, though repealed in the reign of Queen Mary, was revived by an Act of the 1st James 1. They acknowledge that these windows were not paid for out of the building fund. The church is about to be consecrated. In the supplement the protest is followed by "Extracts from the Homily 'against peril of idolatry and superfluous decking of churches.'"

THE PORTLAND BREAKWATER.—This great work still progresses. Upwards of 60 tiers of piles, according to the *Sherborne Journal*, are now erected, each being 30 feet apart. The timbers, after pickling till black in a tank, are fitted at the lower end with a large iron screw, weighing 60 pounds, and each pile being now ready for use is towed off by a boat, the bottom being secured so as not to sink until it gets to the required spot. When arrived there it is let go, the bottom part, of course, sinks, and the pile stands perpendicularly in its appointed place. It is then screwed into the ground from the top by the workmen. A large chimney has just been completed, which communicates with the blacksmiths' shops, where the screws and other iron works are made. The present contractor, Mr. Leacher, has 1,000 feet to construct. Great advantage is already derived by the shipping which put into the reads from the part already constructed.

ON HEATING ENGINE-BOILERS BY GAS.—A paper was read on Thursday week by Mr. J. H. Charnock, of Wakefield, before the society for promoting public improvements in the borough of Leeds, in which he advocated the use of gas as fuel, in mitigation of the smoke nuisance, at same time suggesting means of cheapening the manufacture of the gas, and pointing to the prospect of great improvements in this branch of science, and the desirableness of substituting pure hydrogen, the result of burning which would obviate all mischief either from smoke or from choke damp, nothing but mere aqueous vapour being yielded by its combustion. We may at another time enter further into the subject of the paper before us.

PRIZE ESSAY IN CONNECTION WITH THE GREAT EXHIBITION.—Mr. B. Oliveira has offered a premium of fifty guineas for an essay on Portugal, in connection with the objects of the Great Exhibition, embracing amongst other points, the capabilities of Portugal for consuming the manufactures of Great Britain; the effect of the present high duties on the wines of Portugal imported into Great Britain; the effect of railroads in the kingdom of Portugal as means of developing the resources of the country, &c. Mr. Oliveira proposes to give the premium in cash, or in a gold medal of equal value, at the option of the successful competitor.

SHIFTING BRICK HOUSES.—A block, three stories high, has been safely removed 10 feet 6 inches backwards, at the instance of the commissioners for widening the streets of an American town. As possibly the plan might be of use in some of the towns of old England, where the old and narrow thoroughfares are choked by the traffic of our free-trade age, we subjoin the *modus operandi*. Concave cast-iron plates are prepared, the foundation of the wall cut away, and two plates facing each other inserted, with cannon balls between them. On these plates and balls, placed under all the walls, the whole building rests. Three screws are applied, and the whole building is rolled upon them any distance. These plates and balls are removed one by one, and the bricks replaced. It is estimated that the block weighed 7,000 tons. It was rolled on one hundred and twenty balls, and was removed, after the plates were set, in about two hours' time.—*Boston paper.*

RUMOURED RESTORATION OF THE RUINS OF JERUSALEM.—A very grand scheme is said to have been proposed by (*mirabile dictu!*) the Grand Turk himself for the restoration of Jerusalem to the Jews, the rebuilding of Solomon's Temple, and the conversion of "Jerusalem that now is" into "the new Jerusalem." According to the *Suisse* of Berne, of April 13, "A correspondent writes from Constantinople, on April 1, that the Divan has hit upon a very original plan for settling the question of the holy places. The four pashalics of Syria are to be granted to M. Rothschild for the sum of 20,000,000*l.* to be paid into the treasury of the Sultan; and, upon the sum of 2,000,000*l.* being paid to France, she will renounce her pretensions. Russia and England will each receive 1,000,000*l.* It is not yet settled whether M. Rothschild will take the title of king, emir, or bey. It is certain that he intends to restore the ruins of Jerusalem and Antioch, and to rebuild Solomon's Temple."

A FRESCO BY JULIO ROMANO FOR THE NATIONAL GALLERY.—A package is on its way hither by the steamer *Genova*, from Leghorn, containing a fresco by Julio Romano, sent by Lord Overstone, who is in Italy, for the National Gallery.

CITY OF LONDON FREEMEN'S ORPHAN SCHOOL.—The first stone of the proposed school-house at Brixton, for freemen's orphans, was laid by the Lord Mayor on the 27th ult. The site of the new school is in Shepherd's-lane, and close to the London Almshouses, which were originally founded with the money collected for illuminating the City on the occasion of the passing of the Reform Bill. The building, which has been designed by Mr. Bunning, the City architect, will consist of a school for 100 boys and girls, and it is to be so constructed that it can be made to suit the requirements of 200 children, if means hereafter should be found to educate and support that number. We noticed the design some time since, and the architect's intention as to sculpture. The Messrs. Piper are the builders; the amount of the contract is said to be 13,000*l.*

INAUGURATION OF THE RUTLAND STATUE AT LEICESTER.—This statue was inaugurated in the Market-place of Leicester, on 28th ult. Our opinion of it has already been given.

PROVISION FOR AFTER-LIFE.—It appears that six hundred thousand pounds is shortly to be given as bounties to militia-men. Will that not have a demoralising influence on the country? Would it not be more rational that the money should be applied to make a provision for their old age, which would give them a new interest in the state. Let each militiaman convert his bounty into a deferred annuity for the above object. According to returns by the Rev. J. T. Beacher, M.A. to a committee of the House of Commons, 1825, 6*l.* 1s. 4d. paid by a person of the age of twenty, will secure for him 4s. a week for life after he attains the age of sixty-five; 6*l.* 6s. 8d. paid by a person of the age of twenty, will secure for him 8s. a week for life when he attains the age of seventy.—CADOGAN WILLIAMS.

VALUE OF LAND IN THE CITY OF LONDON.—According to a contemporary, three ancient freehold houses in Cornhill were sold at the auction mart for 32,000*l.* equivalent (with reference to site of ground occupied), to 400,000*l.* per acre.

GRANT FOR PUBLIC WORKS AND BUILDINGS.—A Parliamentary paper shows that for 1852-53 the grant required for public works and buildings is 621,231*l.* In the preceding year the sum voted was 508,653*l.* and in 1850 587,504*l.*

THE EXHIBITION BUILDING.—Our readers must have been prepared for the vote in the House of Commons against the retention of the building, and the fact that it must consequently come down. Amongst other plans submitted to us, Mr. C. B. Allen proposes the conversion of the materials into a pyramid based on an area equal to that of the Great Egyptian pyramid. Another correspondent, W. B. would wish "the iron railing which at present surrounds the structure, to remain exactly as it now stands, the enclosed space to be converted into an ornamental shrubbery, with walks *open to the public*; a statue of his Royal Highness Prince Albert to be placed at the east or west end, with such other appropriate ornaments as good taste may suggest." For our own part, we still lean to our former suggestion that the exact *outline* of the area should be planted with trees.

TENDERS

For Hide and Cane Warehouse, St. Katherine's Docks. Mr. G. Aitcheson, Architect:—

Jackson	£6,252 0 0
Grimsdell	6,093 0 0
Ashby and Horner	5,980 0 0
Lee	5,800 0 0
Mansfield	5,690 0 0
Cubitt	5,490 0 0
J. Anson	5,486 0 0
Lawrence	5,440 0 0
Piper	5,237 0 0
Little (accepted)	5,093 0 0

Separate tenders for the ironwork. Messrs. Grissells accepted.

For Vaults in the line of New Cannon-street, for the Corporation of London. Mr. J. B. Bunning, Architect:—

Cubitt	£2,825 0 0
Holland	2,361 0 0
Pritchard	2,345 0 0
Lee	2,280 0 0
Piper	2,100 0 0
Bowcher, jun.	2,100 0 0
Browne	1,847 0 0
Jay	1,673 0 0

For alterations to Baliol College, Oxford. Mr. Salvin, Architect:—

Castle, Oxford	£9,065 10 0
Holland	8,968 0 0
Nowell	8,650 0 0
Lucas, Brothers	8,395 0 0
Wyatt, Oxford	8,250 0 0
Smith	8,162 0 0
Kelk	7,985 0 0

Quantities supplied.

For House and Offices Shernfold-park, near Tunbridge-Wells, for the Hon. Percy Ashburnham. Mr. Lewis Vulliamy, Architect:—

Ford, Rochester	£7,808 0 0
Holland	6,937 0 0
Lucas, Brothers	6,800 0 0
Constable, Penshurst	6,240 0 0

Quantities supplied.

TO CORRESPONDENTS.

"R. R." (declined with thanks), "M. M." (ditto), "P. W." (the term "story" applies to any series of apartments on the same level), "H. W." (H. W. whose walls are so thin that conversation on the other side is heard, will scarcely be able to remedy the inconvenience without thickening the wall. Battening and canvas carefully executed would lessen the sound), "G. M.," "G. J R." "E. A.," "Teddy the Tyler," "G. T. J." (was roof drawn from the example, or from published account?), "H. and B.," "Season Ticket Holder," "A subscriber" (under our mark), "H. R." (ditto), "F. F.," "W. J.," "R. B.," "E. H. M." (shall hear from us), "T. W. P. J.," "R. H.," "R. L. S.," "Monotect," "J. T. D.," "W. P.," "F. R.," "J. A. G.," "W. M.," "Q." (we regret that our views are not always similar), "Tyro" (misunderstood us; "Anti-Humbug," was simply the acknowledgment of another signature. We gave him no reply, because we announce every week that we cannot point out books).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

TO ARCHITECTS & WRITERS ON ARCHITECTURE.

THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publication of Works of the above description.

Office of "The Builder," 1, York-street, Covent Garden.

AN ENGINEER'S ASSISTANT WANTED.—He must have a good practical knowledge of waterworks and of general construction, and must be well practised in estimates, specifications, levelling, and all the usual routine of an engineer's office. Salary, 200l. per annum.—Address, H. A. at the Office of "The Builder," 1, York-street, Covent Garden, with fullest particulars.

WANTED, immediately, a CLERK of WORKS, to superintend the completion of Buildings in South Wales. Address to Messrs. Aickin and Capes, 3, Furnival's-inn.

TO FOREMEN OF CARPENTERS AND JOINERS.

WANTED, by a Builder, in London, a thoroughly experienced active person, in the above capacity, who has previously filled a similar situation. Address (letter), stating age, salary, reference, and where last employed to Z. Mr. Jones's, Stationer, 73, Princes-street, Leicester-square.

WANTED, in a large Building Establishment in the Country, an experienced practical person, as FOREMAN or CLERK of WORKS. He must be acquainted with every branch of the business, industrious, and willing to make himself generally useful, either out of doors or in the office. To be able to take off quantities, and to mea ure up work, is indispensable.—Address (free) Mr. G. M'CANN, Malvern, Worcestershire.

TO BRASS WORKERS AND FITTERS.

WANTED, a clever active Man as WORKING FOREMAN, under a principal foreman. One acquainted with all branches of the brass trade, and possessing a knowledge of general fitting in ironwork; accustomed to the practical superintendence of workmen, and capable of understanding working drawings, with good references to character and ability, may apply to BUNNETT and CO. Engineers, &c. at their works, Deptford, Kent.

TO ARCHITECTS, BUILDERS, &c.

WANTED, a SITUATION, by a Young Man; he has been accustomed to measure work, take out quantities, and prepare specifications, working and finished drawings and perspectives Best of references. Salary moderate Address, A. T. 3 and 4. Sherrard-street, Golden-square.

WANTED, by a person well versed in all the Building Branches, a SITUATION as CLERK of WORKS, or as Clerk in the office, (by trade a carpenter.) Has testimonials, and can be well recommended.—Direct to C. H. C. No. 10, John's-terrace, Avenue-road, Lewisham.

TO IRONMONGERS, BUILDERS, &c. &c.

WANTED by an experienced workman, who is a first-rate Bell-Hanger, Jack and Range Maker, an ENGAGEMENT. Can work both heavy and light work, and is used to General Jobbing. Address, by letter, to A. B. C. the Office of "The Builder." Satisfaction will be given to all concerned.

WANTED, by a person of practical experience, an ENGAGEMENT as Foreman, or to superintend the converting of timber, by sawing, planing, and moulding mills, or directing machinery for preparing joiners, cabinet makers, or railway carriage work; manufacturing and other desirable purposes. Satisfactory references given.—Address, M. W. 9, Baches-terrace, Charles-square, Hoxton.

THE Friends of a respectable Youth (aged 16) wish to place him as an IN-DOOR APPRENTICE to a respectable Carpenter. Builder, &c. A moderate premium will be given.—Address, stating terms, to H. P. Post-office, East Barnet, Herts.

A CLERK of WORKS, who has been engaged for many years on very extensive works, with first-rate testimonials, wishes a RE-ENGAGEMENT.—Address, O. P. Mr. Armitage's, 231, Shoreditch.

TO ARCHITECTS.

A DRAUGHTSMAN, who has had several years' experience in preparing working and finished Drawings, and in getting out and tinting Perspective, &c. in London Offices, is desirous of an ENGAGEMENT. References given if required. Terms moderate.—Address L. M. M. Messrs. Waterlow, 49, Parliament-street, Westminster.

TO CARPENTERS AND BUILDERS.

A YOUNG MAN, who has worked at the business six years, wishes for further IMPROVEMENT at the BENCH in some good shop. Wages, 18s. per week.—Direct to B. R. Office of "The Builder," York-street, Covent-garden.

A YOUNG MAN, who is a good plain draughtsman, can make out working drawings, and acquainted with the practical part of building, and thoroughly conversant with builders' bookkeeping, is desirous of an ENGAGEMENT. Unexceptionable references will be given. No objection to the country.—Address, AMICUS, 31, High-street, Poplar.

TO BUILDERS, &c.

A YOUNG MAN, well acquainted with the duties of a builder's office, accustomed to take out quantities, prepare finished and working drawings, is desirous of an ENGAGEMENT. No objection to fill up time at the bench. Salary moderate. Satisfactory references can be given.—Address, P. P. Post-office, Kingston, Surrey.

GOTHIC DESIGN.—A Young Man, who has devoted several years in acquiring a knowledge of Gothic and Italian ornament, and has regularly attended the Government Schools of Design, is desirous of entering into any ENGAGEMENT with any party requiring such aid as DRAUGHTSMAN on moderate terms.—Address to J. R. at Mr. Phillips', 31, Bush lane, Cannon-street.

TO BUILDERS, CARPENTERS, &c.

THE Advertiser, having just completed the superintendence of a small building, is desirous of a RE-ENGAGEMENT as FOREMAN.—Address C. Office of "The Builder," 1, York-street, Covent Garden.

TO ARCHITECTS, ENGINEERS, AND BUILDERS.

THE Advertiser is desirous of meeting with an ENGAGEMENT in either of the above professions; he has had great experience in preparing fair and working drawings, specifications, and is very proficient in taking out quantities and calculating builders' estimates, conducting large works, and thoroughly understands the duties of a clerk of works; he is also a good railway bridge draughtsman. Testimonials from gentlemen of the highest standing in London as well as in the country. The Advertiser has had fourteen years' active employment in the above profession.—Address, prepaid, R. S. care of J. M. Ludlow, 16, Melina-place, Westminster-road, Lambeth.

ALLIANCE LIFE and FIRE ASSURANCE COMPANY.—Capital, 5,000,000l. Established 1824.—The Board of Directors have opened a WESTERN OFFICE, at No. 8, Waterloo-place, Pall-mall, where the public will find every facility in the transaction of both Life and Fire Assurance business. They have nominated EDWARD LOMAX, Esq. to the superintendence of this branch.

A. HAMILTON, Secretary.

Bartholomew-lane, London, April 15, 1852.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—

POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

GUARANTEE OF RENTS.—TO LANDLORDS, OWNERS of PROPERTY, TRUSTEES, and OTHERS.—Owners of Property can have their Rents and Incomes guaranteed to them on a day certain, whether the same shall then have been collected or not; or a certain income from property for a fixed period, whether wholly occupied or not.

Rents collected without guarantee, the amount being paid over immediately it is collected.

Owners of property travelling or residing abroad, or in the country, can have the amounts of their rents remitted to them, or paid to their bankers, or other direction; thus enabling them to draw upon their accounts without fear of disappointment.

Particulars and forms of proposal to be obtained at the office of THE RENT GUARANTEE SOCIETY, 3, Charlotte-row, Mansion-house, London.

Rates of commission are moderate.

No charge made for policies or preliminary expenses of any kind.

FREDERICK TWYNAM, Resident Director.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.

TRUSTEES.

Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robert Swann, esq. York.

BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100l.

Age next birth-day.	A MALE.	A FEMALE.	Age next birth-day.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 4	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 19 8
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 0	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 13 0	76		13 1 9
43	3 5 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 25l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Application to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to

Mr. RICH. WOOD, Solicitor, 13, John-street, Bedford-row, Agent for London.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION,

7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON;
AND 58, PALL-MALL, MANCHESTER.
Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

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Policies absolutely INDISPUTABLE; and made PAYABLE TO THE HOLDER BY SPECIAL INDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE:—

Assurances may be effected from 50l. to 10,000l. on a Single Life.
Entire profits belong to the Assured, and divided annually.
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence, greatly extended.

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A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

PROVIDENT LIFE OFFICE, 50, REGENT-STREET; CITY BRANCH: 3, ROYAL EXCHANGE BUILDINGS. Established 1806.

Invested Capital, £1,311,751.
Annual Income, £153,000. Bonuses Declared, £743,000.
Claims paid since the establishment of the Office, £3,087,738.

PRESIDENT.
The Right Honourable Earl GREY.

DIRECTORS.
William Henry Stone, esq. Chairman.
Henry B. Alexander, esq. Deputy-Chairman.

Henry Blencowe Churchill, esq.
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William Potter, esq.
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George Round, esq.
The Hon. James Sherman.
Frederick Squire, esq.
J. A. Beaumont, esq. Managing Director.

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Nineteen-twentieths of the profits are divided among the assured.

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£. s. d.	£. s. d.
1806	2,500	79 10 10 extinguished.	1,223 2 0
1811	1,000	33 19 3 ditto	331 17 6
1818	1,000	34 16 10 ditto	114 13 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
591	1807	900	988 12 1	1,582 13 1
1174	1810	1,200	1,160 5 6	2,380 5 6
3392	1830	5,000	3,358 17 8	8,358 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

PAN TILES, 48s. per 1000; PLAIN ditto, 32s. 6d. per 1000; FIRE BRICKS, 65s. per 1000.—WARD and Co. Honduras Wharf, Bankside, are now offering their Fire Goods (being about to make a considerable alteration in their Premises, at very reduced prices. Dutch Clinkers, Windsor Loam, Tiles, and Bricks; Fire-clay, superior, 12 inches and 9 inches; Paving Tiles, of a rich colour, at a very low price. Gas Bricks and shaped Tiles.

BRICKS.—Good Stock and Place Bricks, superior Yellow and Pale Seconds, Pipes and Pottery Goods of all descriptions, to be had at WILLIAM PARRY'S Lime, Brick, and Cement Wharf, Surrey Canal Bridge, Old Kent-road.

HOOPER'S WHITE BRICKS, moulded for Pilasths, Jamb, Chimney-shafts, Wall-copings at from 4d. to 8d. per foot run; Paving Tiles of different patterns, in white, red, and blue; Fancy Roofing and Ridge Tiles, coloured brown, or for slate; White Relief Tiles, for facing buildings, &c. sent to all parts of the country direct from the kilns.—Office, 3, Portland-street, Southampton, where samples and illustrated price-lists may be had on application, post-paid.

BRICKS.—H. DODD is enabled to offer his BRICKS, which are of good quality, at the following low prices; and as his fields are only a quarter of an hour's walk from the City, H. D. earnestly requests purchasers will favour him with a visit, in order to inspect his stock, and to judge for themselves:

Marle cutters	84s. Per Thousand.
Yellow seconds	60s. "
Pale seconds	50s. "
Parlors	45s. "
Pickings	35s. "

Delivered within two miles of the fields.

Marle place, half-washed stocks, and place bricks, at equally low prices. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing. Apply to HENRY DODD and Co. at the Counting-house, Hoxton Brickfields, Grange-walk, near the Rosemary Branch, Hoxton. N.B.—Red pit sand of approved quality constantly on sale, upon reasonable terms; this sand, from its not containing any saline matter, is acknowledged to be preferable to river sand.

TO BRICK AND TILE MAKERS AND MACHINE OWNERS.

MOON'S PATENT HOLLOW CHIMNEY BRICKS, for Circular Flues, the best possible construction for chimney building. 300 of these bricks will do the work of 1,000 of the ordinary size. Licenses granted (two guineas per annum) by the patentee, and all particulars forwarded on application to his sole Agent, Mr. HENRY CLAYTON, the Prize Brick and Tile Machine Maker, Atlas Works, Upper Park-place, Dorset-square, London.

MOON'S PATENT HOLLOW CHIMNEY BRICKS, for Circular Flues, 10 inches diameter; strong and fire-proof for Chimney Building.—Particulars to be had of Mr. HENRY CLAYTON, the Prize Brick and Tile Machine Maker, Atlas Works, Upper Park-place, Dorset-square, London.

The Bricks to be had at the following places, viz.:—

Stevenage, Herts	Makers.
King's-cross, London	Warren and Matthews.
Epping, Essex	Miss Hinde.
Leyland, Lancashire	Henry Holland.
Swansea, South Wales	
Ryde, Isle of Wight	
Birkenhead, Cheshire	J. J. Whittingham and Co.

ORNAMENTAL TILING for ROOFS.—The Society of Arts awarded Mr. ROBERT BROWN a Medal for his improved Italian Tiles, and in the Great Exhibition of 1851 they were awarded a Prize Medal, and were the only Italian tiles specifically named by the jury. These tiles have been used by Sir CHARLES BARRY, and other architects, and have met their marked approval; they have also received the approval of eminent men in most parts of Europe. The slight curve enables the lower tiles to be fitted closely together without mortar or cement. The horizontal indentation forms a perfect security against the driving rains: when on a building, they have the exact appearance of the most admired form of Italian tiling. The grey or green colour is burnt in, and is permanent. They are supplied at a stated price per square.

ORNAMENTAL PLAIN TILES, in great variety, made from the Surbiton clay, and also from the Staffordshire terro-metallic clays, at per square.

PLAIN GOTHIC RIDGE TILES, HOP and VALLEY TILES, and COPING BRICKS.

The GROOVED RIDGE TILE, for the reception of any varied outline of vertical ornament, was invented by Mr Robert Brown, and for which invention he also received from the Society of Arts a medal. He now makes these tiles, of any desired colour, from the Surbiton clay, as also from the Staffordshire terro-metallic clays. He has lately devoted great attention to the varied conditions of form, so as to adapt them to the different periods of Gothic Architecture. The attention of architects is particularly invited to these ridge tiles of a green colour. They are supplied at a stated price per foot run. Mr. Robert Brown trusts that architects who consider the Grooved Ridge Tile worthy of introduction, will think it but fair and honourable that the inventor should supply them, provided he does so as cheaply and well as any other party. But should even this hope not be realised, he will still have the satisfaction of having been the inventor of an article which has become of universal adoption.

TILE WORKS, SURBITON-HILL, SURREY.

MINTON AND CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics manufactured of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Coverings for Grates, Door Furniture, Wrought Garden and Ornamental Tiles for Baths, Terraces, and Kitchen Ranges, may be had in great variety at their Warehouse, 9, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

MAW'S ENCAUSTIC TILES. — Prices and Samples (Plain or Glazed) of this beautiful and durable production of mediæval art, and Patterns appropriate for the floors or walls of public and private edifices, in every style of design forwarded on application to MAW and CO. at their Works, Worcester. N.B. Plans of spaces to be paved covered with arrangements of Tile Patterns, without charge.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or scales; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co at the Warehouse, 33, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS, AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

GEORGE and THOMAS EARLE, CEMENT MANUFACTURERS, HULL.

Light and Dark equal to any made

Also, Manufacturers of PLASTER, MASTIC, &c.

Importers of MARBLE and PUZZOLANA.

Dealers in Slates, Slabs, Hair, Whiting, &c.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring. Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well-known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand: and, for concrete, it will carry ten to twelve parts by measure of sand and gravel. Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT, in Casks of Four Imperial Bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London

6, South Wharf, Paddington

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It is of extraordinary density and hardness, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack, combined with which are distinct properties, and a consistency that even the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Millwall Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster, Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will entitle them to a continuance of that patronage with which they have so long been favoured. Orders received at the Works, and at Great Scotland-yard, Whitehall. March, 1852.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto rendered it more expensive than it should be. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON and Co. as Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent

PATENT PORTLAND AND ROMAN CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for either of the above Cements, which they are quite prepared to prove exceed any other in the cementitious qualities at present manufacturing. Many highly respectable references can be given where their Cements have been successfully used. Orders addressed to their Works will be punctually attended to, and terms sent. Where quantities are used a corresponding price will be made. Agent at Southampton, Mr. GEORGE SHARPE, Union Wharf.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sleepy Stone, but is much better adapted to engineering works, from the rapidity with which it sets after mixing with water. It has been largely used at the great Breakwater at Cherbourg; in a similar work at Alderney and at Dover new pier, for mass masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 200 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. FLUDER, American Wharf.

ROMAN AND OTHER CEMENTS, Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Terras and Portland Cements, English and Foreign Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

BARROW LIME.—This celebrated hydraulic Lime, from the Blue Lias Stone, can now be forwarded by railway fresh from the kilns to any part of the kingdom. It is becoming much more generally used for Concrete, and can be supplied ready ground for that purpose. Price, &c may be obtained on application to JOHN ELLIS and SONS, Leicester.

THOMAS FREEN and CO. LIME BURNERS, Wouldham-on-the-Medway. Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal-road, Kingsland-road; Queen's Wharf Great Cambridge-street, Hackney-road; or King's Wharf, New Wharf-road, Battle-bridge N.R. Laths, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c. &c.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it superior for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is the best recommendation.

Gibbs, Canning, and Co's Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality.

SECONDS, PAVIORS, STOCKS, and other Bricks.

CHARLES RICHARDSON, 8, South Wharf, Paddington.

GREY-STONE LIME.—HALL, BROTHERS, Merstham Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery.

Grey-Stone Lime	6s. 0d.	per Yard, or 22 Bushels.
Ditto, for Manure	4s. 6d.	ditto	ditto
Ditto, Ashes	1s. 6d.	ditto	ditto
Black ditto	3s. 0d.	ditto	ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the London and Brighton and South-Eastern Railways, or lines connected with them. A fresh supply, hot from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.

Prices for Cash on delivery:—7s. per yard at the stations or works; 8s. per yard delivered within five miles, in not less than 2 yard quantities. Booking, 2s. per yard; 1s. per yard off, if paid monthly. Collecting charged for. The quality is warranted to be the best. Address, Merstham, near Reigate, Croydon; or Coult's place, Old Kent-road.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico

MARBLE CHIMNEY PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD STATUARY MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS

A liberal discount to the Trade.

MARBLE WORK, of all branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c &c.

Designs sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank

MARBLE.—Mr. J. FABBRICOTTI, Proprietor of Marble Quarries at Carrara, Italy, begs to inform the Gentlemen connected with the Marble Trade, that he has established in London the most extensive Depôt in the United Kingdom of STATUARY, Veined, Sicilian, Dove, and Black and Gold MARBLES, the produce of his own Quarries.

CARRARA-WHARF, Thames bank, Pimlico, at the foot of Vauxhall-bridge. Office 3, Crescent-terrace, Millbank.

Mr. THOS. THOMPSON, Agent.

TO BUILDERS, MASONS, AND CONTRACTORS.

OBSERVE!!! the Cheapest Depôt in England for MARBLE CHIMNEY-PIECES of superior quality and workmanship at the Westminster Marble Company's Patent Works, Earl street, Holywell-street, Millbank. An inspection of their superior stock of statuary, Sienna, black and gold, vein, and other chimney-pieces, tombs, monuments, tablets, &c. is earnestly solicited.

ITALIAN and GALWAY MARBLE QUARRIES.

Depot, Whitehall-wharf, Parliament-street, Westminster.

Arrived, from Galway, per *Margaret*, 87 blocks of Black, and 3,000 feet of slabs.

Arr ved, from Leghorn, per *Mermaid*, *Robert*, and *Polar*, 100 tons of various Marbles, Statuary, Veined, Sicilian, Dove, Sienna, Bardilla, Black and Gold Brocatello, Levante, and Rosat.

Also, St. Anne's, Rouge Royal, Alabaster, and all descriptions in Slabs, Irish Plaster, &c

The following vessels are expected daily:—

Lively Lass, Galway, 113 Black and Green, 120 tons. (Arrived.)

Marseilles, Leghorn, 97 Blocks, 80 tons. (Arrived.)

Rapid, Leghorn, 47 Blocks, 100 tons.

Reduced prices. Terms, six months.

Mr FRANKLIN, Proprietor. Office hours 7 even until Three. The above will be sold by auction on MONDAY, 18th inst. by Mr. Mann

VEINED MARBLE.—TO MASONS, BUILDERS, &c.—NOW ON SALE, at the Marble and Wood Sawing Mills, Commercial-road, Pimlico, the LARGEST STOCK in London of VEINED MARBLE, in SLABS, at the following low prices for cash:—

1 inch, 1s. 3d. per foot super.; 1 inch, 1s. 6d.

Slabs carefully packed and forwarded to any part of England.

Sawing, 6d per foot super. carriage included; Bardilla, Dove, Black, Black and Gold, Statuary, and all other Marbles in general use, in slab and block, equally low.

PORTLAND STONE, from the best Quarry, Hare Hill, Wingerworth, York, and other stone in general use, either in BLOCK, LANDINGS, or SLABS. SINKS, GRANITE CURB, &c

JOHN HOLMES, Agent.

TO ARCHITECTS, SCULPTORS, BUILDERS, STONE and MARBLE MASONS, &c. &c. ALABASTER QUARRIES, CHELLASTON, near DERBY. Alabaster in blocks of almost any size, and of very superior quality, may now be obtained from these quarries on application to

Messrs. JOSEPH SMITH and SONS,

HORNINGLOW, near BURTON-ON-TRENT.

This stone was extensively used during the Middle Ages for Monuments and other Ecclesiastical Decorations and since that period until now has been obtained in blocks of any size. Its colour is white, and beautifully variegated. It is easily worked, and capable of taking a high polish which renders it suitable for every kind of internal House Decoration.

Agent in London, Mr WILLIAM FIELD, 32, Holywell-street, Millbank; Depôt, 24, Wharf, Paddington, where a stock is always on hand.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN and STONE-MERCHANTS, BATH.

(DEPOTS.)

Great Western Railway Station	PADDINGTON.
Great Western Railway Station	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulins let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Enquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

CAEN and AUBIGNY STONE.—F. FOUCARD, Stone Merchant and Quarry Proprietor, Quai des Abattoirs, Caen, and at 33, Stoney-street, Borough-market. Contracts taken for any quantities. Cargoes shipped to order from Caen to any port.

CAEN and AUBIGNY STONE.—Gates and George, late of the firm of LUARD, BEEDHAM, and Co. Quarrymen at Aubigny, Stone Merchants, Caen Wharf, Rotherhithe, London, and Caen, Normandy Dep't—Hope-street, Mount Pleasant, Liverpool; Castle Fields, Manchester.—Information and samples forwarded on application to Caen Wharf, Rotherhithe.—Samples may be seen at the Office of "The Builder."

KENTISH RAG-STONE.—A very superior quality of Headers, large and broken Rag, and all other descriptions on SALE; price moderate.—Apply to G. M. REYNOLDS, London-wharf, Regent's Canal, near Hackney-road.

FREESTONE.—Architects and others are respectfully informed that a great REDUCTION is made in the price of the LITTLE CASTERTON FREESTONE, which may now be obtained at the quarry, or at the Stamford Railway Station, at 1s 3d per cubic foot, and, if delivered by waggon at an additional charge of one halfpenny per foot per mile. This freestone offers immense advantage to the purchaser, from the facility with which it is wrought. Apply to FRAS. and OCT. N. SIMPSON, Stamford.

BOX WEATHER STONE, of best quality, SCALLETT BLOCK, &c. &c. supplied direct from the Quarries by ROBERT STRONG, Quarry Proprietor and Stone Merchant, Box, Wilts. The great durability of the Box Ground Stone withstanding the most intense frost renders it a desirable stone for all external building purposes. Orders to any extent immediately attended to per Supply, Box Station, Great Western Railway, where an extensive stock is always kept. Every description of Stone Work, both plain and ornamental, prepared ready for fixing. Ashlar, Rangework, Welling Stones, &c. &c. always on sale. Vases in elegant variety, Urns, Fountains, Chimney Pieces, &c. &c. always on sale.

TO BUILDERS, MASONS, AND OTHERS.

BUILDERS, MASONS, and others are informed they can now be supplied with YORK BLOCK, SAWN STEPS, SLABS, &c. at unprecedented prices, from the Caen Wharf, Rotherhithe

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT DEPOT, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

BUILDERS are informed that the prices of PAVING, SINKS, SILLS, COPING, &c. have been recently much reduced by E. and W. STURGE, Bridge Wharf, City-road. Paving (very thick at 12s. per 100 feet; also at 35s. (self-faced), and good tooled (thin) at 38s. Other goods equally low, and in Stone and Clay Pipes a great discount for the usual chances.

E. and W. STURGE, Bridge Wharf, City-road.

TERRA COTTA and SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs, and sold at No. 7, Wharf-street, Paddington.

Vases, tazzas, friezes, capitals, coats of arms, chimney shafts, trusses, flower pots, and all ornamental work required to stand heat and frost without cracking or changing colour, may be had at nearly the same cost as casting in cement.

Terra Cotta is more durable than iron, granite, marble, or stone, and may be made of black, red, and light colours of every shade. It can be more undercut and delicately wrought than either stone or marble, and architects can have their own designs modelled and fired in this material with equal moulding and the chance of copying fresh from the hands of the artist.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELCH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

THE PIMLICO SLATE WORKS. Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S PATENTED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted) continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of Slate Work, at prices that defy competition.—49 and 50, Upper Belgrave-place.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Penitentiary, and other public buildings; Malvern Wells, Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRADYS, Belvedere-road, where terms may be obtained.

CONYBEAR'S BANGOR and GENERAL SLATE WORKS, 65, Millbank-street, Westminster.—Cisterns, chimneypieces, tablets, wine-cellar fittings, dairy and larder shelves, and every description of masonry in slate, executed to order at the shortest notice, and at the lowest remunerating price.—N.B. Excellent Three-stall Stables, with or without Coach-house, to Let.

The Builder.

No. CCCCLXXXIV.

SATURDAY, MAY 15, 1852.

WE have reason to be satisfied with the manner in which the observations we made some time since, on the construction and arrangement of farm buildings, and more recently on the subject of land drainage,* were received throughout the country. That these have already produced practical good effects we happen to know. This being the case, and the matter being one of the greatest importance, we are led to add to those remarks some particulars on the subject of artificially irrigating farms, either with simple water or liquid manure. Mr. Mechi has adopted the plan on his farm at Kelvedon, in Essex, Tiptree Hall, and we made a journey thither the other day, with a good practical farmer and a man of sense, expressly to see what had been done. Mr. Mechi received us with the greatest frankness (we should say hospitality too, but this might send him more visitors than he might desire), and showed us all that he has in hand. The arrangement includes, broadly, a tank as a receptacle, pipes to distribute, and a pair of pumps to force the liquid through the latter to the required spot. The farm consists of 170 acres, and he has laid down about two miles of 3-inch iron piping, with a supply post for every 11 acres. Each pipe is 9 feet long, and cost 5s. 3d. or 7d. a foot. They are placed in the ground about 18 inches deep, and are jointed with tarred rope and melted lead, like ordinary street water-pipes. From the hydrant of the supply-posts 200 yards of gutta percha pipe (50 yards 2 inches in diameter, the rest 1½ inch) will reach any part of the farm. With some crops the handling of this would, perhaps, be difficult.

The tank (somewhat too close to the house) is 30 feet in diameter, and 30 feet deep. It is formed, with a bravery more to be admired than imitated, with half-brick sides and a 9-inch dome, and cost 80*l*. Into this all the manure produced by the cattle will be washed, and an occasional dead horse or so will be thrown in, "to make the gruel thick and slab," as Shakspeare says. The pumps were not completed when we were there, but we went to see them at the maker's, in Kelvedon, and were gratified by finding, where they certainly would not be looked for, a couple of intelligent engineers, Striffler and Alger, with a nice little steam-engine at work, plying their trade vigorously. The pumps are of four-horse power, 20-inch stroke, 5-inch barrel, and will throw, at their ordinary speed of twenty-five strokes in a minute, 49,000 gallons in ten hours. They could be made for 63*l*. "Judging from present appearances (says Mr. Mechi), I shall expend 600*l*. for the 170 acres, or about 3*l*. 12s. per acre, to cover the expense of the tank, pumps, pipeage, gutta percha hose, and every expense except the steam-engine, which I have already. Possibly it would be safer to calculate generally on 4*l*. to 4*l*. 5s. per acre, but much depends on the neighbourhood of iron, price of labour, bricks, &c. A man and a stout lad to assist him will, I expect, dispose of 600 hogsheads per diem, say enough for ten acres. A branch pipe of two inches will intersect the farm-yard, from which a powerful jet will wash the solid manure from under the boards, and cause it to flow into the great tank. This operation requires much water to render fluid the jelly-like manure of the ruminating animals: as the water will be propelled by a greater force than from an ordinary fire-engine, it is easy to imagine what a cleansing every corner will receive about twice a week. The flies in hot weather will be in considerable danger, and the heated roofs and buildings may be speedily cooled. The animals will, no doubt, get a shower-bath when deemed advisable. The whole affair is amazingly simple; in fact, is represented by the action of a fire-engine."

Details on this subject, worth looking for, will be found in the "Minutes of Information on Sewer Water," published by the General Board of Health.

The water of a bog drained by the owner gives 30,000 gallons a day, and will fall into the tank to the depth of 12 feet, which is an advantage, provided always, however, that the water be fitting. The pumps, by means of taps, will be enabled to distribute either liquid manure or simple water, as may be found desirable. The waste steam from the engine will enter the tank when needed to hasten fermentation. At the bottom of the tank, we should say, there is a "mixer," in the shape of a star of pipes bored at the ends and side to admit of a hundred jets of water being forced out of them.

By the arrangement that we have thus briefly described, Mr. Mechi considers that the great cost by labour, wear and tear of carts, roads, &c. in carting manure, will be avoided, as well as the treading and compression of the soil and waste of ammonia. Assuming that three-horse power of the engine will be required, the cost of a day's application on ten acres he puts thus,—

	s.	d.
Interest on capital at 7½ per cent	6s.	0d.
Engineer's pay for one day (a youth from the farm)	1	6
One man in the field	1	6
One youth in ditto	1	0
Coals for engine	3	0
(This is, in fact, 1s. more than the cost, as screenings at 9s. per ton are used.)		
	13	0

"So that, in fact, 1s. 6d. per acre will more than cover the cost of applying 150 tons of manure or water, on ten acres of land; but if even it cost more, under less favourable circumstances than mine, the expense is ridiculously small in comparison with the ordinary cost and waste."

It must not be forgotten, however, that interest must be allowed on the capital invested all the year round.

In explanation of the remark, that "the manure will be washed from under the boards," we must mention for the information of such of our readers as are not aware of it, that all the beasts at Tiptree Hall, are kept upon boarded floors, consisting of battens 3 in. or 3½ in. wide, and for cows 1½ in. apart: for sheep, the battens are 1½ in. apart: with less space between they cannot be kept clean. Under the boards in each case, is formed a tank, in brick and cement, 2 ft. deep, and this was formerly cleared out about five times in the year. Now, however, it will be washed out as previously mentioned. By this mode of housing, no straw is needed, and its advocates claim for it very successful results. Amongst these we do enrol ourselves, but we shall not now enter into a consideration of the questions it involves. We will say, however, be it right or wrong, that Mr. Mechi is entitled to the thanks of all farmers and land-owners, for the course of inquiry which he has pursued, and the important experiments he has intelligently made. We shall look anxiously for the result of his present endeavour.

As we have suggested above, the nature of the water used is an important point. Two French *savans*, Messrs. Chevandier and Salvétat, have lately recorded some experiments on a large scale, which show this conclusively.* The problem they set themselves to solve was—"Is the fertility of irrigated fields in proportion to the quantities of water put in action, which would indicate that it is especially due to the action proper to water? Is it, on the contrary, to a certain point, independent of these quantities, and belonging to the presence of matters in solution which the water, acting as the vehicle, brings to the roots of the plants?"

The first year they regulated the irrigations according to the local customs. The field watered by the bad spring received 255,744 cubic metres of water per hectare, and the field watered by the good spring 164,281 cubic metres; the weight of the crops was, from the first field, 2,312 kilogrammes per hectare, and from the second, 7,896 kilogrammes.

In the second year, on the contrary, they placed themselves in identical conditions relative to the quantities of water, which were 126,273 cubic metres per hectare from the bad spring, and 130,311 cubic metres from the good spring. The weight of the crop was 2,749 kilogrammes per hectare from the field watered from the bad spring, and 10,469 kilogrammes from the field which had the water of the good spring.

"We thus see," say they, "that with equal quantities of water, and in conditions, in other respects perfectly comparable, or even with larger quantities of water from the bad spring, the crop of the meadow watered by this spring has only been one-third or one-fourth of the crop produced under the influence of water from the good spring. It is then in the quality of the waters, and not in their quantity, that we should seek for the causes of these very considerable differences in the crops."

The gases, and the mineral or organic matters dissolved or held in suspension in these waters, were found to be nearly similar, and they, therefore, only sought the solution of the problem in the *organic substances* dissolved in the waters of irrigation. According to the centesimal composition of these matters, in the two springs taken as types in this extract, oxygen and hydrogen were found in the same proportion. But these matters were more rich in carbon in the bad spring, and more rich in nitrogen in the good. The nitrogen of the good spring was to that of the bad as 100 is to 42, whilst the carbon of the bad spring was to that of the good spring as 100 is to 94.

These two proportions do not suffice to explain the different fertilising powers. "But

* See p. 209, *ante*; and vol. ix.

* Reported in *The Chemist*, from the *Comptes Rendus*, of February 1852.

if, instead of considering merely the absolute quantities either of organic matters or of nitrogen contained in these matters, we seek the relative proportions of the nitrogen and carbon which enter into their composition, we find that 100 of carbon correspond in the good spring to at least 11 of nitrogen, and, for the bad spring, to 4 of nitrogen at the most, whence we see that the fertilising properties of our good springs correspond completely to a proportion three times stronger of nitrogen considered relatively to the carbon."

The researches of M. Barral, in Paris, prove to us, that the amount of fertilising matter conveyed to the soil by the rain, must exercise a constant and most important influence on the vegetation of a country. His researches show that in the last six months in the year, the rain which fell on a space of ground at the Observatory at Paris, equal in area to an English acre, contained, as nearly as possible,

7.75	pounds of	Ammonia.
36.50	,,	Nitric Acid.
5.56	,,	Chlorine.
12.60	,,	Lime.
4.81	,,	Magnesia.

A writer in *The Critic*, referring to these experiments recently, says,—

"From July to December, is usually the drier half of the year, as well as that in which the less fuel is consumed, so that we may safely double these quantities, in estimating the annual supply per acre of nitrogenous compounds, gradually distributed over a country by the rain. For the sake of illustration, I have calculated the amount of the solid constituents of the rain, falling on an area equal in extent to Great Britain; and, balancing the various causes likely to lessen or to increase the quantity of these matters, which would so fall on this island, we may venture to set the one against the other, and apply the above statement to our own country, as the basis of an estimate, which singularly manifests the 'power of littles,' as well as the grand scale on which even the minutest of natural phenomena proceed. Thus, on the Parisian data, the weights of these fertilising materials annually supplied to the soil of this island by the rain, amount to about

400,000	tons of	Ammonia.
1,850,000	,,	Nitric acid.
279,000	,,	Chlorine.
640,000	,,	Lime.
244,000	,,	Magnesia.

The later opinions, entertained by Liebig, of the superior value of the alkaline and earthy constituents of manures, i. e. the potash, soda, lime, magnesia, and the phosphates and sulphates of these bases, to that of their nitrogenous compounds, derive much weight from these experiments of M. Barral, which show that a vast amount of nitrogenous fertilising matter is distributed by the rain, but none of the fixed alkali."

This inquiry, however, would lead us too far. We cannot expect our farmers generally to attend to involved questions of this sort, while in so many cases the simplest and best known improvements are not adopted. On some farms water runs to waste, which might be led to turn a wheel, and provide all the motive power required in the establishment. Every means of lessening the cost of production should be resorted to. The stacks, for example, may be placed on a tramway, in such a position that they may be pulled in for thrashing by the steam-engine or the mill. We hear of a "Portable Farm Produce Mill," made by Mr. Crosskill, of Beverley, which promises to be useful. At a private trial of it near Chelmsford recently, the mill crushed oats at the rate of thirty bushels per hour, and split beans at the rate of sixty bushels per hour, and ground barley to fine meal at the rate of eight bushels per hour, besides grinding bones, and crushing flint stones and bricks.

From New York comes an account of a steam ploughing-machine now being exhibited there. It is intended for driving twelve ploughs, and performing the operations of ploughing, sowing, and harrowing simultaneously.

In conclusion, we would say, the average addition which putting a farm into an efficient state for working will make to the cost of the fee-simple of the land may be called, under ordinary circumstances, 16*l.* per acre, or 4*l.* per acre for drainage; 5*l.* for buildings and steam-engine; 4*l.* for irrigation with liquid manure; and say 2*l.* per acre for contingencies. The main question for owners is, not what a thing will cost, but what it will pay; and if they will consider what would be a fair *per centage* on the money spent (rather than what will be the actual first outlay), and compare it with the probable consequent increase in the annual returns, they will be encouraged to proceed. The *per centage* view of expenditure we look upon as one of the great features of the day, and which, when thoroughly understood and acted on, will do great things for England.

ON THE TOWERS AND SPIRES OF THE CITY CHURCHES—THE WORKS OF SIR CHRISTOPHER WREN.*

No church seems complete without a tower or spire. Wren, writing on this subject, observes: "Handsome spires or lanterns, rising in good proportion above the neighbouring houses (of which I have given several in the city, of different forms) may be of sufficient ornament to the tower, without great expense for enriching the outward walls of churches, in which plainness and duration ought principally, if not wholly, to be studied. When a parish is divided, I suppose it may be thought sufficient if the mother church has a tower large enough for a good ring of bells, and the other churches smaller towers for two or three bells, because great towers and lofty steeples are sometimes more than half the charge of the church."

The distinction between a spire and a lantern may be said to depend on the form and outline, and more particularly on the proportion which each respectively bears to the supporting substructure or tower. In a spire, this proportion is about that of equality: in a lantern, the superstructure is about one-half the height of the tower beneath. The towers, without the spire or lantern, will be found to vary from four to five times their breadth in height. It is hardly possible to conceive a greater variety than Wren has exhibited in the designs of his towers and spires, all of which are based on principles distinctly laid down in his writings.

With reference to the skill displayed, both in the design and in the construction, it will be seen that St. Bride's is a composition of equalities, in which there is a pleasant succession of vertical and horizontal lines; beauty being obtained by agreeable repetitions, and not, as in most of the other instances, by harmonious varieties. The spire, which is formed of a series of open arches rising in succession above each other, shows how well Wren could repeat forms without at the same time rendering them monotonous. The construction of this spire materially differs from any other, Italian or Gothic. The arches form vaults or cells within, which are firmly bound together by the central spiral cord or staircase, and thus equally distribute the pressure over the surface below, imitating in a beautiful manner some of the strongest forms of nature. The provision made for carrying this spire is excellent.

The spire of Bow Church on the other hand, is a composition of varieties, the solid and the open, the square and the circular, the vertical, the horizontal, and the flowing. The solid square tower and the light circular spire with its beautiful peristyle, where the columns are lost in succession, the flowing lines of the open arches above, the return to columns on the next story, and the finish by repeating the flat forms of the tower, the play of light and shade, and the elegance of the outline, render it a masterpiece of its kind, which will probably never be surpassed.

St. Vedast's spire, too, is a charming composition of varieties: the square, the concave, the convex, and the square repeated in the pyramidal termination, give hard and soft shadows most agreeably distributed.

Christchurch spire is a composition of light work contrasted with solid, on the square plan throughout.

St. Antholin's spire is an octagonal composition of a solid character, being a skilful adaptation of the ordinary Gothic spire to the Italian style.

The manner in which the towers, supporting the spires, are treated has great influence on the effect of the whole composition or steeple. In the examples mentioned it will be seen that the number of apertures, their forms and proportions, the subdivision by bands and cornices, and especially the decoration of the belfry story, are so arranged as to form a suitable substructure to the upper portion or spire.

Among the stone lanterns, those of St. Stephen's, Walbrook; St. James's, Garlick-hill; and St. Michael Royal, are fine specimens. The two first are square in plan, and present the peculiarity in their construction of being carried on domes springing from piers in the internal angles of the belfry, which piers are built independent of the walls, and transmit the weight to the thicker work below.

The lantern of St. Michael Royal is octagonal in plan, and is supported on a dome resting on deep corbels in the angles of the belfry. In this instance, the assistance of strong iron tie-rods is required to resist the outward thrust of the arches beneath the dome.

The lantern of St. Dunstan's in the East is a remarkable production, both for construction and symmetry. That of St. Nicholas's, Newcastle-upon-Tyne, almost the only ancient example remaining since the destruction of old St. Mary-le-Bow, would not be worthy of mention if placed by its side.* In St. Nicholas's the wide span across the tower, and the low rise of the lantern and flying buttresses above the battlements, appear to overpower the resistance to their thrust. On the other hand, St. Dunstan's stands easy and graceful, every portion appearing to be at rest, and conveying the full impression of enduring, as an undoubted masterpiece of its kind. From each angle of the parapet, but fairly within the pinnacles, rise the graceful flying buttresses which support the lantern. These measure 2 ft. 5 in. by 1 ft. 8 in. and rise with the same dimensions to the curve immediately below the lantern, where they are gathered round a circular aperture 3 ft. 6 in. diameter. The lantern externally is not less than 6 feet across, and the distribution of the joints of the masonry at this point is the most delicate part of the construction. The flying buttresses, the joints of which slightly radiate in the upper part above the battlements, are carried on long flat corbels 28 feet deep, reaching to the bottom of the belfry and to the thicker walls of the story below.

St. Dunstan's is a remarkable edifice, though it cannot be praised for what is called good Gothic detail, for Gothic was a style little understood or cared about in Wren's time: it nevertheless possesses so many compensating qualities, as to be well worthy the attention of the most refined mediæval critic. Wren has been censured for building in a style of which he was not perfect master: it must, however,

* On the 28th of April, Mr. Clayton continued his remarks on the City Churches, at the Institute of British Architects. The following are further extracts from his paper.

* We are not to be understood as concurring in this opinion—ED.

be recollected that he did not adopt Gothic but in cases of necessity like the present, and that he gave a decided preference to what was considered a new and better style.

With reference to the construction of these edifices, it will be hardly necessary to observe, that Wren's towers and spires were built "in the most substantial and workmanlike manner," and to adapt the words of modern specifications still further, "the materials used were the best of their respective kinds;" but here ends the similitude. Wren put a different construction on these words from that frequently given in the present day: with him none of the funds which should be expended in stability were wasted in decoration—a fault which is, perhaps, mainly attributable to the present defective state of competitions, with which Wren was not troubled. The walls of the towers vary from five to seven feet in thickness, and are of solid masonry, sometimes backed up with brick, but generally with stone of a rougher description. The stone is Portland, the timber oak, and the lead must have weighed at least 10 lbs. to the foot superficial. The floors in nearly all the towers are carried upon corbels, a preferable mode to inserting the ends of the beams in the walls, as the floors are more readily replaced when decayed, and the walls are not so liable to be injured by fire or strains. The towers have in nearly every instance convenient access to the belfry or parapet by circular stone staircases; and it is worthy of notice that the front line of the steps runs to the centre, and not to the face of the newel, as is usual in Gothic staircases: this perhaps occasions a little more work, but gives a much better tread. The block cornices and enriched parapets, which are so frequently imitated in the more modern parts of the metropolis, were first used by Wren.

Wren observes, that spires were of Gothic extraction, to which, however, his imitations have no further resemblance than their pyramidal outline. Those nearest approaching Wren's are the Lombardic and Italian campanili, and though Wren does not appear to have visited these countries, still he was, doubtless, well aware of their existence and forms: they are, however, quite a distinct species, are of vast dimensions, and have different proportions. The earlier campanili date from more than 1,000 years before Wren's time: their upper parts are divided into a number of equal stories, enriched with arches, and the upper stories were, subsequently, frequently broken into the octagonal form, and covered with a spire, from these were derived the Norman, and afterwards the beautiful Gothic steeples, as at Boston, Louth, and Salisbury. When the Gothic was exhausted, the Italian architects of the revival returned pretty closely, but with greater refinement, to the forms of the early campanili, though but few, if any, of their works can be called spires, so that it remained for Wren to rival these Gothic edifices, but in the Roman style and detail. It will thus be seen, architecture being more a science of growth than of positive invention, that spires were first derived from Roman architecture about 1,000 years ago, were continued and perfected in Gothic architecture during a space of 500 years, and were afterwards re-transplanted into their original style, in which the genius of Wren has made them flourish with equal success. In a paper read before the Institute, Mr. I'Anson observes with respect to campanili, "Perhaps there are no finer modern instances to be met with than the beautiful compositions of our countryman, Sir Christopher Wren," and having paid, probably, more attention to this subject than any one, I can most completely concur in Mr. I'Anson's statement.

The great difference between Wren's spires and the revived Italian campanili is, that the former have a lofty pyramidal outline, are divided into three, four, or five stories, and are enriched with open stages of columns or pilasters. The columns used in this elevated position are differently treated than when placed near the ground, and the orders have a much bolder description of detail. To design a spire in this style requires a good knowledge of perspective, for, as Wren observes, "Everything that appears well in orthography, may not be good in model, and every thing that is good in model, may not be so when built; but, this will hold universally true, that whatsoever is good in perspective, will hold so in the principal views; if this caution only be observed, that regard be had to the distance of the eye in the principal stations."

With reference to their composition, Wren also gives some further valuable information. "Things seen near at hand may have small and many members, be well furnished with ornaments and lie flatter: on the contrary, all this care is ridiculous at great distances: there bulky members, and full projections casting quick shadows are commendable: small ornaments at too great distance serve only to confuse the symmetry, and to take away the lustre of the object by darkening it by many little shadows. There are different reasons for objects whose chief view is in front, and for those whose chief view is sideways."

In this branch of design, it should be noticed that Wren has had many able followers, foremost among whom stand his pupils, Gibbs and Hawksmoor, then Vanbrugh, Dance, Archer, James, and Flitcroft. Gibbs built St. Martin's-in-the-Fields, and St. Mary's, in the Strand; Hawksmoor, St. George's, Bloomsbury, and St. Mary's, Woolnoth; Dance built St. Leonard's, Shoreditch; Archer, St. Philip's, Birmingham; James, St. George's, Hanover-square; and Flitcroft, St. Giles-in-the-Fields. All these are very beautiful examples, more especially the two first, by Gibbs and Hawksmoor. Dance, in the spire at Shoreditch, has imitated the outline of St. Mary-le-Bow, but on a smaller scale; the circular peristyle of columns, which is perhaps the weakest part of the latter, being strengthened by arched walls returning from the columns to the cylinder within. The story above has a domed covering instead of open flying buttresses—by which it gains in solid appearance, but loses in lightness and elegance. These examples have all their relative excellence, but taken as a whole, they cannot be compared to Wren's best examples, St. Mary-le-Bow, St. Bride's, and St. Vedast's.

At the close of the paper,—

Mr. Fowler stated that he had examined closely the spire of St. Dunstan's in the East, and could confirm what Mr. Clayton had said as to the joints of the flying buttresses. These were not at right angles to a tangent of the curve as in ordinary arch work, but were continued horizontally up to very near the conjunction of the four flying-buttresses; so that the higher or upper joint seemed to him to occasion some little weakness. It was of course a balance of consideration, between the benefit to be gained by spreading the lateral thrust, and the danger incurred by the weakness of the stone at the acute inner angle.

Mr. C. Nelson drew attention to the campanili, or western towers of St. Paul's, which had not been mentioned, but which he had always regarded as extremely beautiful. By M. Quatremère de Quincy,* they were quoted in disparagement of Wren, but as seen from Ludgate Hill (and he hoped they would some day be better seen, and the cathedral be thrown more open to view), he could not but regard them as highly effective. The mode of construction in the domed part of Wren's spires by the adoption of horizontal instead of radiating joints, recalled a much more ancient employment of that system, in the Treasury of Atreus, at Mycenæ in Greece, which he believed Professor Donaldson had been the first to elucidate. The staircases in the spires of Bow and St. Bride's were very interesting: he believed the hint for the way in which the latter was carried, and the strength afforded by it was derived from natural objects,—from a study of conchology.

A conversation arising as to lightning conductors,—Mr. Hesketh said, the present practice was to connect the lightning conductor as much as possible with all the metal work of the building, and to carry it down into the earth; and this might be done by connecting it with a water-pipe.

Mr. Garling said, that was the case at St. Paul's, where the conductor was connected in numerous places with the rain water-pipes and the lead work.

Mr. C. H. Smith, visitor, stated, as the result of his examination of the spire of St. Martin's Church, that the lightning appeared to have struck the vane, and run down the rod supporting it; and the mischief began where that rod terminated. The current went from that point to the stone work in the spire, which was fixed together with very strong iron cramps run with lead; and in its passage through the stone from one of these cramps to another, the masonry was split in a spiral line all round, hardly one of the stones in that line remaining entire. It then made its way to the lead work of the roof, and down the metal pipes inside the pilasters. As to the principle of lightning conductors, it was well known that a bell-wire would serve to transmit the current; but the danger was that so much heat might be generated as would melt the wire; and therefore it was necessary to make the conductor of sufficient substance to prevent its being fused. With respect to the masonry, he observed that Wren had used in some of his churches, as in the porch of St. Bride's and the inside of St. Paul's, a soft and cheap description of stone, which came, he believed, from Windrush, near Burford, in Oxfordshire. The Portland stone of Wren's churches, and others, to the year 1740 or 1750, was extremely coarse and full of a species of large oyster-shell. This might be noticed in Hawksmoor's Church (St. Mary's Woolnoth), Lombard-street. This kind of stone had been brought from the eastern side of the Isle of Portland, where a large quantity of it still remained. This was proved by the documents in the possession of the family whose ancestors supplied the stone for St. Paul's and Greenwich Hospital. It was then called best bed stone, being the best then known, and it still retained that name,—although much better stone was now worked. The Portland stone now in use was introduced not long before the time of Sir W. Chambers; and the north front of Somerset House would be found to be of a very superior kind of stone to that of Wren's time.

Mr. Irvine, visitor, explained, from his own observation in drawing it for the Royal Academy, about six months ago, the construction of the upper part of the spire of Bow Church, in the masonry of which (in the solid part of the drum) pieces or dowels of English oak were inserted, apparently to diminish the vibration. He felt sure they were placed there when the spire was first erected. From the want of a proper conductor, this spire was very liable to injury from lightning.

* Dictionnaire d'Architecture. Article, Clocher.

The following Table shows the Height, &c. of the principal Italian Campanili.

	English Feet Height.	Proportion of Height to Base.
Cremona, Il Torrazzo	396	—
Square part, two-thirds of whole height	—	6
Venice, S. Marco	350	—
Square part, two-thirds of whole height	—	6
Sienna, Torre del Mangia	338	—
Modena, la Ghirlandina	315	—
Bologna, Torre Asinelli	312	12
Florence	273	6
Parma	256	8
Sienna, Cathedral	210	8
Pisa, leaning Tower (circular)	178	3
Lucca	177	—
Bologna, Torre Garisendi	151	—
Rome, S^{a} Maria in Cosmedin	110	7
Pisa, S. Nicola	109	5

Heights of Western Towers and Spires of some Cathedrals.

		Feet.
	Cologne	514
A.D. 1500	Ulm	491
	Strasbourg	452
1122—1152	Fribourg	415
1420—1518	Antwerp	403-7
	York	195
1350	Salisbury	404
	Old St. Paul's	520
	Vienna	465
	Boston, Lincoln (Church)	266
	Norwich	309
	Chichester	300
	Lichfield	252
	Lincoln	264
	Canterbury	230
	Gloucester	223

Lightning Conduction.—A discovery akin to that of Mr. G. Little, lately noticed in our columns, is said to have been made by Mr. Rodger Brown, of Sheffield; namely, that magnetized steel has pre-eminent power to attract the lightning when used in conductors instead of the ordinary article. By this means, and by multiplying the number of points in the head of the conductor, its attractive power is said to be tripled in intensity, its influence extending to some distance round the spot where it is fixed.

CHURCH-BUILDING NEWS.

Lynn.—St. Nicholas Chapel is to be restored with as much expedition as the magnitude of the work will allow. The workmen are already engaged on the western portion of the building, and the services will be held at the chancel end, temporary sittings being arranged for that purpose.

Gloucester.—The east end of the south aisle of the Church of St. Mary de Crypt has just been enriched with a memorial window in stained glass. It is a three-light decorated one, the centre compartment containing "The Resurrection" and the "Three Marys at the Tomb," in niches and panel, surrounded with floreated and crocketed borderings. On the sides are representations of "Christ bearing the Cross" and "Appearing to Mary in the Garden," "The Agony," and "Anointing the Feet." The tracery is filled with choirs of angels bearing scrolls, musical instruments, &c. The upper panel contains "The Ascension of Our Blessed Lord," and at the base are the legends "I know that My Redeemer liveth," and "I am the Resurrection and the Life." The window is by Mr. Rogers, of Worcester. Two or three other memorials are proposed to be raised in this church.

Aberdare.—The new Baptist Chapel was opened on 4th inst. This meeting-house is 60 feet by 40 feet within the walls, with a vestry attached for school purposes. The design and plan were presented by Mr. Thomas Joseph. The stained-glass window in front was painted by Mr. Eustace Richards. The pulpit stands on a platform, and is adapted for public meetings. The total cost of the edifice and vestry, including gas-fittings, fence walls and railing outside, contractor's extra charges, &c. amounts to 1,374*l.* 15s. 6d. The builder was the late Mr. John Pugh, who died just as he had finished the building.

Liverpool.—The foundation stone of the new church of St. Chrysostom, Everton, was laid on Tuesday last, by the Lord Bishop of Chester. The church is to be erected from the designs and under the superintendence of Mr. Raffles Brown, architect. It will be built of Upholland stone, with Bath stone quoins and dressings, from the quarries of Messrs. Randell and Saunders, at Corsham-down. The church will consist of chancel, with south chancel aisle of two bays; nave, with engaged tower at west end; north and south transepts, north and south aisles, north chancel aisle of one bay, containing the organ and choir; south porch and sacristy at north-east end. The nave arcades will consist of five lofty pointed arches of Caen stone on moulded shafts of polished Drogheda limestone, supporting a clerestory pierced with triplets; the transept arches being wider than the others, and supported on double columns, with carved and foliated caps. The tower will open to the nave with a lofty moulded arch, and will contain a gallery, supported on a screen, and lighted by a deeply-moulded five-light window, with tracery; the lower portion of the tower forming a porch, entered by a double doorway, with marble shafts, moulded, carved, and crocketed. The belfry will show on each side coupled two light windows, deeply recessed, and ornamented with the ballflower ornament of the period, surmounted by a parapet pierced in trefoils with crocketed pinnacles at the angles, from which flying buttresses to the spire terminate in carved emblems of the evangelists under crocketed canopies. The spire will rise to a total height of 147 feet, and be surmounted with a floriated gilt cross. The roofs of the church will all be open and of lofty pitch, stained and varnished. There will be galleries in the transepts, and the chancel will be seated with carved stalls. The church will be in the late decorated period of English architecture, with flowing tracery. The contract has been taken by Mr. Hugh Yates, of Everton, for 3,928*l.* inclusive of warming apparatus, bell, gas-fittings, and boundary walls. The wood work will be executed by Mr. John Mullen, the carving by Mr. Rossiter. Mr. John Turner will be clerk of works. The total accommodation will be for 1,260 adults. The whole expense of building the church will be 4,200*l.*

Cubbington.—The chancel of the church of this place, according to the *Coventry Herald*, has been restored under the direction of Mr. Butterfield, architect. The oak stalls were made by Mr. Mills, of Stratford. The floor is a combination of stone and encaustic tiles, by Messrs. Minton: a low wrought sanctuary screen of metal, manufactured by Messrs. Skidmore, of Coventry, crosses the chancel, supplying the place of the old altar rails. The nave is still choked up with deal pews, rising halfway up the massive Norman piers; while, instead of an extra north aisle, a gallery blocks up the proportions of the tower arch, and an ugly deal pulpit offends the eye. Now that the chancel has been restored, the parishioners will surely not allow these to remain.

Ripon.—It has been suggested to the Dean and Chapter of Ripon, that some stained glass should be placed in the east window of the Cathedral to commemorate the event of the creation of the see of Ripon. The Dean and Chapter approving of the suggestion, have now in course of execution, by Wailes, of Newcastle, a representation, in stained glass, of the commission given by our Lord to his apostles to preach the Gospel to all nations, with the fulfilment thereof historically depicted in other portions of the glass, being an appropriate subject, as they think, for such a commemorative window. The window is 55 feet in height, 25 feet in breadth, of decorated structure. The total cost is estimated at about 1,200*l.*

Shenstone.—The chief stone of the new church of Shenstone, near Lichfield, was laid on Thursday week. The building is to be dedicated to St. John the Baptist and St. Peter, and will be of Gothic architecture of the fourteenth century, with a nave and two aisles, the former 86 feet long by 20 wide, and the latter 74 feet by 12. The vestry will be under the tower. Accommodation will be provided for 600 persons, 150 free. The edifice will be built of stone, a gift by Hon. Frederick Gough, the exterior being hammer dressed, with ribbed quoins. The roof will be constructed of Memel timber, and covered with Staffordshire tiles. St. Peter's chapel is part of the same building, and is intended as an organ chapel and sittings for school children. The estimated cost of the whole is 3,840*l.* exclusive of tower above vestry. The architect is Mr. Gibson, and the builders are Messrs. Nesham and Locke.

Heckmondwike.—A stained-glass window has just been fitted in at the east end of the church of St. James, Heckmondwike, at an expense of about 70*l.* raised by private subscription. The window is triple, 18 feet in height, and about 10 feet broad. In the centre light is represented the Holy Bible, with the text—"Search the Scriptures," &c. On one side-light is the symbolical representation of the Holy Spirit in the form of a dove; and on the other is the lamb as representative of our Saviour. The groundwork is after a geometrical design, and the bordering is flowered. The window has been executed by Mr. Swithinbank, of Morley, near Leeds, who had the stained-glass work prepared for him by the St. Helen's Glass Company, near Liverpool.

Slaidburn.—The foundation-stone of St. James's Church, at Dale-head, the Easington parish of Slaidburn, was laid on Saturday week. Messrs. Healy and Mallinson are the architects; Mr. Newsham Wilkinson, the contractor. Mr. Wm. Wilkinson, according to the *Preston Guardian*, has endowed the church with 40*l.* per annum in freehold property, and given an acre of land for site, and a space for burial ground, parsonage-house, and school, if required. The church, according to the *Blackburn Standard*, is to be built of the stone of the district, which is a beautiful grit.

DOMESTIC USE OF GAS FOR HEATING.—Mr. E. Goddard, C.E., of Ipswich, has, it is said, constructed a small portable asbestos gas stove, for heating apartments, of great simplicity as well as portability, the apparatus being contained in a box 12 inches by 9 inches, and 3½ inches deep; also a protected gas-burner for gas cooking stoves, in which the holes are not liable to be choked up.

BRISTOL SOCIETY OF ARCHITECTS.

AT the second annual meeting of this society, held on Monday, 3rd, Mr. J. S. Harford, president, occupied the chair, and opened the proceedings by some remarks, in the course of which he said that he often told foreigners who came to this country for the purpose of inspecting the monuments of British architectural art, that it was not in a city of brick and stucco, like London, they were to look for them; for though the metropolis contained an abbey and a cathedral, of which the nation might justly be proud, as objects of admiration, still it was only by travelling throughout the kingdom that a just idea of its architecture could be gained. There could not be a moment's question that the highest poetical imagination was united with the most profound science in the minds of those architects who, from age to age, produced fabrics that delighted and astonished the feelings of spectators from all countries. King's College, Cambridge, was an illustration of this double power of imagination and science, and no one could look for the first time on its beautiful union of simple and grand lines, its daring span of vaulting, its rich and exquisite ornament, and its gem-like windows, without being overpowered by the inspiration of the place, and awed by the sublimity of the scene. He would not take up their time by enumerating other buildings of equal splendour, but would just observe it might be said of architecture that it never sank so low as painting and sculpture did during the decline of art and learning, and that it first broke the bonds of barbarism and soared aloft in excellence and grandeur. In proof of this he would remind them that the date of the cathedral of Pisa, the pride of Lombard architecture—for he never would allow any force in the argument that assigned to it a Grecian or Byzantine origin—its date was 1064—that was to say, a great part of two centuries before Dante or Petrarch wrote and Giotto painted. This was a fact at once interesting and important.

The honorary secretary read a report, in the course of which it was stated, amongst other things, that

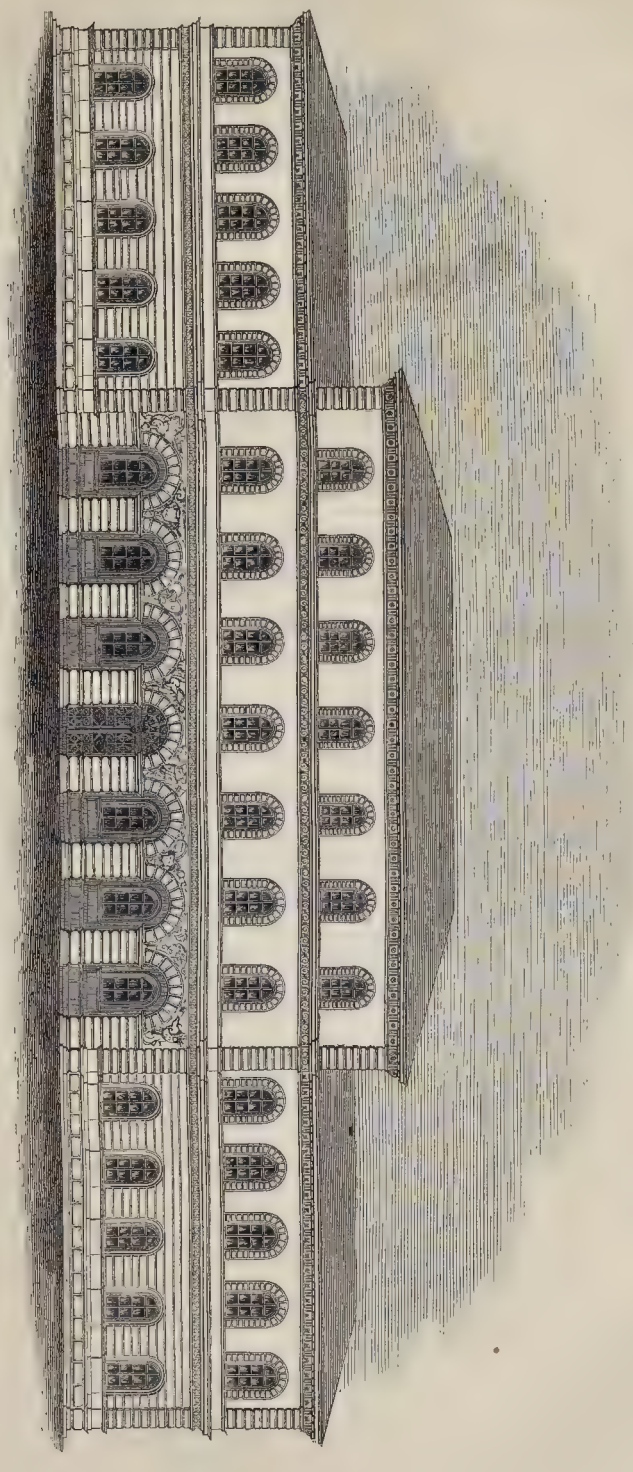
"An important resolution from the body of associates, relating to an arbitration clause in specifications, has been received and fully discussed in council, and also at a large meeting of the fellows and associates, and it has been recommended for general practice that the clause admitting of the appointment of an arbitrator in all disputed matters connected with a contract shall, with the consent of the employer, be inserted at all times when desired by a contractor, a regulation which it is thought will give great satisfaction to all parties, as it will materially add to the powers of the architect, at the same time that it will protect the builder from undue severity, and preserve the employer from the possibility of incurring troublesome and expensive litigation.

The attention of the council has been directed to the system of surveyorships at present existing in this city, and after a full discussion of the subject, they have decided that it is alike prejudicial to the interests of all members of the society, and of the public generally. A committee has therefore been appointed to report upon such steps as may be deemed best to procure a speedy alteration of the present system, and obtain the appointment of one thoroughly efficient surveyor for the whole borough, who shall not be allowed to carry on a private practice, or possess any local professional interest. The counsel hope soon to receive the report, and will then proceed in the matter, believing that the town council and the improvement committee will be in favour of the proposed change."

It appears that the society now consists of fifteen fellows, two graduates, twenty students, sixty associates, one life member, five corresponding members, and twenty-seven honorary members, the latter being artist members of the Bristol Academy of Fine Arts,—making a total of 130 members.

EDIFICES IN MUNICH.

THE accompanying illustration represents the entrance-front of an edifice erected from the designs of M. Leo von Klenze.



EDIFICE IN MUNICH.—M. Leo Von Klenze, Architect.

CRITICAL REMARKS UPON SOME OF THE MONUMENTS AT VENICE, AND IN OTHER PLACES ON THE ROUTE THITHER.*

The noble group of buildings which surround the principal piazza of the city first claim attention. Here the arts of each successive era are combined, and in such a manner that they mutually enhance each other: the towering campanile forms as it were a centre: the long and level buildings of the Renaissance architects bound three sides of the piazza and one of the piazzetta; and opposite to these stand the venerable palace of the Doges, and the fair front of the church of St. Mark. I shall be excused, therefore, for asking you to turn your back upon the works of Sansovino and Scamozzi, in order to direct your attention to those of the nobler era of the Republic of Venice; for these,—thanks to the latent patriotism of the senate, who rejected the proposition of Palladio to destroy the palace and to rebuild it in his modern style, which if it had been carried into effect, should have caused us to execrate his name,—are but little altered, and by their solemn grandeur, undisturbed by the motley groups around, or by the Austrian livery by which they are sometimes desecrated, involuntarily recall to the mind the glorious days of the state when its fleets swept the Adriatic, and its merchant princes were found in honour in every court of Europe.

The church of St. Mark, now, but not formerly, the cathedral of the city, displays dominant over all the interpolations of subsequent periods the forms of Eastern art; yet from the fact of the whole not having been erected at one time, there may be just such an apparent want of correctness and unity in the composition of its façade, as may prevent those who are not accustomed to bestow more than a passing glance on any building to feel a certain dissatisfaction with it. At least, I cannot otherwise account for the strange want of taste which has led several critics to condemn it on the score of ugliness: alas! eyes they may have, but I fear they do not know how to see with them. There is throughout such an evident manliness and daring in the construction,—such an appropriateness in every portion of the magnificent ornament with which it is encrusted,—such a freedom from conventional laws, and yet an implicit obedience to those which would be imposed by nature,—as cannot fail to impress the mind of any one who should examine it more closely; and having myself, day after day, for weeks in succession, sat in the piazza before it, each time that I gazed upon it, it appeared to me more lovely, and something fresh seemed to reveal itself which before had escaped my notice.

Time would fail me were I to attempt even to enumerate the various points of interest which its varied details present; for no two of its capitals or carved ornaments are alike: in each some feature seems to have caught the eye of the artist and to have been elaborated by his hand, and among them may be found the types of almost the different classes which are prevalent in other countries. I will, therefore, remark only upon some of the more obvious arrangements of its architecture.

The plan of the church is that of the simple Greek cross, having a dome over the crux and each arm, lighted by a row of small semicircular windows, opening into the lower part of the cupolas. The domes, apparent from the exterior, and which are of elegant Arabian forms, are raised above those within, and formed of carpentry. Around the arm of the cross which forms the nave, there is a spacious vestibule covered by shallow domical vaults, the whole of which, as well as the sides, are encrusted with the older mosaics of the Byzantine school. On the southern side, towards the Piazzetta, this vestibule is inclosed and occupied as the chapel of Zeno family, and the Baptistery.

This portion forms also an important feature in the façade, projecting before the body of the church, which rises above it, and having a spacious gallery upon the top, it is occupied by seven semicircular arches: of these the centre one is the widest in span: the two on either side are next in width, and correspond with each other; and the outer arches on either side are narrow and stilted, and project beyond the returns of the vestibule: the whole are supported on double ranges of columns of the most precious marble,—trophies of conquest brought from the East: those of the lower range are loftier than those above, which at the angles causes a curious arrangement, there being at those parts five of the smaller columns clustered on the spreading capital of the one below.

The entrances themselves are deeply recessed, so as to produce a fine shadow. The proportion of this lower story is very exquisite, by the variation both in the spans of the arches, and in the heights of the two ranges of columns. The upper portion, which has five semi-circular arches over the five central ones below, seems hardly to rise sufficiently above this vestibule: the details, however, are alike excellent, excepting the pinnacles and fringes of foliage to the arches, which support no entablature: these being mostly of a later date, are rank and coarse in design and execution. The domes are beautiful in form, and, though small, I, for one, would not wish them larger, as they would otherwise crush the façade, and detract from the effect of the palace and campanile.

The interior being more completely in one style, possesses, perhaps, more repose and unity than the exterior. Its gorgeous, yet harmonious, colouring, is most striking. The divisions of the aisles is generally by a range of columns, which bear an entablature and gallery wide enough for a person to pass, but does not rise to the roof: up to the level of this gallery, the walls are encrusted with a marble of deep reddish tone, and above with mosaics on a golden ground: the pavement is likewise of mosaics of marble. The details are equally fine with those of the exterior: the few weeks' study I was able to bestow upon them seemed only to reveal their infinity.

I must now, however, pass to a description of the Doge's palace, which may be considered as the type of the purest Venetian Gothic architecture. The plan of this building is a hollow square, of which the sides towards the sea and the piazzetta are supported on arcades, the lower one having arches of wider span than that above: its columns are partly sunk into the ground from the accumulation of the soil. The upper one has circular traceries between the arch-head, and is a most noble feature: it supports a lofty wall, perforated with large arched windows at intervals, the central one of either side being decorated with a rich framework of later design than the lower part. The walls are chequered with rose-coloured marble. The interior has suffered greatly from fire, so that none of the original ceilings remain, which is much to be regretted. The court within and the giant's staircase are of Palladian architecture, having a certain elegance; but the eye may rove in vain over their details for the spirit and beauty of those of the original work. The capitals of the lower story of the exterior façades are by far the finest; but even these are exceedingly unequal in merit. There may be half a dozen different types displayed by them, from which the others have been copied. These few, of the better character, are, in my opinion, the finest and most suitable capitals for their purpose which I have ever seen, whether considered for their design or execution.

Altogether, this class of Venetian Gothic, of which the Doge's palace is the finest specimen, is of a most noble and grand character, and far better, I think, than the ordinary development of Lombard Gothic, of which the churches of the Frari, and of St. Giovanni, and St. Paolo in Venice, and St. Anastasia, and other churches in Verona are examples, although doubtless there are many very fine qualities and details in these. But as a style, the one is broad and effective, the other somewhat poor and flat. The first may rank by the side of the best northern Gothic, which is to be found in France and England, and in detail, perhaps, before it. It is to be noted, however, that it is only found in secular architecture, to which it appears particularly applicable, and for which reason it is of great value, as our Gothic is more peculiarly ecclesiastical. The other style, as far as I know it, I do not consider can claim at all the same position. I agree with the opinion expressed concerning it by Professor Willis, and state this even with the remembrance of the tombs of Venice and Verona. Some of their foliage ornaments are certainly exquisite, and a few of the effigies unsurpassed; but as compositions combining architectural and sculptural merits, I should place them in rank beneath those of the two Valences in Westminster Abbey, or the Percy shrine in Beverley Minster. I am told that there are finer works of Gothic than these which I have seen, in Florence and elsewhere farther south, of which I cannot speak; but as far as I can judge, I believe the peculiar value of Italian Gothic is, that it shows how admirably it may be applied to any and every purpose, to domestic and secular architecture as well as to that which is ecclesiastical.

I have already far exceeded the limits I had proposed to myself, but must before I conclude make some brief remarks on others of the buildings at Venice. That which I have said of the Doge's palaces, will generally apply to those of the same class, as the Foscari and Giustiniani and other palaces, whose grand ranges of central traceried windows are so effective: the windows with their ornamental framework, however, of their upper stories are usually too square and do not finish well the composition: in a few instances they are pointed, which is far better. They seem also to want more important cornices. Of Arabian architecture there are some elegant and beautiful examples, with stilted semicircular arches in long ranges, and with delicate variations of proportions, such as the palace Loredan, and the Turkish Caravanserai. The arabesques with which they are decorated are also very beautiful, and small panels with quaint grotesque carvings are frequently found upon them. Of the earlier Renaissance school of the Lombardi there are some very elegant structures, among which I may particularly mention the Palace Corner Spinelli, by the Grand Canal, for its exquisite proportion. The façade of the Palace Vendramini Calergi, though but a mask—as in a greater or less degree, are those of most of the later palaces—is a good design: it has a fine cornice, but the main divisions into order are too equal in height. The lateral arrangement is far better in proportion. Upon these buildings some of the details still possess some interest: although they have neither the originality, fancy, nor vigorous expression of the earlier work; yet the porphyry and marble panels which adorn the Palaces Dario and Trevisan, and others of the same date, are very beautiful. There are also some elegant churches of the Lombardi school, *e. g.* S. Zacharias, S. Maria dei Miracoli, and the Scuola di S. Marco, which are elegant, and have rich semicircular pediments with acroteria. Of the modern Italian founded on the revived classical there are numerous examples. By Sansovino we have the Library of St. Mark, the Cornaro Palace, now the Austrian Legation, with others which possess to my eye a certain prettiness of effect and elegance of proportion, without any manner of dignity, and the details are so utterly meaningless that they seem to repel examination. The Palace Grimani, now the Post-office, by San Michele, struck me as being far more grand and noble than any of Sansovino's edifices: indeed, it seemed to me to be the only work of the school in Venice which, from its chasteness and adherence to the laws of its own style, might give some pretext to its architect or admirers to find fault with the irregularities of the older buildings I have described. The works of Palladio, for instance, abound with the misapplication of the most important members, with the monstrosities of broken pediments, columns on stilts, and of constructive features used only for ornament, that it seems to me to be sheer prejudice to pass over such glaring errors, to cavil at the license that has been taken with the columns at the angles of St. Mark's

* See p. 276, ante.

Church. The greatest merit of the churches of this architect are, I think, their admirable grouping and outline, and suitableness to their situation: thus, the Church of St. Georgio Maggiore forms a charming group, with its elegant detached campanile: the arrangement, however, is a Lombard design, the detail of the interior heavy and uninteresting. As to the Church of the Redentore, while one may be thankful for the dome in that position, the abominable buttresses which jar upon the side, on a closer approach, would be thought cause enough for hanging an architect in these days; so that really, since purity of style cannot be the boast of this school, I, for one, am willing to dispense with the nice criticism affected by some, and to give the preference to the works of Balthazard Loughena, the Vanbrugh of Venice, over those of the masters I have named, in many points; for although the character of his detail is excessively crowded and corrupt, there is certainly a glorious richness of effect and artistlike conception in his buildings. How sadly would be missed the exquisite group of St. Marie de la Salute from every point of view which it adorns at present. The Pesaro Palace is likewise a noble and majestic pile, and by its gorgeous and palatial appearance, it surpasses all others upon the Canal. The Palace Rezzonico, is also very rich and effective, and the contrast between it and the Cornaro Palace, by Sansovino, nearly opposite to it, is not to the advantage of the latter. JOHN P. SEDDON.

THE EXHIBITION OF THE ROYAL ACADEMY.

THE present exhibition, although not remarkable for "leading" pictures, must be regarded as affording a very satisfactory indication of the general advance of the British School of Art. One of the finest works in the collection is unquestionably Mr. E. M. Ward's picture, "Charlotte Corday going to Execution" (316), which is painted with a power and force rarely equalled. Robespierre, Danton, and Camille Desmoulins, form prominent parts of the picture. Mr. Ward, while he departs from the beaten track in search of subjects, has, nevertheless, the skill and judgment to select those which appeal to and are recognised by a large class of persons. Mr. Roberts's three pictures, all purchased by Mr. Thomas Cubitt, "Venice" (34); "Antwerp" (69); and (371) "Interior of the Cathedral of St. Stephen, Vienna," are admirable productions. The effect of space and careful detail produced by comparatively trifling work in the interior of the church at Vienna, is quite marvellous. In Mr. Frith's (No. 336) "Pope makes love to Lady Mary Wortley Montague," we should have preferred a laugh less boydenish on the part of Lady Mary: she laughed, but it was, doubtless, the laugh of a lady. This is, nevertheless, one of the most complete pictures in the gallery.

Mr. Stanfield's paintings this year are wonderfully refined and elegant. We should especially mention 43, "The Bay of Baiæ, from the Lake Avernus."

Mr. Maclise's "Alfred in the Tent of Guthrum the Dane" (122), although remarkable for fine drawing and elaborate composition, is less satisfactory than the works of this excellent artist usually are. It is wanting in unity—the eye wanders from one end of the canvas to the other uncertain where to stay. A large painting opposite to this, by Mr. Lucy, "The Parting of Lord and Lady Russell" (14), affords a contrast in this respect to Mr. Maclise's. The spectator is at once led up to the heads of the two figures in the picture, and finds there, with a very satisfactory result on the mind, the point and purpose of the picture. Mr. Lucy deserves applause for this painting. 107, "Beech-trees and Fern," by M. Anthony, is singularly well painted, especially the lower part of the picture, but the subject does not justify so large a canvas. 171, "The Marquis of Saluce marries Griselda," by C. W. Cope, R.A. is a picture of worth. Rankley's "Eugene Aram" (298), also calls for mention. "Florinda," by Winterhalter (285), has merits of a high order, but is artificial in tone. Mr. Lance has a more ambitious picture than usual, entitled "The Seneschal" (227), a figure of full size, in a gown, standing amidst plate and fruit of most tempting aspect. It is painted in the manner of Rubens, and is a fine work. Mr. E. W. Cooke's view of the Doge's Palace, Venice, No. 405, is a marvellously minute piece of depiction. "Laura in Avignon" (448), by Mr. Cave Thomas, will repay a close examination.

Some of the Academicians and Associates who exhibit are under their own mark. This cannot be said of Messrs. Creswick, Lee, and Sidney Cooper, whose landscapes well maintain for them their position. Nevertheless, good landscapes do not preponderate in the present exhibition. Amongst the finest must be mentioned "The Timber Waggon," by J. Linnell; and "The Disobedient Prophet," by the same artist. The earnestness and power of Mr. Millais are shown in 478, "A Huguenot refusing to wear the Roman Catholic Badge," still marred by adherence to an unsound theory. The "Ophelia," by the same artist (556), though displaying much cleverness, is misnamed.

Mr. Solomon and Mr. H. O'Neil both show an advance on their works of last year. Mr. Pickersgill, R.A. has some admirable portraits, and a fancy piece, "A Lady in the Modern Greek Costume." Mr. J. P. Knight is very strong this season. We should particularly mention, though less important than others, a portrait of "A Student," without a name (578). His likeness of Professor Donaldson is not satisfactory about the mouth.

The holder of the 200*l.* prize, in the Art-Union of London, the Rev. Mr. Sibthorp, has selected No. 143, "Our Saviour with the Woman of Samaria," by G. Cornicelius, of Munich. We understand that of twenty pictures selected by the rev. gentleman as meeting his views, this was the only one he found obtainable.

CHISWICK GARDENS—KEW—MAY-STROLLS.

IF any prompting were necessary, we should tell the Londoners by all means to maintain the Horticultural Society in efficiency and strength, if it were only because it provides the pent-in and ill-ventilated townsman with the means for a pleasant interview with Nature in her best attire, and coaxes many to enjoy and benefit by a gulp of fresh air, who get very little of it otherwise—thanks to sewers and graveyards. It is not often they have so fine a day for their first show, as Saturday last. The visitors were not very numerous, but the gardens looked the better for being less crowded, and the flowers were magnificent: such wonderful orchids, marvellous azaleas, and exquisite roses, according to their owners, have been never seen. One of the roses had a name that took all by storm: "so suggestive," said some of the pretty flutterers: — *Souvenir d'un Ami*. It was a large loose-leafed, white one, tinged with yellow. For our own part, however, we would not have our *souvenir* "tinged with *yellow*;" but let that pass. There are to be other meetings on the 12th of June, and the 10th of July.

Kew Gardens (another boon) are now, and will be for a time, open to the public, every day except Sunday. Of what may be seen there we have before now spoken.

On May-day, pleasant May-day, we found ourselves floating on the quiet Thames from Maidenhead towards Marlow, under the walls of Cliefden, lately rebuilt by Sir Chas. Barry. Short as the distance is from London, the change is surprising. Hills covered with verdure, noble trees, the solitude of the lakes. How wonderful is the power of Nature's chemistry! evolving from earth, air, and water, such varieties of wood, of form, of colour—poison and food,—and always varied; always beautiful. Regularity and order are the governing principles; GOOD the leading motive.

May-day was in earlier times a festival with all classes in England, and they went out into the green woods to forget for a time the cares of the striving world. The reader of "Strype" will remember how that Henry VIII. went forth to Shooter's Hill "a-maying," with a large retinue. The Roman women, in classic times, sacrificed to the "Good Goddess," or the Earth, on this day. But, pardon us, good reader, and (hard-worker, careful plodder though you may be) do not think an afternoon spent in the woods *wasted*: do not think we leave our province when we venture to talk to you about green fields and flowers, and pleasant breezes. Snatch as many of such gleams of sunshine as fall within your power; keep up your acquaintance with nature; remain young as long as you are able; and be in no hurry to lose the zest for innocent pleasures. To those who grumblingly object, we should be tempted to say, with Diogenes, "Stand out of the light: you keep the sun from me."

ARTISTS' BENEVOLENT FUND—PUBLIC DINNERS.

THE anniversary dinner of this excellent institution, was presided over by Sir Charles Eastlake, president of the Royal Academy, and was attended in consequence, probably, by a larger number of the leading artists than usual. The chairman pointed out that the institution consisted of two separate and distinct branches, the annuity fund and the benevolent fund. The former was raised and wholly supported by the contributions of its members for their own relief in sickness or superannuation. The benevolent fund was raised and supported by the donations and subscriptions of the patrons of the fine arts, for the relief of the widows and orphans of the members of the annuity fund.

The most interesting statement made, was the announcement, on the part of the president, that the council of the Royal Academy, with respect to the "varnishing days," feeling the injustice of allowing the members of their own body to touch their works on the walls, and not the general exhibitors, and finding it impossible to admit all, had resolved to discontinue the privilege. The president said the extraordinary use made of these days by the late Mr. Turner had alone prevented an abandonment of the objectionable custom during his life.

We would give a hint to the new proprietors of the Freemasons' Tavern to bring a little taste other than gastronomic to bear on their dinners. At an artists' dinner in the month of May, and so near Covent Garden, could they put nothing better upon the table than a bunch or two of miserable worn-out artificial flowers? At the Literary Fund dinner, too, at the same place, on the 12th, ably presided over by Lord Chief Justice Campbell, there was the same utter want of art. If the proprietors would turn their attention to this, we undertake to say they would find their advantage in it.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

ON Wednesday, May 12th, Mr. Briggs of King's Newton, Derbyshire, communicated an account of the remains of apparently an ecclesiastical building, of some considerable importance, in the village of Staunton, called St. Bride's, about one mile and a half from Calk Abbey, and five from Repton. The paper was accompanied by drawings of sculpture and other antiquities discovered on the spot. Mr. Briggs expressed his belief, that this establishment has entirely escaped the notice of previous antiquaries and topographers, and his surprise that no document has been met with which in any way tended to elucidate its history.

Mr. Black exhibited a large collection of rubbings from brasses, in Northamptonshire, made by Mr. Baker, the historian of the County. The originals of many have now disappeared. Mr. Calder Marshall, R.A. exhibited a palimpsest seal found at Oxford, originally of the fourteenth century.

Mr. Oliveira exhibited several fine carvings in ivory, and other works of art in pilever and needlework, which he had brought with him from Lisbon. The meeting then commenced the discussion previously announced, respecting the crypt at Gerrard's Hall. Mr. White introduced the subject by reading the brief

and imperfect notices of the Hall contained in Stowe, Maitland, and other writers, and then proceeded to explain the drawings of the plans and details made for the Association, particularly a beautiful drawing by Mr. Mackenzie. Mr. Black, Mr. Planché, Mr. Duesbury, and Mr. Gould stated their opinions respecting the origin of the name, which is said by Stowe to have been a corruption of Gisor's Hall, but the fact of a Gerrard Batt having been mayor of London at the time Gisor was sheriff, was considered by some members a refutation of that assertion. Mr. Lott reported the success of his exertions to preserve the crypt, by removing it bodily to another site, as mentioned at the last meeting. He had induced the Commissioners of Sewers to recommend his plan for adoption to the Improvement Committee, and at all events he had delayed the destruction of the building, if he had not completely averted it.

RAILWAY JOTTINGS.

In a paper lately read before the Institute of Civil Engineers, Mr. B. Poole proposed various measures for the economisation of our railway system throughout the country. The first of his proposals is that the whole of the railways in Great Britain should be worked in four divisions, or amalgamations. The North Western, Great Northern, Great Western, and South-Eastern and Western; the apportionments of territory to be arranged by the uninterested companies. Second. The companies to reserve in their own hands the maintenance of way, instead of paying contractors. Third. To manufacture their own rails, chairs, and spikes. Fourth. The whole rolling stock in the kingdom to be amalgamated, and made common to all lines, each division contributing to maintenance, according to its traffic. Various other measures are recommended, among which are—Tenth. By the manufacture of gas at the large stations, a saving of from 30 to 40 per cent. might be effected. Eleventh. The application of steam, where practicable, at stations, to supersede horse or manual labour. Thirteenth. All brass-work to be painted over, to save the expense of polishing. Fifteenth. Exclusive use of two or more wires of the telegraph, not only for the transmission of ordinary messages, but to ascertain each morning the exact position of the rolling stock of the country, in order to conduct its distribution with economy and despatch. The paper concluded with a proposal for a general classification of trains, separating each class, and running them at different speeds, whenever practicable.——Mr. Henson, of the London and North-Western, has patented a mode of construction for rails, by which greater stability, with an equal amount of elasticity, is said to be given, and a saving caused of the serious expense on the old system of laying the rails on rigid bearings, as well as of the wear and tear and injury to locomotive and rolling stock. This rail is of a conical form, expanding at the base. In place of going crosswise, like a bar-bridge, from one sleeper to another, Mr. Henson's rail is supported throughout its length upon a longitudinal sleeper, connected at intervals by wrought-iron tie-rods on transverse timbers. The advantages of Mr. Henson's invention are described to be "fewness of parts, great reduction in cost of maintenance, and unquestionable safety to passengers."——The Illinois Central Railroad, which is 670 miles in length, and for the completion of which Congress has donated an aggregate of 2,572,800 acres of land to a company at New York, composed of some of the first men in the Union, is progressing in a satisfactory manner: 150 miles will shortly be completed, and the entire line will be finished within four years. It is proposed to meet the cost of construction by the issue of bonds, bearing 6 per cent. interest, payable in 1875. Part of the iron for this road is now being manufactured in South Wales, and upwards of 30,000 tons have altogether been agreed for, 15,000 tons of which have been purchased by Mr. Neal, the vice-president of the company, from an eminent London firm. The port of Chicago, on Lake Michigan, forms the north-eastern terminus of this great enterprise, and already boasts a tonnage equal to Glasgow; while the port of Cairo, near the junction of the Mississippi and Ohio Rivers, is already scarcely inferior in importance to our Bristol, and constitutes the south-western boundary of the railway.——"We learn," says the *Morning Herald*, "that active parties are engaged in reviving a scheme, projected some years ago, namely, a line of railway from Shrewsbury to Aberystwith; and it is stated to be also probable that the country from Shrewsbury to Crewe will be similarly occupied. We are informed, though we do not believe, that the latter will be promoted by the London and North Western Company, as a competing line to the Shrewsbury and Chester."——It is proposed to provide locomotive drivers with a looking-glass, by means of which, while looking, as they must do, straight a-head, they might at a glance see if anything were wrong with the train, by signal from the guard, or otherwise. This is not a new suggestion, however, and we doubt there are hindrances in the way of its practical adoption, such as steam, for instance, and soot, which might obscure the face of a mirror precisely at the moment it was wanted.——An ingenious plan of a self-adjusting train-signal, to be applied to each carriage, and linked, by help of what is called pin and star clutch boxes, projecting as the buffers do, has been suggested by Mr. H. Dircks, of Moorgate-street. We cannot agree with the inventor, however, in thinking that the application of such an apparatus to carriages, so as to allow passengers to give an alarm whenever nervish fear, or juvenile mischief, as well as real danger might prompt, would be an "advantage," unless, indeed, or until, some means be arranged of allowing the guard so signalled to traverse the train and to ascertain personally the cause or pretence of alarm, by direct intercourse with the alarmist. A narrow gangway or beat might surely be invented for this purpose so as to secure somewhat greater safety to the guard than by crawling along the tops of the carriages, which has actually been not unfrequently done in cases where imminent peril was thus alone obviated at the double risk of the adventurer's life, as in one instance where both driver and assistant were lying insensible on the engine from previous drinking combined with rapid transit, while the train, full of passengers, was flying straight a-head at the rate of 50 miles an hour!

DOINGS IN IRELAND.

THE subscription list for the erection of a testimonial to the late Thomas Moore, is rapidly filling, and the Earl of Charlemont (who is chairman of the committee) has given his mansion in Rutland-square for the transaction of their business, and in other respects has taken a lively interest in the proceedings. The sum likely to be realised, not only in Ireland, but throughout the United Kingdom and the Continent, will be ample for the production of a monument, which ("if judicious artistic taste be displayed") may prove a credit to the country.

Mr. Beardwood, builder, has been declared contractor for the erection of the Roman Catholic church of St. Catherine, at Dublin, (lately described by us) at 6,500*l*.

The new Town-hall, at Queenstown, will be opened on the 27th May.

The dimensions of the new Roman Catholic church at Ballinasloe, are 130 feet by 60 feet, consisting of nave and aisles, with chancel and lateral chapels; bell tower, at west end of nave, under which is the baptistery. The style of architecture is Gothic.

The foundation-stone of the Dr. Sinnott testimonial, which consists of a school-house for the children of the poor, has been laid at Upper George's-street, Wexford.

Alterations and improvements have been made to the town of Gort church, under the direction of Mr. Festus Kelly, architect.

The first stone of the Grand Stand House, at the Curragh of Kildare, has been laid by his Excellency the Earl of Eglinton. The plans were furnished some time since by Mr. Sancton Wood, architect.

The erection of an Athenæum at Belfast is in contemplation.

Mr. J. J. Lyons, architect, has been instructed to prepare the requisite designs for the proposed convent and schools for the Sisters of Mercy, at Ballinrobe, county Mayo. The expenditure will probably be 3,000*l*.

A new church is to be erected at Nappagh, county Mayo, according to the drawings of the Ecclesiastical Commissioners' architect.

Extensive alterations and improvements to the Waterford Cathedral, are contemplated.

His Royal Highness Prince Albert has subscribed 100*l*. to the Munster Exhibition, which will be opened in state, on the 10th June, by the Lord Lieutenant.

The Corporation of Dublin have disposed of the contract for the erection of buildings in Winetavern-street, to Mr. Meade, builder, and *not* to Mr. Roberts, as we were misinformed, and the adoption of whose tender was stated in a previous number.

The committee of the Museum of Irish Industry have lately made extensive additions to their establishment. Mr. George Papworth, architect; Mr. O'Brien, builder.

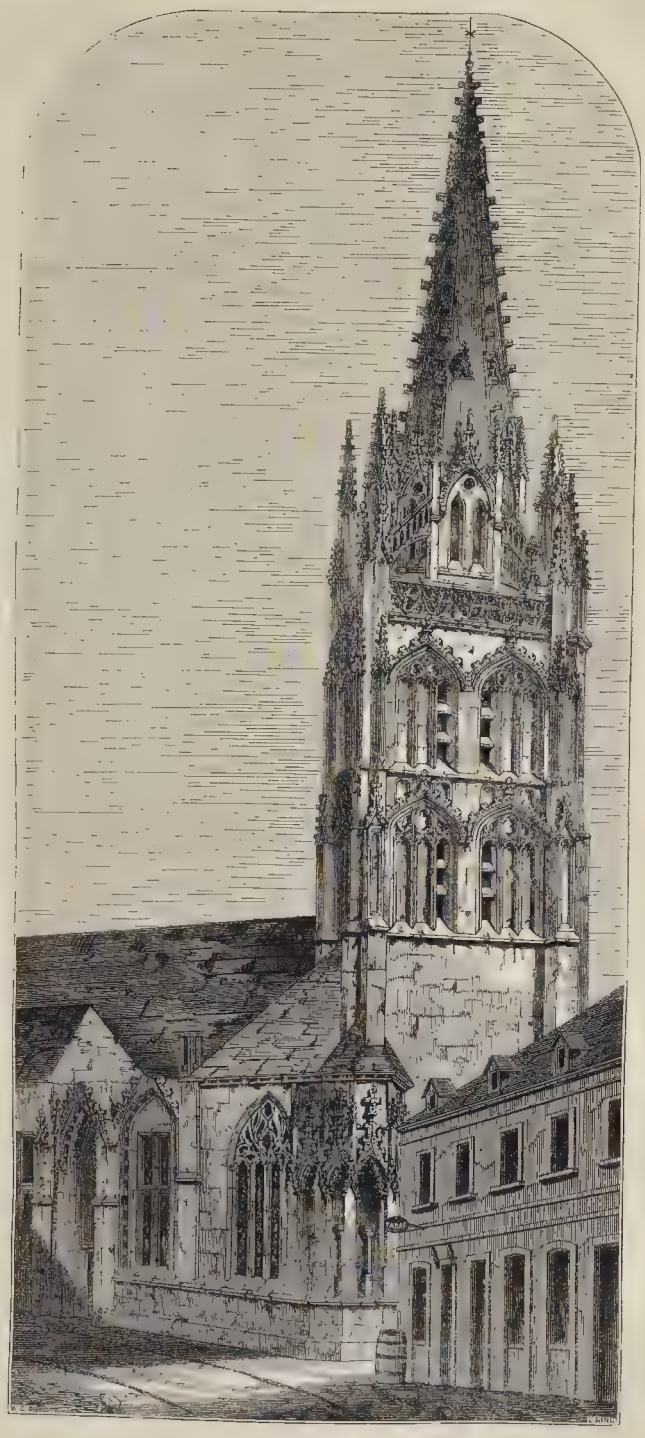
The Dominican Friars intend having a new church erected on the site of the present Dublin Penitents' Retreat, in Dominick-street, Dublin. The expenditure, which is being raised by subscription, will probably be 8,000*l*.

HARFLEUR.

THERE is hardly any town in France which has experienced greater vicissitudes than Harfleur. In the time of our Henry V. it was one of the principal ports of the kingdom, holding much the same position that Havre does at the present time. Its commerce was great: ships from its own port traded beyond the tropics; and, in return, vessels of all nations were to be seen floating in its basins. At the time we are speaking of, it was of so much importance that its extensive fortifications enabled it to endure a siege of forty days; and when it was at length taken, the king, delighted with his success, "vowed to erect a temple to God on the site of the humble church of Harfleur." But all this prosperity has vanished: the waters have receded before the vast accumulation of sand washed in continually by the action of the tide, and its ships, thus denied all access, gradually carried their wealth elsewhere. And now, as the traveller approaches the place, he looks in vain for the roads where the navy of Henry V. rode triumphant, or for the maritime town which Monstrelet called "*le souverain port de Normandie:*" in its place he will find a small inland town, hardly better than a village, without a harbour, and without fortifications, with rich pastures in the room of docks, on which sheep graze, where once ships floated. The only monument of its departed glory is the church, which forms the subject of our illustration.

It has been said that this building was erected by Henry V. to commemorate his victory; but this cannot be the case, as the east end of the church has work of a much earlier date, particularly some fine windows now blocked up, which are of the 13th century. The tower and north aisle were probably built in the time of that monarch, and these portions of the building are deserving of attentive examination, and these only: the remaining portions are in a wretched condition; the walls despoiled of their fine windows, parapets, and pinnacles, while the south aisle has been rebuilt in a style to which it would be difficult to give a name, but which is totally at variance with the original work. The flamboyant window, shown in our drawing, has lately been restored, but by some accident the mullions are out of the perpendicular. The very beautiful north porch is well known through an illustration in the "Glossary of Architecture."

Near the church there is a fine specimen of a timber house, which appears to be of the fifteenth century; and in some neighbouring pleasure grounds stands an Italian villa, which, at the time of our visit, was undergoing a careful restoration.



CHURCH AT HARFLEUR, NORMANDY.

NOTES IN THE PROVINCES.

Southampton.—The new Corn Exchange and Chamber of Commerce, are to be erected on the site of the old Custom-house, on the Town Quay, and facing the harbour. The lower part of the front is to be stuccoed with Portland cement, and rusticated; the upper part faced with white bricks. The cornices and dressing, balustrade, &c. to be also executed in Portland cement. The whole of the area on ground-floor is to be appropriated to the Corn Exchange, having a staircase provided, leading to the Chamber of Commerce above. Additional light will be obtained by means of a large lantern, to be provided in the centre of the building. The floor is to be paved with Staffordshire blue and red paving tiles, laid on concrete. The cost of the building will be between a thousand and eleven hundred pounds, in addition to the materials of the old building. Messrs. Hinves and Bedborough are the architects, and Mr. Ball the contractor.

Birmingham.—From a report by Mr. J. P. Smith, the borough surveyor, in relation to the works performed, commenced, and in progress, since 1st January, it appears that there have been used of rag stone since that period, 5,364 tons; pebble stone, 3,729 tons; gravel, 6,197 tons; and of water for the roads, 19,642 loads, or 6,540,786 gallons. The number of new buildings registered under the Improvement Act was 160, and 646 houses, a small portion only of what had really been erected, and it was deemed necessary to enforce the penalties incurred by this neglect of the provisions of the Act before complete registration was effected. Many requests by builders, &c. had been made to be allowed to construct streets narrower than the 14 yards required in the Improvement Act, but it was determined to insist on the full width. Some improvements are about to be made at Steelhouse-lane, by the removal of several houses; and stations and stabling, sheds for watering-machines, &c. in the various districts into which the town is divided under the Sanitary Act, are about to be erected, and the surveyor's offices enlarged, &c.——From a report to the council on baths and wash-houses, it appears that new baths will probably be opened in the present month; the charges to be—swimming bath, each person, 6d.; private plunging bath, 1s.; private warm bath, 6d. From accounts appended, showing receipts and expenditure from the opening of the baths on 12th May, 1851, to 31st March last, it appeared that the receipts for bathing had been 1,108*l.* 0s. 9d.; for washing, 54*l.* 8s. 2d.; for soap, 18*l.* 13s. 5d.; and that there had been a balance in favour of the establishment of 282*l.* 11s. 9d. The total number of bathers had been 97,213; the total number of washers, 2,447.

Newcastle.—According to the *Staffordshire Advertiser*, the new baths and wash-houses here are to be opened on the 17th instant. The terms fixed are said to be so moderate that all classes may enjoy them.

Bath.—It is proposed to found a Proprietary College in this city, similar to those of Cheltenham and Brighton; the proprietary arrangement to be in 250 shares, of 35*l.* each, payable in four years. Each share, also, to give to the holder the advantage of a first-rate education to one child for a very small sum. The estimated cost of the building is 6,000*l.* A committee, to take the necessary preliminary steps, has been appointed.

Holyhead.—The following is from the miscellaneous estimates for the current year:—"Required to be voted on account of the works at the new Packet Harbour and Harbour of Refuge at Holyhead, and to defray the expense of the present harbour establishment at Holyhead, &c., to 31st March, 1853, 89,396*l.* The whole expense of the new Packet and Refuge Harbour is estimated at 628,063*l.*, on account of which there have been already voted—in 1845, 30,000*l.*; 1846, 66,000; 1849, 34,500*l.*; 1850, 89,371; 1851, 59,129*l.*; total, 279,000*l.* The sum that will be required for the service of the year ending 31st March, 1853, is 75,000*l.*; add sum required to make good advances, during past year, beyond the sums already voted by Parliament, 12,000*l.*; total, 87,000*l.* Expense on account of present harbour, &c., 2,396*l.* Grand total, 89,396*l.*"

Birkenhead.—According to one of the local commissioners, the Gas and Water Company had made a show of liberality by reducing the price of gas 10d. per 1,000 cubic feet; but, to the great mortification of the ratepayers, it was found that a larger sum than the amount of the reduction in gas was charged by an increase in the price of water.

Liverpool.—Considerable sensation has been created in Liverpool by the publication of a letter from Mr. Samuel Holm, a member of the town council, at present travelling on the Continent, detailing the particulars of the catastrophe at Turin, in the explosion of the powder magazine of the Place Pullone, by the side of the Dora, and showing that the greatest danger will always exist in Liverpool of a similar catastrophe, not only at the present magazines, but when the 800 tons of gunpowder shall be removed to floating magazines on the Mersey, within a mile of some portion of the town, and within three miles of a population of half a million of inhabitants.

Haslingden.—The new Town-hall was opened on Monday, in last week. The general arrangements and dimensions of the building are—Entrance-hall, with two side offices and orchestra over them, county court, sessions room, &c., 60 ft. by 36 ft., and 22 ft. 6 in. high, lighted from the roof by three large circular windows, 10 ft. diameter; board of guardians' room, &c., 36 ft. by 19 ft.; magistrates' room, 23 ft. 6 in. by 14 ft. 6 in.; county court office, 24 ft. 4 in. by 19 ft.; ditto, private office, 19 ft. by 12 ft. 8 in.; witnesses' waiting-room, 18 ft. by 15 ft. The building is warmed by means of a hot-air apparatus, which is erected in the yard at the back of the Town-hall. The walls are wholly built of stone, with projecting ornamental dressings at the corner, entrance-hall, cornices, &c. It is expected to cost about 1,500*l.* The contractors are Messrs. John Tomlinson and Brothers, for the masonry; Thomas Tattersall, joiner and builder; John Cronkshaw, slater; Henry Maxwell, plumber and glazier; Jenkinsons, plasterers; Mr. T. Maxwell, clerk of works.

ARCHITECTURE IN AMERICA.

Numerous as are the travellers who visit that country, and the information occasionally given in The Builder, it still remains nearly *terra incognita* to us, as far as architecture is concerned.

In an article in the *American Review*, it is stated, "that in many structures, reared at a great cost, and which might have been rendered noble monuments of art, are committed egregious errors and solecisms, and now remain as records of the lack of artistical talent and feeling;" which remark would apply to many in this country.

The Americans seem to be affected with an absolute mania for Greek temples, or what will look like such at the first glance, or seen from the distance. Public and private buildings are all dressed up and disguised in that uniform, and the greater part in a bungling manner. As far as villas and other compounds of the ordinary dwelling-house and temple are concerned, the mischief is not so very great, simply on account of their being comparatively a short-lived generation; but it is sad to find that edifices of monumental constitution, piles constructed of granite or marble, are in the same false taste, and stand as proofs of the misapplication and unartist-like treatment of a style which, however beautiful in itself, is by far too unvaried in expression, and too limited in compass, to answer the demands of the more complex system of architecture of the present time.

The Gothic style is altogether an exotic in America, where, so far from bearing any historic associations and sentiment, it is quite an alien: not revived at the present day as among ourselves, but a new and stranger one, it may indeed be said that its beauties are quite sufficient to recommend it under any circumstances; and were it adopted for the sake of its intrinsic excellence, there would be a reasonable plea for its being done; but, unfortunately, it seems to have been taken into favour by the Americans more for the sake of its name, since, so far from being appreciated, the style itself is scarcely understood by them, or if understood, it can be only by a few professional or other students. There being no examples of it in former buildings, no wonder, therefore, that anything can be palmed upon the American public as Gothic, or that the most mongrel and hideous style should have been imported into the country under that specious denomination, truly admirable in itself. The genuine pointed style is nevertheless one that does not accommodate itself spontaneously to the actual wants; on the contrary, it is difficult to maintain the appearance of consistency,—a point which the Americans have scarcely yet reached, and in most instances fallen far short of it. As regards Grecian, it has not fared much better; for so preposterously has that style been taken up, without any regard to principle or character, as to be rendered anything but classical,—one in which columns alone give the architectural expression; and when applied to buildings of the most homely and unfinished character, adds to their inherent meanness, and only renders this the more conspicuous.

G. J. R.

ELECTRO-TELEGRAPHIC PROGRESS.

There seems to be a prospect of extensive advancement in electro-telegraphic communication. Steamers are capable of plying between Newfoundland and Galway in five days, and in connection with this possibility, New York and London are to be brought within five days' time distance, by means of about 48 miles only, of submarine telegraph across the St. Lawrence, &c. on the one hand, and on the other, by the Irish telegraph from Galway and across the Irish channel, which it is said will be laid down and completed, in the current year. A submarine Irish, indeed, it is said, will be laid down during the present month, between Donaghadee and Port Patrick, a route 44½ miles shorter than between Kingstown and Holyhead. Two distinct lines of four wires are to be thrown across the channel, and Downing Street and Dublin Castle, are to be united in instantaneous communication. The laying down, too, of the Belgian telegraph from our eastern shore, is to be gone into without delay as the wire is ready. The line is to run from Dover to Nieuport.

The advantages offered by the Submarine Telegraph, in fact, are about to be greatly extended, both on the continent of Europe and in this country, by the establishment of two companies under very influential direction, whose object will be the placing of London, Liverpool, and Manchester in direct and instantaneous communication with all the capitals and important commercial towns of France, Belgium, Holland, Prussia and other parts of Germany. To effect this, besides the Belgian a second cable will be laid down between France and England. Arrangements have also been made independent of the Newfoundland scheme for the collection in Boston and New York of telegraphic messages from all parts of the United States, from whence they can be brought to Liverpool by the mail packets, and thence transmitted through these lines to all parts of Europe. But even this is not all: a well-known American telegraphist is now earnestly engaged in promoting the project of extending the telegraph westward to the Pacific, and is sanguine of being able to have it in operation to San Francisco within eighteen months, provided Congress shall make a favourable response to his memorial asking for right of way through the wilderness, and protection to his wires. He seeks no pecuniary aid, but simply proposes to supersede the present system of forts, at long distances, with large garrisons, by establishing stockades twenty miles apart, each of twenty dragoons. He proposes that two or three soldiers shall ride daily each way from each stockade, so as to transport a daily express

letter mail across the continent, while at the same time protecting and comforting emigrants and settlers along the public domain. The distance between Missouri and San Francisco is about 2,300 miles.

They do things, as well as speak of doing them, on an immense scale in America. 3,000 miles of telegraph in an unbroken chain, between New York and New Orleans, were actually completed on 9th ult. The *New York Times* of 10th says:—"Last evening the New Orleans telegraphic operators had a chat for the first time, wire to wire, with their contemporaries in Hanover-street. New York despatches were forwarded and answers received from New Orleans dated one hour after they were received. Thus a message started from this office, traversed 3,000 miles, and arrived at its destination 60 minutes after it started."

Mr. Henry Evans, of New Bedford, U.S. has invented a submarine telegraph wire rope, of hemp yarns, of any thickness required, the yarns being saturated in a composition that is durable and impervious to water. The four strands of which it is composed are made at the same time. A copper, steel, or iron wire, of any required size, is completely bedded in the centre of each strand, and one also in the heart of the rope, making five wires in all. The cavity of the rope is filled solid with yarns, and then a thick coating of the same is put over the outside, making the rope perfectly round. The whole is then covered with iron or copper rods. The machinery is capable of making a rope of any length without splicing. It may be made to weigh from one to twenty tons per mile.

PIPE DRAINS *v.* BRICK SEWERS.

With the subject of sanitary legislation again on the tapis, the Board of Health sickly, and the Sewers Commission about to expire,—with every body anxious to know what is next to be done, and nobody can tell,—there seems no help for it but "The Press."

Inquiries have been started on a kindred subject—originating in a matter comparatively trivial in itself, which led to a discussion at the Institution of Civil Engineers, on the comparative merits of pipes and brick sewers, and the opinions expressed there have fallen, among Local Boards in the provinces, like a spark on tinder, or tow, where it would seem that smouldering doubts and dissatisfaction were ready to burst into a blaze.

These Local Boards have eagerly taken up the subject, and instituted inquiries, by means of deputations; investigating the working of pipe sewers wherever they can find them laid down—and in operation,—evidently under an impression that, however plausible the theory of pipe sewers, "all pipes, and nothing but pipes," may be; yet a little of something in the shape of actual proof from experience of their use would do no harm.

Now this is a question of some importance to the public, as large sums of money are being, or are about to be, expended on town drainage, under Local Boards in the provinces, as well as in the Metropolis; and as very different opinions are held on the subject in high quarters, it is full time for each party to bring their preferences to the proof, and to let it be decided by those in whom the public have most confidence, that the public money may not be wasted on sewers unnecessarily expensive, nor thrown away on things theoretically cheap and actually useless.

Permit me, therefore, to request you to invite those skilled in the mysteries of hydraulics, the properties of pipes, and the benefits of brick sewers, to give us proofs of the advantages of their several systems, that merit may have its reward, and the rate-payers get value for their money.

A Rate-payer.

Nelson Monument at Birmingham.—Having been twice lately at Birmingham, at an interval of six weeks, I have each time seen attached to the figure of England's naval hero, which is on the summit of the monument in the Bull-ring, a roll of paper, or some such substance, about the length and thickness of a man's arm, fastened by a string round the neck, and hanging behind like an enormous queue, wafting to and fro when the wind is lively. I offered a policeman standing near the monument a shilling if he would remove it, but he told me I had better mind my own affairs.—H. M.

Notices of Books.

Records of the School of Mines and of Science, applied to the Arts. Vol. I. Part I. Longman, Brown, Green, and Longman.

Under this title are published, the Discourse given by Sir Henry De La Beche, at the inauguration of the school, together with the lectures introductory to the various courses on subjects important to the progress of the industrial arts and manufactures, as set forth in the Museum of Practical Geology, delivered during the Session 1851—52. These lectures have been from time to time noticed by us, and we need only state that the volume contains—Dr. Lyon Playfair's, prefatory to the Course of Chemistry; Professor Forbes, on Natural History, in its relation to Geology and the Arts; Mr. Robert Hunt, on Mechanical Science; one by Andrew C. Ramsay, F.R.S. introductory to the Course of Geology; Warrington W. Smyth, on Mineralogy and Mining; and the Introduction, by Dr. John Percy, to the Course Illustrative of Metallurgy.

Specimens of Tile Pavements, drawn from existing Authorities. By Henry Shaw, F.S.A. London: William Pickering. No. I.

The first part of this work contains a general view of a fine pavement existing in the house of William Canynges, Redcliffe-street, Bristol, and three sheets of the tiles at large. The author's feeling in commencing the work is that, notwithstanding publications already made, a series of specimens of the many varieties of general arrangement to be found in those still existing, will be valuable as a work of reference.

The Story of Nell Gwyn, and the Sayings of Charles the Second. Related and Collected by Peter Cunningham, F.S.A. London, Bradbury and Evans, 1852.

This story first appeared in the *Gentleman's Magazine*, and we then quoted from it some notices of the early theatres.* It has been enlarged, with such new matter as Mr. Cunningham's "own diligence and the kindness of friends" have enabled him to bring together, and now forms a volume strikingly illustrative of the period whereof it treats. The undisguised libertinism of that age is well known, and it is scarcely necessary to say that a book which gives a view of this, however brief, is not so much intended for the drawing-room as for the library of the antiquary and historical student. Mr. Cunningham displays in it much curious knowledge of the literature of the period, and has brought together some singular matter. Here is a definition which may be new to our readers. Nelly is living at Epsom;—

"The Derby and the Oaks, the races which have rendered Epsom so famous, and our not less celebrated Tattenham Corner, were then unknown; but the King's Head and the New Inn, Clay Hill and Mawse's Garden, were favourite names, full of attractions to London apprentices, sighing to see their indentures at an end, and Epsom no longer excluded from their places of resort. The waters were considered efficacious, and the citizens east of Temple-bar were supposed to receive as much benefit from their use, as the courtiers west of the Bar were presumed to receive from the waters of Tunbridge Wells. The alderman or his deputy, on their way to this somewhat inaccessible suburb of the reign of Charles II. were met at Tooting by lodging-house keepers, tradesmen, and quack-doctors, with so many clamorous importunities for patronage, that the very expressive English word *touting* derives its origin from the village where this plying for trade was carried to so importunate an extent."

It may be well to remember, however, that we have in our dictionaries the word *toot*, "to sound as a horn," "to make a noise," from the Dutch *toeten*, to blow the horn.

In the collection of Charles the Second's sayings is given one of his replies to Sir Christopher Wren, which is characteristic both of the monarch and the architect:—"The King was inspecting the new apartments which Wren had built for him in his hunting-palace, at Newmarket, and observed that 'he thought the rooms too low.' Sir Christopher, who was a little man, walked round them, and looking up and about him, said, 'I think, and it please your Majesty, they are high enough.' Charles, squatting down to his architect's height, and creeping about in this whimsical posture, cried 'Aye, Sir Christopher, I think they are high enough.'"

Mr. Cunningham sees no reason to doubt that the Royal Hospital at Chelsea originated with Nelly. The first stone was laid by the king in 1682.

The draughtsman who prepared the illustration of Covent-garden in the reign of Charles II. has erred in representing the portico of St. Paul's Church as *Ionic*. Every one knows, and no one better than Mr. Cunningham, that this was and is the one single modern example of "Tuscan," that we have to refer to.

The binding is a fac-simile of Charles the Second's own pattern for all his books, and is very elegant: the cloth is in imitation of his favourite red morocco.

* See Vol. IX. p. 30.

Miscellanea.

A New Society for Improving Dwellings for the Working-Classes.—A public meeting was held on 6th inst. at Willis's Rooms, St. James's, the Duke of Cambridge in the chair, when resolutions in favour of the objects of the General Society for Improving Working-class Dwellings, and of the establishment of another on a somewhat similar footing, were unanimously passed by a very large assemblage of influential persons. The chairman stated that in conjunction with the St. James's Sanitary Association, a committee of gentlemen, among whom was Viscount Ingestre, had obtained a site for eight tenements to contain sixty-four dwellings for families as a commencement of operations as a new society, with objects in complete sympathy with those already established. Lord Ingestre said he hoped he might, without conceit, call this his society. The committee had throughout been most anxious that nothing but truth should go forth to the world. He thought the society would prosper, because they had endeavoured to give the working classes a position to which they were entitled. It was found that many men did not like model-lodging houses, which they regarded in the light of charity, and they asked why they should not have *a house* as much their own as that of any noble lord. The bishops of London and Oxford, Lord Ellesmere, Sir J. Villiers Shelly, and other gentlemen, also addressed the meeting.

Improper Appropriation of Manufacturers' Patterns by Workmen.—At the Public Office on Thursday last, two young men named William Harrington and Thomas Lucas, both workmen employed by Messrs. T. and E. Wharton, general platers, &c., Great Charles-street, were summoned under one of the sections of the Act 4 George IV., c. 34, for the regulation of differences between masters and servants, for improperly taking and obtaining castings of certain patterns belonging to their masters, without their permission. Mr. Edmonds observed in reply, that the articles had been cast from the patterns with a view of sending them, with other things, as ornaments to a brother, who resided in America, and the metal with which they were cast was paid for. He (Mr. Edmonds) had explained to the defendants that even this was exceedingly wrong, and they themselves much regretted their imprudence. An apology being accepted by the complainants, further proceedings were not taken, it having been arranged that the castings taken from the patterns should be given up to Messrs. Wharton. One of the sitting magistrates expressed himself strongly on the character of such an offence as appropriating patterns for the purposes of competition with original designers, and observed that should any case of such a nature be clearly proved, and the penalty pressed for, before him, at any time, he should feel it his duty to punish as severely as the law would allow.—*Birmingham Journal.*

Adelaide.—The following is an extract from a letter written by a builder settled in Adelaide:—"It is only recently we have had the Port and City Railway Act passed, and Mr. Hill is appointed the engineer; but as the rails and locomotives, &c. are to be obtained from England, it will be two years at least, under favourable circumstances, before the railway can be opened. There were sixty applicants for Mr. Hill's appointment, so you may judge how little hope one has of professional employment. I am led to expect work when the times mend, but for the last two months business has been quite stagnant, owing to the excitement caused by the gold diggings at Melbourne and Sydney. Some hundreds of people are gone to these places from Adelaide, and many will repent it when too late, as the great majority are unfit for the hardships they go through, and the few alone make rapid fortunes; still the result will be, it is expected, eventually beneficial to Adelaide, as people will come out from England and elsewhere by thousands, bringing capital, and settling in this colony away from the excitement of 'the diggings,' and yet near enough to profit by the operations of the gold mania."—C. M. D.

Iron for the Babies.—Among the various household uses to which iron is applied, I am not aware that it is employed in the construction of children's "bassinets," or chaises. Is it not possible to make an iron or brass wire chaise-cot, at once light and durable and cheap, and *not* (like wood or wicker) a harbour for unpleasant things? In hot countries, such articles would be a *desideratum*. It is somewhere recorded, that an Australian mother, destitute of female servants, was obliged to place her infant under a hen-coop, whilst engaged in house duties. In such a predicament, a wire cot, mounted on wheels of somewhat large circumference, so as to be moved with the gentlest of touches, would be of great service, answering like Goldsmith's bureau, a two-fold purpose, and made

"A double debt to pay,
A bed by night," a baby-chaise "by day."

"Pretty Poll" (parrot) and "pretty Dick" (canary) are lodged in brilliant cages, which rival the brightness of the yellow plumage of the latter, whilst their namesakes, unfeathered bipeds, baby Mary and Richard, submit to the accommodation of wicker. If this suggestion be of any use to those of your numerous readers who are cunning in the craft of iron, in sheet, rod, and wire, it is at their service.—Monotect.

Kilkenny Archæological Society.—The May meeting of this society was held on Saturday week, and was rendered more attractive than usual by the exhibition of a collection of ancient ecclesiastical and other bells, sent for the occasion by Mr. T. L. Cooke, Parsonstown, from his Museum of Irish antiquities, and by the exposition of a portion of the ancient tapestry from Kilkenny Castle. The chair was taken by General M'Donald. A number of new members were elected, and various donations made and antiquities exhibited. An interesting paper, by Mr. Cooke, on ancient bells, was then read. This paper, which describes the bells exhibited as "the remains of seven bells of Irish Christian saints; also some spherical and pear-shaped crotals of Pagan times, some sheep-bells of the sixteenth century, and some others," is reported, at length, in the *Kilkenny Moderator*, of the 5th instant.

Brussels.—The new church of St. Mary, which has been commenced at the end of the Rue Royale Extérieure, where the roads diverge, appears at nearly a stand-still, as only one man was seen working at it about a fortnight since. The design is Byzantine, surmounted by a dome: four lesser circular erections, with the usual open galleries at the summit, complete the form of the Greek cross for the entire edifice. These are built to the roofs, but the central portion has not yet attained half the proposed height. A bazaar has been opened for the sale of contributed articles towards the fund for completing the church.

The Shop Sun-blind Nuisance.—We continue to receive complaints and appeals from sufferers and others regarding this serious nuisance. The public feeling is evidently excited against it, and we trust that those aggrieved will no longer endure, in silence, injury and peril so easily obviated by a very little more consideration, or a very little less selfish indifference, on the part of shopkeepers, whether commissioners of pavements or not. One correspondent, "G. G. S." complains that a lady of his acquaintance was lately knocked down by one of these dangerous articles, and being in delicate health the only wonder is that she was not killed, in which event we should like to know what a court of justice or a coroner's inquest would have decided on the point. As it is, we would caution shopkeepers that they are responsible, in the eye of the law, even for damages thus sustained, whether to person or habiliment, whatever police regulations—or want of regulation rather—may fail to do on the contrary. It has, on more than one occasion, been almost coolly insinuated, in our own case, that we had no right either to be a little above the average London stature, or to risk damage thereby to the awning-tackle with which we came in contact. The experience of even ladies, however, shows, as it now appears, (what we have also frequently remarked), that some at least of these nuisances are below even the average female stature, whereas the proprietors must be compelled to hoist *every* part of them clear, not only of the heads, but of the opened umbrellas, of all passers by; and nothing short of 8 feet will do this. A few public-spirited sufferers by damaged hats, &c. ought to try the question in the meantime in the courts of law, and so excite the attention of the authorities, and the *feeling* of the nuisance-committers, in the public behalf.

Lecture on Architecture at Exeter.—Last week Mr. Ashworth delivered a lecture at the Athenæum on "Old English Castellated and Domestic Architecture." It commenced with a review of the brick castles of the fifteenth century; spacious quadrangles, with imposing "tower gateways," sometimes defended by drawbridge and moat, but less *bastile-like* in aspect than the structures of the preceding century. Amongst the subjects illustrated were Herstmonceaux, Sussex, dating 1440; Oxburgh Hall, Norfolk, 1482. Following this style, we have Hampton Court Palace (Wolsey's), with its five spacious courts (as originally erected), the gateway towers becoming ornamental features, and in their connecting curtain displaying a rich oriel window, with armorial bearings in its lower panels, overhanging the archway of entrance, instead of a portcullis and machicolation. The adoption of Italian architecture in England was shown in the palace of the Protector Somerset (old Somerset House) designed by John of Padua, followed by many noble mansions of whimsical design, the works of John Thorpe and others.

Stained Glass in Chelsea Church.—The upper half of the east window in, what must still be called, New Chelsea Church, has been filled with stained glass, executed by Mr. Gibbs. The window is seven lights in width: some of the lights contain single figures, the whole size of the compartment, while others consist of groups of smaller figures, presenting incidents in the life of our Saviour, an arrangement which in the present condition of the window does not produce a satisfactory result. When the whole design is made out it may be better. The completion of the work, we understand, is deferred for want of funds. In a parish containing so many spirited and well-to-do inhabitants, however, as Chelsea, there can surely be no difficulty in raising sufficient money to finish the window. The interior of the church requires a little attention: the walls are very unsightly.

New Church in St. Pancras.—The chief stone of the new church of St. Matthew, Oakley-square, Bedford New Town, was laid on the 6th inst. by Lord John Russell, assisted by the architect, Mr. John Johnson, and the builder, Mr. Kelk. The edifice is estimated to cost 7,300*l.*, and will contain accommodation for 1,300 persons.

Improve the Public Taste.—Intercourse with the manufacturers, merchants, and salesmen of England (the most intelligent of the whole), convinces me of the importance of endeavouring to cultivate the public taste. All acknowledge the hopeless condition of the manufacturers and other adventurers who cater for the public taste, and say, that in its present degraded and unsettled state every appeal to it is attended with uncertain, often with ruinous, consequences. The markets are all led by *caprice*, and not by taste, and the schools of design if they increase the numbers and the excellency of the producers, rather augment than lessen the evil, since no means are adopted to advance the taste of those they look up to, to appreciate and reward their productions and their labours. This is so glaring a fact that I am surprised none of the leading spirits of the day direct their attention to it. So far from there being any promise of amendment, there is an evident verging to a worse condition. Further efforts should be made.—E. V. R.

Hospitals in Crowded Localities.—"A Surveyor" draws attention to the fact that an hospital for sick children has been formed in Great Ormond-street, notwithstanding a protest by the inhabitants of St. George the Martyr against it. The creation of such a nuisance to a crowded district, in these days of railway facilities, he rightly regards as quite inexcusable, more especially when the hindrance thus opposed to the restoration of the children themselves to health is considered. Intramural hospitals for accidents and casual ailments are unobjectionable, but for disease they are, as a rule, only a little less objectionable than their natural associate, intramural graveyards. The first element in the cure of disease is good fresh air, and our metropolitan termini point the way to that.

Institution of Mechanical Engineers.—The regular general meeting of members of this institution was held on the 28th ult. at Birmingham, Mr. R. Stephenson in the chair, when papers were read and discussed,—"On a continuous expansion steam-engine," by Mr. James Samuel, of London; on "a new mode of measuring high temperatures," by Mr. John Wilson, Lancashire; on "an experimental investigation of the expansive working of steam in locomotive engines," by Mr. D. K. Clarke, of Edinburgh; and on Long's, of London, "new portable lifting machine," by Mr. J. E. M'Connell, of Wolverton. In the library some other inventions were exhibited.

A Voice from the Parks.—Permit me to suggest the propriety of having the iron framework of the seats covered with a slab of wood well screwed down upon the same: if the iron forming the seat portion were done away with altogether, and wood substituted, an improvement would be effected. Although not unfavourable to "cold applications," I very much question the salubrity of iron for the purposes of a seat. The seats alluded to are of a very massive iron construction. Let me again urge upon the Commissioners of Works the paramount necessity of the formation of halting-places for both sexes in the parks. They are in many respects entitled to praise for the pathways formed intersecting our parks in all directions, and affording great facilities for foot passengers.—A District Surveyor.

Hereford Literary and Philosophical Institution.—At a recent *soirée* of this Institution, the Rev. R. L. Freer, the president, exhibited a rubbing of a monumental brass, by Hardman, of Birmingham, placed by Mr. Freer in Yazor church, to the memory of the founder. The president also made some remarks on sepulchral brasses, and their revival in the present day. A paper was afterwards read by Mr. C. T. Bodenham, of Rotherwas, "On Subjects relating to Herefordshire."

New School in Norwood-lane.—The chief stone of a school for children, of Westmoreland parents, was laid on Wednesday-week, in Norwood-lane, near the Tulse-hill Hotel, London, by the Hon. Colonel Lowther, M.P., in the absence of the Earl of Lonsdale.

EXERCISE IN GEOMETRY.—Might I request you to ask one of your correspondents to favour me with a solution of the two following propositions, which appear as exercises on the first and second books of Euclid, in one of Chambers's editions. 1st. Through a given point, between two given lines, to draw a line so that part of it intercepted between them may be bisected in that point' 2nd. If a line be cut in medial section, the line composed of it and its greater segment is similarly divided? —T. W. P. I.

THE METROPOLITAN SEWERS COMMISSION.—On Sir B. Hall asking, in the House of Commons, whether the Government intended to introduce any amendments into the Sewers' Commission Act, Lord J. Manners said that at this period of the Session there was not much prospect of carrying any permanent measure on the subject; and what he contemplated was only an Act continuing the commission for a year, as it at present would only endure until August, and no important alteration would be introduced into this Bill, which he hoped in a week to lay before the House.

SITE FOR THE CRYSTAL PALACE.—We understand that the purchasers of the Great Exhibition building are in treaty for a large plot of land at Sydenham, near the station.

THE SALFORD PEEL STATUE. — The bronze statue of the late Sir Robert Peel, designed by Noble, and cast by Moore and Co. has been erected on its granite pedestal, in Peel's-park, Salford, and on being inaugurated has been formally transferred from the subscribers to the corporation, for the public behoof.

COMPETITION FOR NEW HOSPITAL, BRISTOL.—The competition drawings for the new hospital, for Bristol, are now open to the public to view, prior to a final decision being made. Twenty-three sets have been sent in, not under motto, but with names in full. They are chiefly in the Italian style, we are told. We understand it is the intention of the committee to call in some professional man to help them in their decision. In the whole they do not come up to expectation: few are well planned, or characteristic in appearance. The sum to be laid out is 8,000*l*. The hospital to contain about 160 patients. The site is facing the Bathurst Basin.

THE SEWERS OF LONDON.—On Sunday night last, London was unbearable: a fearful effluvium from the sewers penetrated everywhere. We had personal experience of it for several miles on the western side of the metropolis, and have heard of it from others in various quarters. It would be interesting to trace its actual effect on the health of London next day.

DEPARTMENT OF PRACTICAL ART.—The museum of ornamental manufactures, consisting chiefly of articles purchased from the Exhibition of 1851, will be opened to the public on the 19th inst. at Marlborough House. On the same occasion, the annual exhibition of the works of the students will take place, and a course of lectures, upon the principles of design, will be given by Mr. Owen Jones, in the month of June.

THE PARK FOR FINSBURY.—In reply to Mr. T. Duncombe, who inquired in the Commons, if the Government were prepared to hold out any hope of affording aid to the projected park in Finsbury, the Chancellor of the Exchequer said the Government would be most anxious to see so desirable an object accomplished, and an architect had already submitted an amended estimate. Until that had been examined it would be impossible to speak with any certainty on the subject; but he thought that if the hon. member, or any other hon. gentleman who took an interest in it, were to bring in a Bill to effectuate the object, it would receive every consideration, and might facilitate its attainment.

THE BRICKMAKERS' STRIKE.—MAKING BRICKS BY STEAM.—We understand that a portion of the men have returned to their work, the terms they proposed being assented to by a few of the smaller masters. The great majority, however, are still on strike. Several brick machines have been ordered in consequence.

TENDERS

For new Parsonage at Eastend, near Winchester, reusing the material from the old parsonage. Mr. Colson, architect:—

Brown	£1,385
Fielder	1,310
Hendy	1,270
Newman and Smith	1,235
Clear	1,220

For the completion of Twelve Villas, near Winchester:—

Brown (Winchester)	£1,510
Hobby (Portsmouth)	1,436
Gumblen (Winchester)	1,320
Machin (Winchester)	1,075
Ewens (Southampton)	920

For finishing two houses in Ovington-square, Brompton, May 6. Mr. L. Elliott, architect. Quantities provided:—

Ward	£2,398
Watts	2,200
Grey	2,132
Saunders	2,122
Elliott	2,094
Wilson	1,975
Harmer	1,968
Park	1,919
Todd	1,888
Pollock and McLennan	1,885
Wright	1,820
Pawley	1,810
Jarvis	1,800
Bensley	1,777
Tombs	1,715
Jessop	1,697
Rudkin	1,655
Roland and Evans	1,642

For the South Metropolitan Industrial Pauper Schools, to be built at Sutton, Surrey. Mr. Edwin Nash, architect:—

Dove, Brothers	£25,950
Gammon	25,167
Holland	24,853
Hicks	24,700
Constable	24,855
Myers	24,330
Jewell	24,100
Pollock and McLennan	23,945
Little	23,380
Coleman	22,949
Tamsett	22,573
Young	22,100
Haynes and Co.	21,323
Saunders and Woolcott	21,039
Jay (accepted)	20,878
Carter	20,580

TO CORRESPONDENTS.

The late Mr. Allason.—In our recent notice of Mr. Allason it was stated (according to information given us) that he obtained the gold and silver medals of the Academy. It should have been, we find, the gold medal from the *Society of Arts*, the silver medal from the Royal Academy, 1809.

"Studio" (Stafford House was originally designed by the late Mr. B. Wyatt. The present internal arrangements, however, were made by Sir C. Barry), "*Da Noaitles*" (The Nelson Monument, in Trafalgar-square, is Corinthian), "C. W. B.," "G. H. S." (we shall be happy to see drawing), "N. S.," "N. H.," "W. L.," "E. H.," "G. D.," "G.," "S. G.," "C. J. P.," "J. F.," "J. F." (we cannot offer any opinion on the soundness of the company in question), "J. H. C.," "J. S. B." (the problem sent has been several times before the public), "J. R.," "Oliver," "P. G.," "G. T. J." (shall appear), "E. N.," "H. C.," "A. B.," "Chr. Le M.," "W. P.," "W. H.," "P. M'H.," "Sir A. C.," "W. P." (too late), "J. L.," "A. L." "G. F. S.," "G. H." (apply to a patent agent), "B." "J. W. R." we decline recommending).

ERRATUM.—Statement as to cost of Abergavenny Asylum, last week, should have stood thus:—"The estimated cost of the building alone was 25,000*l*. which amount we understand will *not* be exceeded."

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

TO ARCHITECTS & WRITERS ON ARCHITECTURE.

THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publication of Works of the above description.

Office of "The Builder," 1, York-street, Covent Garden.

SHOREDITCH INDUSTRIAL SCHOOLS, BRENTWOOD.—There being several Packages and Cases of Plans sent for Competition remaining uncalled for, the Owners are requested to send in a Note, stating to which and where they may be forwarded. JOHN WARE, Clerk to the Trustees.

Clerk's Offices, Shoreditch Workhouse, Kingsland-road, 12th May, 1852.

BUILDERS' BENEVOLENT INSTITUTION. An ELECTION of THREE PENSIONERS, two Males and one Female will take place on THURSDAY, 27th MAY, at the LONDON TAVERN, Bishopsgate-street. THOMAS GRISSELL, Esq., F.S.A. President, has consented to preside. Polling commences at Twelve o'Clock, and closes at Three, precisely.

A. G. HARRIS, Secretary.

SURVEYING, ARCHITECTURE, Engineering, Levelling, Drawing, Measuring, and Valuing of Land, Timber Buildings, Drawing, Mathematics, &c. TAUGHT, in a short course of practical lessons, by Messrs. HYDE SMITH and LEWIS, civil engineers, architects, surveyors, &c. Terms very moderate. Steady and clever pupils may be introduced to engagements. For prospectuses, &c. apply at the office, 34, Guildford-street, Russell-square. Evening instruction given.

A CIVIL ENGINEER and ARCHITECT, in the Midland Counties, holding an important public appointment, has a Vacancy for an IN-DOOR PUPIL.
Address T. C. No. 7, Thavies-Inn, Holborn, London.

A BUILDING-SURVEYOR, of good practice, requires a well-educated ARTICLED PUPIL, from 15 to 18 years of age. Premium moderate.—Address to G. R. at Messrs. Pembridge and Hunt, No. 107, Tottenham-court-road.

CLERK WANTED and ARTICLED PUPIL. Wanted, a Clerk, accustomed to the general duties of an Architect's and Surveyor's Office; to state how and where previously engaged, and amount of salary required.—Also wanted, an Articled Pupil or an Improver, for three or four years.—Apply by letter only to CHARLES G. SEABLE, Esq. 29, Poultry.

TO CARPENTERS AND BUILDERS.
WANTED, to PLACE a YOUTH of good learning as IN-DOOR APPRENTICE to the above business.—Apply (post paid) to A. B., at Mr. Woodroffe's, Corn Merchant, Worship-street, Shoreditch.

TO BUILDERS' FOREMEN.
WANTED, a Man capable of taking the superintendence of the erection of a large building.—Apply, between nine and ten, at 14, Osnaburg-street, Regent's-park.

WANTED, a steady, active Young Man, as a SCAFFOLD PLASTERER. References as to capabilities will be required.—Apply to Mr ERSWELL, Builder, Saffron Walden.

WANTED, by an Architect and Surveyor, in the Country, an active ASSISTANT, competent to make finished and working drawings, and to undertake the general routine of business in an office.—Application by letter, to be made stating salary required, references, &c. to X. X. at 1, Finch-lane, Cornhill, London.

TO GRAINERS AND WRITERS.
WANTED, to fill a constant Situation in a country town, a MAN clever in the above branches; he will be required to make himself generally useful; one having a knowledge of Paper Hanging would be preferred Wages 30s. per week.—Address, stating age, qualifications, and references to employers only, to A. B Chichester, Post office.

WANTED an experienced CLERK of WORKS, competent to prepare fair and working drawings, and tint well, take off quantities, and measure the various works connected with Building the detached Villas in the country. Application to be made by letter, with copies of testimonials, stating salary expected. Address to C. L. at Mr. J. Mallinson's, Hospital-street, Birmingham.—N.B. A middle-aged Man will be preferred.

TO WORKING GAS-ENGINEERS AND OTHERS.
WANTED, a WORKING ENGINEER, to superintend the Gas-Works at Godalming. He should understand practically the making of gas, pipe-laying, services, fittings meters, &c. and generally to manage the works, under a committee. Wages 30s. per week, with a house, fire, and light.—Application and testimonials to be forwarded to Mr. JOHN LAMBERT, Godalming, Surrey, on or before the 25th inst.

WANTED, by a Gentleman who has been some time in the Profession, an ENGAGEMENT in an ARCHITECT and SURVEYOR'S Office, where he will have an opportunity of improving himself. He has been accustomed to making Working and Detail Drawings, and is well acquainted with the general business of an office.—Address, A. Z., Mr. Reed's, News Agent, John-street, Oxford street.

TO ARCHITECTS, BUILDERS, &c.
WANTED, by an energetic practical Young Man, a SITUATION, where he would have an opportunity of learning Surveying as part remuneration for his Architectural acquirements. Satisfactory references can be given. Salary moderate.—Address R. S. City of London News-rooms, Cheapside.

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WANTED, by the Advertiser, who has completed his Articleship, and also an engagement with an Architect, a SITUATION, where he would have an opportunity of learning Surveying as part remuneration for his Architectural acquirements. Satisfactory references can be given. Salary moderate.—Address R. S. City of London News-rooms, Cheapside.

ENGAGEMENT.—WANTED, to conduct either Saw-mills, Timber-yard, or Builder's Machinery, for preparing all kinds of work for Joiners, Cabinet-makers, Railway-carriages, general purposes, Patent joinery, references to character and abilities.—A. B. Post-office, Essex-street, Islington.

A CLERK of WORKS, well acquainted practically and theoretically with every department, is open to an ENGAGEMENT; first rate testimonials.—Address, S. R. 34, Pearson-street, Kingsland-road.

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A FOREMAN having just completed a small Building, is desirous of a RE-ENGAGEMENT; is willing to make himself useful in any way to his employer.—Address, C. 45, Duke-street, Piccadilly.

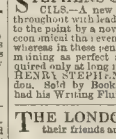
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AN active MAN having recently left a firm in the above Trade, is desirous of another ENGAGEMENT; has had the superintendence of the Factory, is a thorough Bookkeeper, and a good Salesman. Security if desired. Address, A. B. Mr. Drew's, Grocer, Cross-street, St Mary-le-bone.

TO BUILDERS.
A PRACTICAL MAN of many years' experience in the Building Trade, is desirous of PARTIAL EMPLOYMENT to make up Builders' accounts, however complicated, take out quantities, and measure up work. References from first-rate firms; terms moderate.—Address J.S.B. Mr. Hancock's, Baker, 21, Russell-place, New North-road.

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A GENTLEMAN, who has been regularly brought up in the Profession of a practical Engineer, is desirous of entering a respectable Establishment, for some time (on probation), with a view of ultimately leading to a PARTNERSHIP. His connexions are equally respectable, and has property at his disposal. Letters to be addressed to A. B. at Mr. Charles Walton's, Solicitor, 30, Bucklersbury, London.

STEPHENS'S PATENT PROPELLING PENCILS.—A new kind of ever-pointed Pencil in Wood, lined throughout with lead, requiring no cutting, as the lead is propelled to the point by a novel, easy, and ingenious contrivance; is more economical than even the wood pencil, which is destroyed as used, whereas in these pencils the wood only is consumed, the pencil remaining as perfect as at first, ready to be refilled, and this is required only at long intervals. Prepared and sold by the Proprietor, HENRY STEPHENS, 51, Rumford-street, Blackfriars-road, London. Sold by Booksellers and Stationers; where also may be had his Writing Fluids, peculiarly adapted to Steel Pens.

THE LONDON PARQUETRY beg to remind their friends and the public, that they have continually on hand a perfectly seasoned stock of PARQUET FLOORS and BORDERS, in all descriptions, including the "Grate," "Stars," "Cross," "Diamond," "Greciana," "Facet," "Zigzag," and innumerable others. The great inconvenience of dust arising from the permanent use of carpets is totally obviated in PARQUET FLOORS, which, from the ELEGANCE, CLEANLINESS, and DURABILITY, are unequalled as a decoration to the interior of public buildings of all classes, private mansions, villas, &c.



Pattern sheets, and sketches of any of the above designs, will be forwarded (with estimates), on application to
THE LONDON PARQUETRY, 5, Whitefriars street, City.

GUTTA PERCHA TUBING.

Many inquiries having been made as to the durability of this Tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received

FROM C. HACKER, ESQ.

SURVEYOR TO HIS GRACE THE DUKE OF BEDFORD.

"Office of Works, Woburn Park, Jan. 10, 1852.

"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, *although it will eat lead through in two years;* we have adopted it largely, both on account of being cheaper than lead, much easier fixed, and a more perfect job.

"Yours, &c.

"C. HACKER."

N.B.—The Company's Illustrated Circulars, containing Instructions to Plumbers for joining tubes, lining tanks, &c. will be forwarded (post-free) on receipt of three postage stamps.

THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.

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THE PROPERTIES AND STRENGTH OF MATERIALS; USEFUL NUMBERS; POWERS, ROOTS; AND LOGARITHMS.

BY NATHANIEL BEARDMORE,

Member of the Institution of Civil Engineers.

The First Edition of this Work was received with much greater favour than the author had at all expected; and the sale was large, for so technical a work. To extend the use of this edition as a hand-book for the Engineer, in matters relating to Hydraulics and Hydrodynamics, many new Tables have been constructed, and Tide Tables are inserted at the close of the book, chiefly compiled from the data offered in the Admiralty Tide Tables and from the Nautical Almanac.

The introductory remarks on the use of the Tables, have been amended, and more information is interwoven, chiefly on our English rivers—the drainage areas of the more important of which have been especially computed from the Ordnance Map. In the original remarks on tides and rivers, experience and practice are the great guide; and therefore, to obtain the best data for practical results we have carefully collated all the well-authenticated data within our reach or personal experience, and had them condensed into tabular forms.—*Preface to Second Edition.*

WATERLOW and SONS, Parliament-street, Westminster; Birchin-lane; and London Wall, City;
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WYATT PAPWORTH, Hon. Secretary.
14A, Great Marlborough-street, May 11, 1852.

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ADVERTISEMENTS intended for insertion in the present year's issue of MURRAY'S HANDBOOKS FOR TRAVELLERS ON THE CONTINENT, must be forwarded to the Publisher before the 25th of May.
50, Albemarle-street, London, May 10, 1852.

TO ARCHITECTS, BUILDERS, &c.

THE CHEMICAL RECORD contains every week an Article on the CHEMISTRY of BUILDING MATERIALS. The subject of the forthcoming number, Saturday, May 15, will be "The Theory of the Action of Lime as a Building Cement." Price 5d.; stamped, 6d.
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The Chart, which has undergone a careful revision, shows by simple diagrams the number of persons that visited the Exhibition daily; the amount of money taken at the various entrances; the quantity of refreshments consumed; the names of the Royal Commissioners; an account of the origin of the Palace, and its dimensions in feet.

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Early orders should be given to all Newsvendors, in Town and Country; or to Mr. R. J. WOOD, No. 139, Fleet-street.

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DEPARTMENT OF PRACTICAL ART.—The Museum of Ornamental Manufactures, and the Exhibition of the Students' Works, will be opened at Marlborough House, Pall Mall, on Wednesday, the 19th of May. Admittance Free, from 10 to 4.—A course of four Lectures on the Principles of Design of the Furniture, Metal Works, &c., in the Museum, will be delivered in June, by OWEN JONES, Esq. Fees, for the Morning Course, 10s. 6d.; for the Evening Course, 1s.—Applications to be made to the Secretary for Tickets.

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A Circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This PAINT is superior in every respect to white lead; it is unequalled in whiteness, and grows very hard after it is applied, and is, therefore, for interior work, susceptible of a high polish. Besides, it is entirely free from all poisonous influences, is unaffected by sea-water, sulphurated hydrogen, or any gases, and preserves its original colour, which white lead does not do.
WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's cholic, nor paralysis, &c. &c. to which dangerous complaints the workmen and manufacturers who use it are subject, and to which persons who inhabit newly-painted apartments are also liable. Since its introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over any other paint. The public is cautioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.
The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the casks bearing their mark, VM, are only to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agents', residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.
The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from their Grinding Agents, Messrs. C. DEVAUX and CO. 62, King William-street, City, London; and Messrs. ROBT. ANDERSON and CO. Timber Bush, Leith, Scotland. Pure White Zinc Paint may likewise be purchased from Messrs. BLUNDEL SPENCE, and Co. Hull.
For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster-bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time, the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 80 to 100, that is, 80 lbs. of Oxichloride paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than Paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

OFFICE IN LONDON.—Mr. R. COOKE, No. 7, Sise-lane.

Office of the Washington Chemical Company,
73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

The Builder.

No. CCCCLXXXV.

SATURDAY, MAY 22, 1852.

IN our present number we have the pleasure of placing before our readers the design for covering the heretofore open area of the Exchange at Antwerp, by M. Charles Marcellis, which is now being carried out.* For several years past the project has occupied the attention of the architects of Belgium, and various designs were made by Messrs. Leysen and Berckmans, Cluysenaar, Suys, Durlet, Schadde, and others. Ultimately, the municipal authorities prescribed a competition, and the design by M. Marcellis was selected from those submitted. It was definitively adopted by the *Conseil Communal* in July 1850. The contest was a sharp one, and there was a heavy discharge of pamphlets raising and meeting objections, very creditable to the critical acumen of the competitors.

From the drawings and statements before us, it seems that the quadrangle to be covered is about 138 feet long, and 102 feet wide (it has been usually called larger), and M. Marcellis is forming the roof, in two springs, if we may so term it, represented in our engraving, wholly of cast-iron and glass, carried on twelve pillars, also of iron, placed against the ancient structure. The height of these pillars is about 33 feet; the height from the floor to the underside of the oval rim against which the twelve main ribs abut, and from which rises the central cupola, is about 57 feet, and the total height in the centre is about 94 feet. The oval opening is about 30 feet, on the longer axis, and 20 feet the shorter. The ribs, it will be seen, continue above this, forming externally a conical roof on an upright base, with a series of crocketed pinnacles around it. It must be remembered that a building about 23 feet wide, forming a covered ambulatory with rooms above, surrounds the quadrangle. The two ribs of the new construction, in the centre of each side, have ties running over this building, and the whole of the ribs are connected at the foot by other ties.

The Antwerp *Bourse* was originally constructed in 1531, and was adopted by Sir Thomas Gresham, as the model for the Exchange erected by him in London. In our fifth volume, some particulars of it, with illustrative engravings, will be found.† The columns are curiously sculptured: the trefoiled arches, it will be seen, are not pointed, but consist of parts of a circle, and the character of the arcade is what would be called in England "debased." M. Marcellis takes another view of it, and it was this that regulated his design. Two great schools, says he, in substance, arose out of the ruins of Greek and Roman architecture, namely, the Gothic or pointed arch school, to which belong the principal edifices of the middle ages, and the Byzantine school, less known amongst us, but fully developed in the East. The Lombard school, often erroneously called Byzantine, never attained a position to admit of its being placed in competition with these two great schools. The pointed arch (*ogive*) is the characteristic of the Gothic style, an arch more *prononcé* than those which concur in the formation of the *ogive*, and more particularly the cupola, which is produced by the revolution of that arch, distinguish, he urges, the Byzantine school, and the secondary schools which were derived from it. Inquiring then in which category the ancient Bourse of Antwerp, should be placed, whether it has the seal of the North, or does not rather reveal an Eastern origin, he maintains that it belongs essentially to the Byzantine school; that the curves belonging to the latter, such as the epicycloid, are stamped upon it; and that it is as far removed from the architecture of our churches as it approaches the type of all mosques. To prove it, the writer says, if you take the outline of any one of the arcades of the Bourse, and cause it to revolve on its vertical axis, the figure that it will describe will be that of a mosque of a round form covered with its dome slightly flattened at the summit. Harmony was essential, and therefore the designer has avoided pointed forms, and adopted what he considers the Byzantine type.

Quite recently M. Marcellis has endeavoured to lead the authorities to re-erect the Bourse entirely, and has published a design for it founded on the old structure, but wholly of iron, together with a series of able pamphlets in support of his views. He did not succeed, however, in obtaining their acquiescence, and we will not say we are sorry for it.

M. Marcellis writes like a true artist, full of enthusiasm and desire to advance the artistic reputation of his country, and we cordially wish him success in his arduous undertaking.

* See page 329. † See pp. 50 and 453.

ON THE FORM, TREATMENT, AND APPLICATION OF THE PEDIMENT.*

I WOULD merely add, on the subject of the tympanum sculpture, that I have often felt surprise at that inartistic cramping of the composition generally apparent in the pediments, both of ancient and modern masters. I cannot see any architectural necessity for the exact conformity of the sculpture to the angular shape of the ground, *i. e.* filling up by means of, first, sitting, then kneeling, succeeded by reclining, figures that appear prostrate more for the purpose of filling up the extreme points of the triangle, than in obedience to the idea embodied by the subject. Might not these angles, I would ask, be blocked up or formed into panels as spandrils with some device?

A pediment may have decoration on its apex only, or on apex and extremities together; but except in very large pediments, a broad group of figures should not be placed on more than two of them; *i. e.* either on the apex without the extremities, or on the two extremities only; and the rule should invariably be held binding that the extreme figures should not exceed in general or average breadth, including drapery, the upper diameter of the column. Coupled columns at the angles, though not to be generally recommended, give opportunity for grouped figures as a crowning. When all three points are decorated, there should be a connection or relationship between the figures, for which, indeed, their relative positions are peculiarly adapted, the centre commanding the others, and giving facility for their constituting one action—as Apollo slaying the children of Niobe, or, Jupiter, from the centre, hurling his thunderbolts at the Titans, placed at the extremities, and which three figures on the same horizontal line could not.

When they cannot be made to constitute the different parts of one action, or historical or poetic incident such as those I have just named, they may yet have an allegorical or mythological reference to each other, as in the law courts, Dublin, where, if I mistake not, the Jewish lawgiver, Moses, with the two tables of stone, occupies the centre, while figures of Justice and Mercy respectively decorate the extremities.

Statues of our own countrymen eminent in that walk or intellectual pursuit to the interests of which the building is devoted,—in law, for instance, over assize-courts; in music over a concert-hall,—might be, and indeed have been, employed. While connection would thus be secured by associating together on the same pediment men of kindred minds and professions, as John Howard and William Wilberforce, for example. There are men (and such indeed are those I have just mentioned) whose effigies would represent an idea, a virtue, or a science, as Howard's of active benevolence, Watt's of mechanical science; but for want of acting on this principle, and making due arrangement and selection, the statues that embellish many public buildings awaken only incongruous ideas, instead of each illustrating an other, and strengthening the impression which its fellow may inspire. Now there should be the closest relationship between every figure so brought into juxtaposition; and not only should this be the case with the different figures of the acroteria, but these figures should also throw light on the pediment subject, as the pediment subject should again illustrate them.

For this principle we have illustrious examples in extant production. The Parthenon sculpture is the mythological history of Greece; and the natural and significant arrangement of the figures in the mediæval edifices, embodying the events of sacred history, and giving individual forms to the entire range of Christian theology, from the divine persons of the Trinity through all the varied ranks of angels, saints, and martyrs, are worthy of study and imitation in classic design.

There is an objection, it may be well here to notice, which I have heard raised against acroteral figures, that they must excite a painful impression of danger in the breast of the spectator. If the figures were entire imitations of humanity, and we could for a moment forget that they were not real men or women, the contemplation of them would be disagreeable enough, as it always is to see a mason or slater in such a precarious situation; but those who raise this objection forget the conditions of sculpture, and that being an abstraction, not an imitation, it cannot possibly excite feelings that only the living subject, or one that would pass for it, could produce.

Figures sitting or reclining along the raking or inclined sides of a pediment, with their backs to each other, and presenting their profiles to the spectator in a front view, as often seen in old Italian and French works, exhibit a want of the unity I have contended for as well as of unity in the composition, and also interfere with the pyramidal tendency of the latter.

When the tympanum is occupied by a figure subject, particularly if the figures be in full relief, the apex and extremities would be better if crowned with animals or other objects, or by busts which would be no inelegant decoration; the feeling for variety would, I think, in the absence of any other, demand this; but there is another consideration, and perhaps a more important one that suggests it: a figure on the summit if larger than those forming the tympanum subject injures its effect, while if of the same size it may lose some portion of its dignity by suggesting the idea of some stray or refractory figure escaped from its place beneath. We might draw upon the animal kingdom with much effect to a far greater extent than we do; lions, oxen, and other quadrupeds, according to the contemplated character, would lack neither beauty nor sublimity on a proper scale surmounting our public buildings. The eagle, the hawk, and other birds, flower or foliage composition after the manner of the Greek anthemion or honeysuckle, all present themselves to the architects imagination as characters of beauty and expression by which to embellish the pediment, and so far render architecture what it ought to be, a

* See p. 293, *ante*.

true yet spirital reflection of the material creation.

To descend again to domestic architecture, chimneys, if rightly treated, are by no means an improper finish to the pediment of villas and cottages in whatever style they may be erected. So placed in the Tudor cottage they have ever a picturesque and expressive appearance; and the same general form, modified of course in detail, would not be inapplicable to the modern villa. Our chimneys are too square or too prismatic, or parallel, in form, *i. e.* they do not sufficiently approach the circle in plan, or the pinnacle in vertical section. Chimneys, along with other useful and indispensable features, have hitherto been victims of the false impression that architectural beauty and attention to the demands of utility are inimical, and the task of rendering them pleasing has been neglected as hopeless, or they have been hidden altogether as objects to be ashamed of.

But the architect of the future must let scientific and constructive skill proceed in their advancing march truthfully, untrammelled by these considerations. Beauty is utility in blossom, and blossom it must for ever, for the union of science and art is indissoluble. Beauty, if they are truly treated, will spring up amid all necessary objects, and enter into and possess them like an enchanted spirit. Our architects must endeavour to build *houses, churches, halls,* not *architectural specimens;* and neither studyæsthetic regularity, and correctness of style, nor their opposites, but throw the reins upon the neck of circumstances. The man that has so learned will not disguise or hide the chimney or ventilator, but place it just in that position where it will be most useful; and so far from considering the necessity for exposing it as an obstacle to beauty, will deem it an opportunity for the display of greater originality and truth. Thus he will arrange all structural and necessary features, and trust to his art-feeling to digest them into architecture. So beauty of the right kind and consonant with that of nature will grow up, so must it ever grow up in all classes of buildings, out of utility; the beauty that does not so arise is a false beauty. "Nature," it has been well remarked, "is always beautiful, always useful; beautiful, because it is alive, moving, reproductive; useful, because it is symmetrical and fair." Art dwells not in antique temple or mediæval minster, but in the chambers of the soul, and its office is neither to exhibit an old style nor invent a new one, but to breathe beauty into the required structures of the hour built with the providential materials of the country and day. No age has been richer in means and appliances; there is scope for the most vigorous originality. Nor are æsthetic elements wanting wherewith to express the loftiest imaginings; and we need fear nothing for architecture if its talented professors would give a common-sense direction to their artistic feelings, and exhibit the clearness and independence of understanding that characterised the great fathers of the art. Fanned by the breath of truth, it will arrive at purity and perfection, and we shall yet have new manifestations of the true—brighter revelations of the beautiful. As to a new style, the attempt to invent one is idle, and vain as idle. Circumstances, not architects, must invent a new style,—new modes of life, and the discovery or manufacture of new building materials and new principles of construction. Architecture must change with the changing conditions of society and advance of scientific skill, and the new circumstances into which these must conduct it will always produce new styles, which must spring up out of the decomposition of the old. Fine-art architecture must ever manifest itself under new forms; but new styles or new orders must arise just as the old ones did; they will spring up amongst us if we are true to our opportunities, and yield obedience to our intuitions and to the varied impulses of life.

Let it not be supposed that the glory is departed from the tabernacle of our art. We cannot again build pyramids and abbeys, Roman amphitheatres, or Ephesian temples. Architecture must manifest itself in forms very different from, perhaps humbler than, these; but structural art is the same thing now that it was in ancient times; it had no deeper meaning for Assyrian or Greek than it has for us. On the contrary, being connected with a higher state of humanity, and made subservient to loftier aims of social melioration and advancement, may be more potent. Architecture, like all the other arts, is indestructible in its essence, immortal in its destiny; and though we have no temples equal to the Greek in purity of sensuous beauty, or baths or palaces that may vie with the magnificence of Rome, yet our architecture has its sublime characteristics; the great spirit of our age, if not embodied in structural art, is triumphant in structural science,—whose productions art has to invest with beauty. We have examples of structural science worthy even of Roman ambition; works of which Pericles and the Cæsars would have been proud. We could point to arches of triumph truer and greater than ever Roman raised, arches through which science has passed from her conquests, proving that, not the essence, but the mode of art manifestation is to be different in the present day.

Samuel Huggins.

ARTISTIC NEWS FROM FLORENCE.

The following is part of a letter addressed to us by Mr. Tite, F.R.S. dated the 2nd of May.

There is but little moving on the Continent except Politics; and owing to their mischievous influence, Art is a good deal neglected. At Rome, Gibson's statue of Sir Robert Peel was just cast from the clay model. It is for Westminster Abbey, and is a fine colossal statue. The likeness is very good, so far as the face is concerned; but the figure has unhappily no *vraisemblance.* It is merely an immense muscular gladiator wrapped up in a blanket, with his stockings on, but no shoes. Gibson refused to undertake it, if he was compelled to adopt the modern costume; but still I could not but regret, that for a man so peculiarly of our own time as Sir Robert Peel, we could not see him a little more as you and I recollect him. Gibson's statue of Stephenson, for St. George's Hall at Liverpool, contributed by the directors of the North Western Railway, or rather by their proprietors, is a magnificent work, and a striking likeness of the old man; and as the figure is sitting, the peculiarities of the no-costume are not so startling as in the great erect figure of Sir Robert Peel. Gibson has also finished a most exquisite bust of the Queen, from sittings given him at Osborne last year. I never saw so agreeable a likeness, or a finer work of art. He is also preparing his great sitting statue of the Queen, and its attendant group, for the Palace at Westminster. The composition appeared simple and good. Her Majesty is represented as sitting in the old coronation-chair, supported by two seated figures, emblematical of Justice and Mercy.

Here in Florence, Power is engaged with many striking busts of his country-men and women. I saw the models of two very agreeable statues, one of California, another of America; they were both extremely pleasing and pretty, but I thought were deficient in character. The death of Bertolini here, about two years ago, has left a gap amongst the Italian artists difficult to fill up. His colossal statue of Napoleon, for the island of Corsica, is one of the grandest works I have seen in modern times. Perhaps, however, as I am speaking of Florence, the most interesting event here, in Art, is the sale of the Rinuccini Gallery of Pictures. This family have long occupied an immense palace near the church of Santo Spirito, on the left bank of the Arno; and by the death of the last marquis, Pier Francesco, the line has dropped, and these long and well-known patrons of Art have ceased to be. The gallery was collected in twelve or thirteen apartments on the first floor of the palace, and the number of pictures, as shown by the Catalogue, is no less than 720. There is an enormous amount of pictures of little value in this great collection; but still there are some great works. The executors have published remarks upon some of the principal pictures, as written by Professors Pini and Milanesi, under the title of "Alcuni Quadri della Galleria Rinuccini, descritti e illustrati." I wish I could send you the pamphlet; but as I cannot, I will give you a few particulars.

Both in the Catalogue and in these remarks, the pictures are divided into Schools, and beginning with the "Scuola Bisantina." Of these early Greek pictures, glittering with gold, there are ten. They are curious, and of great merit in the history of Art. One of them appears to have something like a date, as the Greek appears to indicate that it was a votive offering under the reign of Theodore Lascaris "Ανγουστου I."—*Imperator,* as is suggested. Of the early Florentine and Viennese painters, down to Ghirlandaio, there are an immense number of pictures. None of them appeared to me of great merit, except one by Pietro Perugino, dated thus:—"Pietro Perugino pinx. anno 1512" (it is a picture of three saints); and there is a very graceful and pretty picture of a Virgin and Child, by Ghirlandaio himself; and as he died before the end of the fourteenth century, it must be considered a work of exceeding gracefulness and beauty, for the period. In the next class they place the painters from Raphael down to Salvator Rosa. There is a very large and fine picture by Raphael,—a Virgin and Child, with St. Elizabeth and the infant St. John, and St. Joseph leaning on his staff. There are eight "angioletti" in the clouds, and in the back a mountainous landscape. On the collar of the vest of the Madonna, are these letters in gold, about 3-16ths of an inch high,—"Raphael Urb. Inv." On the hem of the garment is also the date "A. MDXVI. Die XXVII. Men. Mar." Vasari, in his life of Raphael, describes such a picture; but it appears there is another corresponding at Monaco; and M. Rumohr and the German artists think that is the original, and not this. It was bought in 1767 by the Marquis Rinuccini, for 500 zecchini, and its pedigree seems pretty well traced. I should certainly have thought it a genuine picture but for these doubts; and the Italian authorities are strongly in its favour, as is shown by the certificate of Bezzuoli Martillini, and other professors in Florence. There is a Holy Family, by Michael Angelo, a duplicate of that in the Tribune here, only harder and more ugly. There are two good, but not very agreeable Salvators. There are many other Italian pictures, but in the mass very few to admire, except three undoubted pictures by Carlo Dolci. One is St. John in the Island of Patmos. The figures are small, and, what is rare in this master, it is a composition complete and perfect. The Evangelist is represented sitting on a rock, and regarding the vision of the woman standing on the moon, with the beast with seven heads and ten horns under her feet. It is a very fine work, dated in the corner 1657. It seems that Baldinucchi states that the Marquis Piero Rinuccini had it of the painter for 300 scudi, probably about 70*l.* The other two pictures are three-quarter lengths, and they are as fresh and as perfect as the day they were painted. One is Herodias, with the head of St. John the Baptist in a charger; the other, David, with the head of Goliah. The expression of the female—a mixture of fear, perhaps disgust, and yet of triumph—is given with great power and truth. Both these pictures were painted for the Rinuccini, and the receipts, written by Carlo Dolci himself, are preserved. The bargain, it seems, was 250 scudi for the two; and the receipts are dated Nov. 12, 1678, for 100 scudi, and 8th March, 1681, "per scudi novanta per resto di dugenta cinquanta per mia satizfazione di 2 quadri di mi mano—Il Giovane David con la Testa del Gigante; nel altra, Erodiade con la Testa di San Giovan Battista nel Bacino." At the back of the David, he records that he began it 10th September, 1670, and had in 1680 ten scudi on account; and in 1681, ninety scudi *per resto.* At the back of the Herodias, he has written that he began it 9th November, 1678, and received money on account. These pictures, therefore, probably cost about 30*l.* each. There are some works by the once celebrated painter

Raphael Mengs, and amongst them a sketch for a Deposition (in chalk), left unfinished at the time of his death. This sketch, which is large and clever, was bought by the Marquis Rinuccini for 1000 scudi. There is a good portrait of his cotemporary, Lord Cowper, who was ambassador here for many years: it is dated at the back 1769. This lord, it is said, stayed in Florence thirty years, "sempre colla intenzione di restituirsi a Londra al venir d' ogni nuovo mese!" The sale of the pictures is fixed for the 5th March, by public auction; but I should think very few would be sold, for here in Florence their notions of the value of old pictures is not only enormous, but ridiculous.

MUSEUM OF PRACTICAL ART.

ESTABLISHMENT OF SCHOOLS FOR DRAWING AND MODELLING.

THE Department of Practical Art have issued an announcement that they are prepared, under certain conditions, to aid local efforts for the establishment of elementary schools for drawing and modelling, in connection with existing schools or otherwise, and to prepare students for entering the schools of ornamental art heretofore known as Schools of Design. Amongst the conditions it is requisite that a local committee, or a responsible person, engage to provide a suitable room with a list of twenty male or female scholars willing to attend for at least three months at not less than 6d. a week. The Board will, for its part, appoint a competent master, and guarantee a certain income, fees inclusive, for a stated period, and will lend drawing copies, models, books, &c. and otherwise assist. Forms of application may be obtained from the secretary of the department of practical art, at Marlborough House, Pall-mall.

We have received a letter from a pupil of the Belfast School of Art, a working man, who complains of the system followed in such schools:—

"In Nos. 479 and 480 of your journal," he says, "which I received in my monthly part for April, there are articles headed 'Observations on Teaching Drawing,' which so fully agree with my preconceived notions of the matter, that I beg you to express my thanks to the writer. I am a working man, with a little knowledge of mechanical drawing, and very eagerly desirous to improve myself in the art of putting my ideas neatly and somewhat artistically on paper.

I am beyond thirty years of age, without the vanity of becoming an artist, but certainly with as much of hope as induces me to believe that it is possible for me to make such a geometrical developement of my ideas as that, satisfying my judgment, it would, at the same time, be inoffensive to the eye.

With this feeling, then, I became a pupil of the Government School of Design, hoping that I should be allowed to fix myself to the studies which would be at once gratifying to my taste and necessary to the object I had in view.

I need not say to you that I was altogether and absolutely disappointed. I found the system as completely unfitted to my wants—nay, as perfectly repugnant to my will, as it was possible to conceive. Do but take this picture. Here am I, engaged in getting up buildings, and accustomed to make ornament subservient to solidity. There is a designer in muslins accustomed to make ornament the end. Can it be conceived that the same course of study will equally well conduce to the improvement and proper education of both? The consequence was that I, as well as many others, left the school.

* * *

Now, sir, through such a periodical as yours, is it not possible to induce the Government to feel the necessity of remodelling the schools of design, and making them really serviceable to the classes for whom they were ostensibly originated? They would be a great blessing if the line of study were adapted to the wants and wishes of the pupils, and in my opinion, they would then be more successful.

Under the direction of the Department of Practical Art, an Exhibition has been opened at Marlborough-house, Pall-mall, consisting of the articles selected from the Great Exhibition, and purchased by the Government; and a large number of the works of the students at the various Schools of ornamental art throughout the country. The sum expended in purchases is 4,217*l.*, and the objects include metal works, woven fabrics, enamels, ceramic manufactures, wood carving, and furniture. There may be differences of opinion, and doubtless will be, as to the value of some of the things purchased, but none will deny that a very important nucleus for a Museum has been formed, and that great advantage will result from the study of some of the specimens there collected. They must be viewed properly, however. We quite agree with the editor of the catalogue:—"The *principles* belong to us, not so the results; it is taking the end for the means; if this collection should lead only to the reproduction of an Indian style in this country, it would be a most flagrant evil."

The shields, by Vechté, are very remarkable for fine style and good work. Barbetti's carved cabinet (equally remarkable for its beauties and defects); Virebent's terra cotta chimney-piece; and Crace's Gothic bookcase, are prominent objects in the collection. In the latter, the stiff late-perpendicular character of the top contrasts poorly with the flowing German character of the brasswork which fills the panels. It is, nevertheless, an excellent piece of furniture. The coloured pottery friezes, by Minton, should open new views to architects. The Indian tissues are remarkable for combinations of colour and judicious forms. The shawl, by Duché Ainé, is an extraordinary specimen of weaving, and will tempt many an Eve.

The drawings by the scholars give evidence of progress in the Metropolitan school and at Manchester, Dublin, Belfast, Coventry, and elsewhere. From the metropolitan school there is some good modelling, and in the female department Miss Gann, Miss Florence Collins, Miss Eliza Mills, and others fully justify the good opinions we have before expressed concerning them. From the potteries there is some clever modelling by Hanley, Toft, &c.

We are glad to learn that the desire to obtain coloured lithographs of some of the examples in the museum has led to the formation of a class of female students, for practising the art of chromolithography. The present catalogue contains much useful matter on the subject of ornamentation.

NOTES IN THE PROVINCES.

Stratford.—Christ Church, erected for the district of Stratford Marsh, will shortly be opened for divine worship. The building committee were unable, from want of funds, to complete the plan at first proposed. The spire remains to be finished at some future period.

Mucking.—The church of St. John the Baptist has now been rebuilt on the old foundation and re-opened. The old chancel remains, the Dean and Chapter of St. Paul's, to whom it belongs, preferring to repair rather than to rebuild it. The sittings are nearly all open, with moveable seats in the chancel. The windows are mostly decorated lightly with stained glass borders, the eastern window of chancel, however, being filled with coloured glass. The roof is thrown open to the rafters, which are stained. Mr. Banson was the architect, and Mr. Chapman the builder.

Eton.—The college has recently had thirty-one portraits added to the collection already on its walls. They were bequeathed to it by Dr. Keate, late head master.

Chester.—The Town Council of Chester, at their last meeting, have instructed the borough engineer to prepare plans, &c. for the complete restoration of the Exchange. This building, although erected so recently as the year 1698, had become in a very dilapidated state; so much so, that two architects (Messrs. Reed and Harrison) were employed to report upon it, and they entertained serious doubts as to whether it should not be taken down and rebuilt; but, on further investigation, it has been determined to repair and restore it.——Plans were also laid before the Council for the purification of the sewage water, so as to prevent it defiling the water of the river Dee; but these were directed to be suspended for the present, until the results of some experiments, now about being made, were ascertained. Other plans had also been submitted previously for the complete removal of the sewage refuse of the town; but, in consequence of the doubts that now generally prevail as to the best and most economical method to be adopted, these also were placed in abeyance. It may be stated that the drainage of Chester, which is in a very advanced state, consists of a system of brick and pipe sewers combined. No pipe sewer is smaller than twelve inches diameter, and the house drains are generally six inches diameter. A committee at the same time was appointed to inquire into the system of the water supply of the town, with the view of placing the works on a proper footing.

Birmingham.—The first stone of the new church of St. Paul, at Balsall Heath, was to be laid on Monday, by Mrs. Taylor, of Moseley Hall. There is still a deficiency of 1,000*l.* in the building fund.

Wednesbury.—A subscription has been commenced for the painting, cleansing, and repairing of the district Church of St. John. Messrs. James Bagnall and Thomas Walker, have given 450*l.* as the cost of a new organ, the order for which has been transmitted to Mr. Walker, of London, organ builder. The instrument will contain eighteen stops, and the pedal pipes will be sixteen feet high. The necessary repairs will be commenced forthwith.

Preston.—A small covered market is about to be erected by Mr. R. Threfoil, on a site about 15 yards by 12, in front of the Arkwright Arms, Stonygate. It will have a slated roof supported by iron pillars, and be enclosed when not in use by iron gratings.——On Wednesday last, says the *Preston Guardian*, as a number of workmen were engaged in excavating a new lodge, for Messrs. Horrockses and Co's mills on Spital's Moss, an accident occurred which has had the effect of suspending work in twelve or thirteen large establishments, cotton mills, &c., and of impeding for a time the traffic on the canal. It appears that the wall of the old lodge, which immediately adjoins the one in course of formation, gave way, in consequence of the earth being removed from it: the water rushed with tremendous force into the half-formed reservoir, and bursting through the embankment on the canal side, rolled down the hill into the canal, carrying with it a large quantity of earth so as completely to prevent the traffic thereon.

Wigan.—A memorial cross has recently been erected in front of St. John's (R. C.) Chapel in this town. A quadrangular shaft, rising from a flight of steps, is supported at the base by the emblems of the four Evangelists, and bears under a crocketed canopy the figure of the crucified Saviour, attended by his mother and disciple. The shields at the base are fitted with the armorial bearings of the family who have erected the cross, the object of which is indicated by the inscription, which runs thus: "For the love of Jesus, our Blessed Lady, and St. John, pray for the Souls of Charles and Elizabeth Walmesley, and for the good Estate of their children, who in memory of their dear Parents erected this Cross, 1852." The design was furnished by Mr. Pugin, and the carving of the stone has been executed by Mr. Myers, of London.

Greenock.—The chief stone of the new east parish church of this town was laid on Wednesday-week by the provost.

Guernsey.—Some restorations are now being made in the church of St. Peter's Port, chiefly at the instance of "a respectable family," as "a memorial to the dead." Heavy Grecian window-frames have been replaced by stone tracery in harmony with the rest of the structure, and a stained glass window by O'Connor. "The same family," says a local paper, "with the concurrence of our respected Bishop, has just completed the erection of a reredos in conformity with the style of the church, called by the French *Le Flamboyant*."——The importations of granite in a broken state from Guernsey at the present time are of an extensive character. The arrivals on one day alone at the port of London lately included thirty-two vessels entirely laden with this article, and comprising upwards of 6,000 tons weight.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

As modern examples of Grecian Ionic architecture, I pointed out to you the General Post-office and the British Museum. I would add to these the elegant portico of St. Pancras Church in the New-road, imitated from the double Temple of Minerva Polias and Erectheus at Athens. I do so that you may notice also, at the east end of the same building, the introduction of figures to support an entablature instead of columns. These are called *caryatides*, and you will perhaps ask me, why? If we believed Vitruvius, this would be the answer. Carya, a city of Peloponnesus, took part with the Persians against the Grecian states. The Greeks captured their city, put all the males to the sword, and led the women into captivity; and then the architects of the time to perpetuate their ignominy, ungallantly substituted figures of these women for columns. But then there was a Carya, daughter of a king of Laconia, who, long before the time pointed to by Vitruvius, was transformed into a nut-tree, and through some connection difficult to see, the goddess Diana was worshipped as Diana Caryatis, and the statues called caryatides may have been first applied to the temples of this Diana. In Egypt, at a much earlier period, the face of pillars supporting an entablature was sculptured into the form of men, as in the temple at Ibsambul already mentioned. In Greek work, when male figures were used, they were called Telamones or Atlantes; Atlas carried the globe then: our "Atlas" merely represents it!

The whole life of the Greek was mythical: imaginative and subtle, he incarnated and worshipped everything he imagined, and natural phenomena and physical truths were symbolised in what now seem wild fables. The earth, the air, and the water were inhabited by beings higher than himself, but still personal, with human feelings and open to human influences. He had no Revelation to lead him further. A myth, then, you see, was not with him the polite word for a *falsehood*, whatever may be the acceptation of it now.

Their mythology helped their art: the sculpture of the Greeks stands alone,—unapproached. To give you a glimpse of the Grecian sculptors as they lived, I am tempted to repeat to you the story of "Phidias and Alcamenes," as it is told for me by Blondel, in his *Cours d'Architecture*, though it is rather a long one. I wish, writes Blondel, I could relate the adventure as agreeably as it is told in the Chyliades of Tzetzes, a Greek poet. These two sculptors, he says, lived at the same time, with reputation, at Athens. Alcamenes belonged to those who, with but mediocre merit, make a great deal of noise; spending the greater portion of his time in paying his court to the people, and in looking out for intriguing friends who might cry up his works; which is a very good way of making one's self a reputation and acquiring wealth. Howbeit, such people often behold their fame die out, even during their life. Phidias, on the contrary, passed his whole time in the study of his art, and in that of optics and geometry, which sciences he considered necessary to the attainment of perfection. He courted no one, and esteemed himself happy in the approbation of a few well-informed persons, whom his merit had made his friends; which is, adds our author, a sure way of being poor during one's life, and of being rich in glory and immortal reputation, after one's death.

Well, these two masters received orders, at the same time, to set to work on two statues, which the people of Athens wished to set up on lofty pillars which they had had erected before the temple of Minerva. Alcamenes wrought his statue with all possible delicacy, finishing off to the eye the whole work to the minutest feature; a proceeding which gave exceeding pleasure to the people, and increased infinitely the reputation of this sculptor. But Phidias, who, by the knowledge he had of optics, knew the effect which his figure ought to produce when it was raised to the place for which it was intended, made the face thereof of a monstrous width, the eyes staring horribly, the nostrils swollen, the mouth a gash; setting only strong and deep marks in the marble in those places where he wished his work to appear most delicate, without finishing or softening off any part; giving, in fine, to his statue a countenance capable of striking terror into the beholder. When the people saw this it drew down first their merriment, but at last their anger; so that they were on the point of stoning both him and his work, if he had not had recourse to entreaties, promising to do his best to correct it. From that time he kept the figure enveloped, feigning to be engaged in retouching it; nor would he allow any person to see it. Nor even, after it had been set up on the pillar, would he permit the veil to be removed, until the statue of his competitor had been likewise placed. When this was done, and he had uncovered his work, the people, in despite of their envy, could not help admiring the capacity of Phidias, or giving him the praise and approbation he merited, while they expressed contempt for the statue of Alcamenes. And in fact, says Tzetzes, nothing remained of all the fine chiselling and meretricious colouring of the figure of Alcamenes, which appeared scarcely more than a straight trunk, without form or art; whilst in that of Phidias, with its strong and deep lines, those parts which, seen close, appeared so irregular and uncombined to the eyes of the spectator, fell into parts so just, so delicate, and well-proportioned, in their remoteness, that one could gaze at it for ever. O! wonderful Phidias; O! fortunate Athenians.

A word now about the "meretricious colouring" here alluded to. It seems clear that the principal Grecian temples were decorated externally with colours; although, as this fact is opposed to our notions of the pureness of Greek taste, it was for a long time opposed violently and disbelieved. Pausanias describes two of the courts of justice in Athens as "the Green" and "the Red," from their colours; and says the temple of Theseus and one wing of the Propylæum were decorated with paintings. Vitruvius speaks of triglyphs painted with blue wax. And many of the Greek buildings which remain, and have been examined, present indubitable vestiges of colour. M. Hittorff, of Paris, was the first who adopted the system of polychromic architecture in its fulness, and asserted that all the members of classic architecture were painted; and although his views were combatted by some learned writers, they have not been successfully controverted. The positive colours were employed.

The Parthenon was painted with blue, red, and green, and the mouldings were ornamented with meanders and leaves: the entablature was adorned with gilded shields, and still presents the circular stain made by them, and the holes for the clamps, by which they were secured to the masonry.

It is maintained by those who dislike to yield the opinion that the essential character of Greek architecture is based wholly on *form*, that the colours were applied at a more recent period than that of the erection of the temples. In many cases, however, it would seem clear that the mouldings had been expressly formed to receive coloured decorations. You must have seen recently in *The Builder*, notices of a long discussion on the subject, by the architects of London, and probably wondered that any should be found to question the fact, in the face of the evidence offered, whatever their opinion might be as to the desirability of reviving the practice. The Chevalier Von Klenze, architect to the king of Bavaria, has illustrated polychromic architecture, in a small temple at Munich, and M. Hittorff has applied the principle at the Olympic Circus, erected by him, in the *Champs Elysées*, in Paris. A modern writer wickedly proposes, that as we do not care much for our National Gallery, we should paint that to try the effect. Our climate is not favourable to external paintings, but there are many materials which might be used to produce an agreeable diversity of colour. I may mention that the Xanthian marbles in the British Museum, which are specimens of very early art, display traces of colour. Indeed, colour was used by all the early nations,—in Egypt, in Babylon, in Nineveh.

I referred just now to Munich and the late king of Bavaria, and I am tempted to step out of my way here, and allude briefly to the extraordinary works which have been effected in Munich, through the liberality and energy of the sovereign alluded to. Within the last thirty years, the aspect of that city has been changed, a crowd of important buildings has been raised, and a new school of artists created. The Glyptotheca, commenced in 1816, and finished in 1830, is 220 feet square. The Pinacotheca, completed six years later, is above 500 feet long; and (not to speak of the Basilica of St. Boniface, the church of All Saints, and numerous other monuments) the Walhalla, near Ratisbon, rose "like an exhalation," from the rock on which it is reared, to immortalise its projector. Munich has become one of the most extraordinary capitals in Europe, and strangers, from all countries, annually flock thither to admire its beauties, and wonder at the effect which may be produced by one energetic mind. Not satisfied with merely raising fine buildings, Lewis of Bavaria sought to nationalize the fine arts, and bring them into the homes of his people for their

* No. VIII. See also pp. 100, 133, 164, 186, 223, 260, and 292.

enjoyment. Museums have been arranged to convey a history of the arts, and each of his buildings was intended to illustrate some particular epoch. The means of education in art were afforded, and every endeavour was being made to develope the national resources in this respect. The success with which the king's endeavours have been crowned is to be attributed greatly to the position which he gave to artists in his dominions, and the elevation of character which it has caused. He conferred prerogatives on genius: he admitted that the man who is capable of affording instruction or wholesome delight to a nation,—who expresses noble thoughts, whether with the pen, the pencil, or the chisel,—is fit society for the highest, and deserves all the rewards a country can bestow. This king felt there is another road to the temple of Fame, besides that over dying bodies in the field of battle; and notwithstanding errors and failings, has earned for himself a niche in it, next to those occupied by Pericles and Augustus.

I return to Greece simply to remind you that a century after the time of Pericles the history of that country ceases to interest. The energy which had characterised her people disappeared, and she ultimately became a degraded province of Rome, to which city we must look for a continuation of our Architectural History.

The inhabitants of Etruria, a part of Italy now known as Tuscany, seem to have made considerable advances in art at a very early period. The best specimens found there were formerly referred to Greek artists, but there now seems reason to believe that the arts amongst the Etruscans were as far advanced as amongst the Greeks, even if the latter were not in some degree indebted to Etruria. Niebuhr shows that much of what we call Etruscan is due to their subjects, the Tyrrhenians, a branch of the Pelasgian race. The number of works of art discovered in Etruria within the last twenty years is nearly incredible, and includes about 30,000 painted vases. One evidence of the antiquity of Etruscan art, and of its connection with the Pelasgi, is to be found in the extraordinary sepulchre which was opened in 1829 on the site of Cære. The upper part is formed by horizontal layers of stone projecting one over the other, as in the treasury of Atreus, and the age of it is inferred to be anterior to the sixth century, B.C. Some valuable information respecting this interesting country has been published within the last few years, and investigations are still going on there.

We find throughout *Italy* ponderous remains of early constructions similar to those described in Greece, as executed by the Pelasgic tribes, and evidently the work of the same people, who thus serve to connect at the earliest period, the principal nations of antiquity. Even the works called Druidical are attributed by some writers to an offshoot of the same original nation.

It was, however, from more recent and immediate connection with Etruria and Greece that Rome obtained her perfected architecture. From the time of the first Tarquin, above 600 years B.C. and who was a native of Etruria, to the conquest of Greece, 145 years B.C. it is difficult to trace clearly the progress of architecture amongst the Romans. At the commencement of that period, the Capitoline Hill (so called, you perhaps remember, because the head of a man, *caput*, was found there under peculiar circumstances, when digging out for a building,) was made the site of a temple to Jupiter, thence termed Jupiter Capitolinus, and afterwards of several others. The *Cloaca maxima*, too (the great sewer, an enormous work and formed entirely of wrought stone), was commenced in the reign of the first Tarquin, or soon after.

As Johnson remarks, while the Romans were poor they robbed mankind, and as soon as they became rich, they robbed one another. By the plunder of Greece and Egypt, Rome was greatly enriched and improved. After the sacking of Corinth, for example (about 146 B.C.), all the pictures and statues were carried thence to the imperial city, and a considerable impulse was given to the arts in Italy. It was many years, however, before they made much advance among the people, who were essentially warlike and had little desire to cultivate them. Greek architects were employed, and Greek statues and ornaments were used to decorate their buildings (Nero alone, in later times, caused 500 statues to be brought away); and by the lavish expenditure of enormous sums, magnificence was obtained without much home-bred taste. The accounts we have of buildings erected even for temporary purposes, are startling. A theatre was built in the time of Pompey to accommodate 80,000 spectators, which was adorned with 360 marble columns and 3,000 statues of bronze. Pompey himself afterwards constructed a permanent building for 40,000 persons (54 B.C.).

It was in the reign of Cæsar (called by the Senate Augustus, 27 years B.C.), that architecture took firm hold on Italian soil, and gained in richness, splendour, and increased appliances what it lost in simplicity and dignity, as compared with that of the Greeks. Rome under this emperor enjoyed a long period of peace and prosperity; additional architects were invited from Asia Minor and Greece; wealth was lavished, and temples, libraries, porticoes, theatres, and palaces arose in all quarters; so that (as Suetonius relates, and every one has heard) Augustus was able to say, that where he had found bricks he had left marble. He left behind him many buildings of brick, nevertheless. The example of the Emperor was largely followed. His friend Agrippa, amongst others, erected part of the Pantheon at his own expense (A.D. 14), or at all events greatly improved it, and supplied Rome with more than a hundred fountains, richly adorned with marbles, columns, and statues. The extraordinary building just named, the Pantheon,—

> "Relic of nobler days, and noblest arts;
> Despoiled, yet perfect;"—

is, as you remember, circular: it is about 139 feet in diameter, covered with a noble dome. You, like all other travellers, must have noticed with surprise, that it is lighted from a comparatively small opening in the eye of the dome, and yet, with this expressive fact before them, modern architects can occasionally build picture-galleries wherein it is scarcely possible to see any one painting well.

Vespasian and Titus followed in the same course and constructed two of the wonders of that and succeeding ages,—the Flavian Amphitheatre or Coliseum, and the Baths of Titus. The former vast and wonderful monument was built with the materials and on part of the site of Nero's "Golden House" (*Domus Aurea*), which, according to *Suetonius* had three porticoes, each a mile in length, with three ranges of pillars. The rooms were lined with gold and gems, and the ceilings of the dining-rooms were adorned with ivory panels, contrived so as to scatter flowers and shower perfumes on the guests. In fact, to such an extent was the decoration of it carried, that it was demolished by order of Vespasian as being too sumptuous and magnificent even for a Roman Emperor. It had previously excited the indignation of the people.

The longest diameter of the oval which forms the Coliseum is 615 feet, and the shortest 510 feet: it covers nearly 6 acres of land, and would accommodate above 100,000 spectators. The exterior presents three ranges of columns rising one above the other, Roman, Doric, Ionic, and Corinthian, and one range of pilasters over these. I think I have heard you say that you were disappointed when you first viewed the Coliseum. It is so enormous that it requires some time and acquaintance with it for the mind to grasp. Its solidity and massiveness were such that it remained perfect until the thirteenth century, and, but for wilful destruction, would have continued to this day. Some Anglo-Saxon pilgrims who visited Rome before, or early in, the eighth century exclaimed on beholding the Coliseum, "As long as the Coliseum stands, Rome shall stand; when the Coliseum falls, Rome will fall; when Rome falls, the world will fall." Venerable Bede records the expression, and Byron has appropriated it. When Rome revived and her citizens became desirous of erecting for themselves noble dwellings, the Coliseum offered an immense storehouse of materials: it was speedily dismantled, and doubtless would have disappeared altogether if Pope Benedict XIV. had not set up a cross in the arena and declared the place sacred. The stone for the Farnese Palace was taken from the Coliseum!

> "A ruin, yet what ruin! from its mass
> Walls, palaces, half cities, have been rear'd;
> Yet oft the enormous skeleton ye pass,
> And marvel where the spoil could have appear'd:
> Hath it indeed been plunder'd or but clear'd?
> Alas! developed, opens the decay,
> When the colossal fabric's form is near'd;
> It will not bear the brightness of the day,
> Which streams too much on all, years, man, have reft away."

The other structure which I have referred to, namely, the Baths of Titus, presents even now in extent a subterraneous city. They were three-quarters of a mile in circumference. Many of the apartments were elaborately painted; plated with gold and adorned with magnificent sculptures, including the group of figures known as the Laocoon, which was found there.

It was Agrippa who first taught the Romans the luxury of the warm baths; and succeeding Emperors increased the provision made in Rome for public bathing. It is said that in the time of Augustus a *poor man might bathe for a farthing, and little boys for nothing*. The baths were adorned with works of art: and it was here that poets, orators, and musicians resorted to rehearse their works, or pronounce opinions upon those of others: these were the *clubs* of Rome. Recently the necessity for the establishment of baths in England has been felt, and many have been erected and fitted up. To purify the body is one step towards purifying the mind. Moreover, we ought to strive to find healthy amusement for the people generally.

Amongst the buildings important in Rome we must not omit the *Forum*. That built by Trajan was the most considerable, and still exhibits extensive remains. The forum was a large area generally enclosed with porticoes two stories in height, the lower being used as shops by the bankers, the upper appropriated to the public on the occasion of gladiatorial shows, which were exhibited there before amphitheatres were in general use.

Trajan, with the assistance of Apollodorus, his chief architect, executed many fine structures. A column and a triumphal arch, erected nearly 1800 years ago, have served to make his name familiar to the ears of the whole world down to this time. Hadrian, his successor (A.D. 117), was himself an architect, and encouraged the arts, as conducive to the national glory. He erected numerous buildings not merely in Italy, but in Carthage, Greece, Africa, and Egypt. He seems to have had all the jealousy of some professional artists, and even more. It is related that, being anxious to show Apollodorus, the architect, that he could do without assistance, he sent to him a design he had prepared for a temple in honour of Venus, and asked his opinion of it. Apollodorus, not at all disposed to truckle to an amateur though a prince, saw that it was too low, and remarked with a sneer, that if the goddess should ever rise from her seat for the purpose of taking the air, she would certainly knock her head against the roof. Hadrian had a summary mode of getting rid of an ill-natured critic: he put him to death! and thus not merely avenged himself, but prevented rivalry.

Among the chief buildings erected at this time was Hadrian's Mausoleum, since converted into the Castle of St. Angelo. It had originally a basement 170 feet square, on which was a cylindrical tower, 115 feet in diameter. Relative to the term "Mausoleum," Pausanias says, as you have probably heard, speaking of a sepulchre erected for *Mausolus*, who reigned in Halicarnassus, "its magnitude was so prodigious, and its ornaments so magnificent, that the Romans, in consequence of the great

admiration which it produces in them, call all their illustrious sepulchres, Mausolea."

The effect of Rome, with its magnificent assemblage of palaces, villas, circuses, and gardens, crowned by the capitol and its noble superstructure of temples,—the eternal hills forming a background, must have been grand in the extreme. Even now, none can walk in the old part of Rome and ponder on its eventful history without a flood of recollections and noble impulses, of absorbing character. In courage, in virtue, in patriotism,—in oratory, literature, and art,—Rome affords extraordinary examples. Time has drawn a veil over the littlenesses and even the vices by which her greatest men may have been disfigured in the eyes of contemporaries, and over all those constantly-occurring events which stain her annals: we see only the grand whole,—the wonderful result of the energy and power which made her mistress of the world (conquerer and teacher), the "city of the soul;" and to which we yield our minds almost in submission even at this distant period of time. The quantity of marble and granite employed in the decoration of ancient Rome can scarcely be estimated. According to Pliny (who also says that in thirty-five years more than a hundred sumptuous palaces were erected), there were as many statues as people,—every temple, portico, and public walk being crowded with them. Every street presented a succession of architectural effects: at every turn were fresh groups of noble edifices: of temples alone there were no less than 420. But, alas! the greater part of this magnificence has disappeared. Rome has proved a quarry for the world; her buildings have fallen; thousands of statues and sculptures have been carried away, or were previously destroyed, and many more still lie buried in this immense magazine of ancient power!

"Reader, wonder there is none;
Many cities thus have gone."

Believe me, always yours,

Riggto.

SIGHTS AND SCENERY.

The Cyclorama.—The Destruction of Lisbon at the Cyclorama, in Albany Street, has given place to a series of *tableaux* of the Great Exhibition of 1851, painted by Mr. MacNevin, from original studies taken during the Exhibition. The minutest objects are represented with scrupulous fidelity, as they appeared in the original; and those who did not see the Exhibition may here get a good idea of it. The chief defect is a want of air and distance, so that the views scarcely convey an idea of the same vastness which characterized the structure. The Colosseum, with its panorama of "London" by day and "Paris by Night" in the evening, its conservatories, ruins, and museum of sculpture, maintains its supremacy amongst the exhibitions of the metropolis.

Royal Adelphi Theatre.—The scenery for Mr. Mark Lemon's new drama at this theatre, called "Sea and Land," is appropriate and good, particularly the closing scene of the first act, the ruins on the cliff (in which the effect of the beach is given to the stage), and the last scene, the market cross. The piece, which is one of much interest and well constructed to display the peculiar qualities of the Adelphi company and Adelphi means, is made remarkable by the extraordinary personation of a neglected untaught girl, *Wild Meg*, by Mrs. Keeley.

NEW NATIONAL GALLERY.—The necessity for a new depository for the national pictures is now generally admitted, and we are disposed to think that there is a prospect of its being realised. The *Times*, as appears from a leading article on the subject in its columns, has given up the site it previously advocated, namely, Knightsbridge barracks, and on a review of the Commission's report on this subject, points out the site we originally suggested as the best adapted to the purpose—that of Kensington Palace itself, in preference even to any of the adjoining sites to which attention was directed by the Commission.

THE MATERIALS USED IN THE GREAT EXHIBITION BUILDING.

THE following interesting particulars form an appendix to the First Report of the Commissioners for the Exhibition of 1851, just now published:—

Statement of the Materials supplied for the Construction of the Building.

CAST IRON.

	No. of pieces.	Weight. Tons.	cwt.	qrs.	lbs.
Foundation pieces	1,107	164	5	3	11
Columns	2,494	870	13	2	19
Connecting pieces	2,500	200	3	2	24
Girders	2,357	1,381	14	1	22
Sundries for Binders for Gallery-floor and Lead flat	3,549	26	14	2	21
Columns, Girders, &c. for Staircases	2,328	95	2	3	7
Railing for Staircases					
Standards, Panels, and Shield-plates for Gallery-railing	8,138	71	1	3	7
Bands, Caps, and Bases for Columns	9,945	70	10	2	
Sundries for Trusses	3,852	47	14	–	14
Sundries for Paxton's Gutters	16,093	34	–	3	19
Sundries for fixing Sashes and Wood Panels	6,127	9	7	–	7
Sundries for Transept, including Purlins	1,596	7	3	–	11
Sundries for Transept Fronts	495	7	9	1	15
Filling Frames and Arch pieces	5,386	227	2	2	10
Ornaments for Cornices	11,650	43	15	1	26
Galvanized Centres for Louvres	41,647	4	15	3	5
Moving apparatus for Louvres	7,197	4	2	–	12
Tank-plates	79	13	7	1	4
Sundries for Urinals	21	1	–	–	4
Sundries for lean-to Roof	27	1	16	3	27
Sundries to replace breakage	43	9	8	2	20
Railing-posts	884	63	10	3	1
Exterior Railing	3,497	188	17	3	16
Caps, &c. for Flag-staffs	312	–	16	1	11
Hinges for entrance and exit Doors	249	1	1	1	15
Sundries for Gas-stoves	38	–	4	2	10
Sundries for diagonal bracing	1,328	9	18	1	3
Pipes, branches for drains	3,033	198	2	1	11
Pipes, branches, cock-boxes, &c. for Water-supply	21	1	11	2	7
Brass for Hinges	447	24	15	3	19
Brass for Louvre apparatus	6	–	3	1	22
	131	–	2	–	–
	108		–	2	21
Total Cast Iron	136,665	3,784	1	1	–

WROUGHT IRON.

	Tons.	cwt.	qrs.	lbs
Bolts and Nuts for Columns	26,231	21	3	2	25
Sundry Bar and Angle Irons for Trusses	14,146	298	5	–	22
Sundry Bolts and Rivets for ditto	105,594	20	2	2	–
Sundry Truss-bars for Paxton Gutters	3,026	56	3	2	21
Sundry Bolts, Nuts, and Plates for ditto	14,639	4	2	3	–
Truss-rods for Binders	8,710	53	1	2	7
Bolts, &c., for ditto	9,434	4	14	3	14
Bolts, &c., for fixing Sashes, Wood-panels, &c. &c.	55,831	13	12	2	.
Bolts and Straps for Transept Roof	3,819	2	9	3	–
Bolts, &c., for Transept Fronts	2,017	–	16	2	7
Rails for Post Railing	289	12	6	2	23
Sundries for Flag-staff Standards	3,639	–	19	3	–
Sundries for Gallery Railing	7,599	1	7	–	14
Ditto Water supply, &c.	282	–	1	2	21
Galvanized Louvre Blades	12,160	40	11	2	14
Ditto Straps and Rivets for ditto	61,119	1	11	3	21
Sundry Chameroy's Pipes	811	34	15	3	–
Sundries for Louvre-moving apparatus	11,945	20	8	3	21
Hinges for entrance and exit Doors	332	–	1	–	10
Diagonal bracing	11,344	51	17	3	21
Sundries for Stairs	7,374	1	6		21
Ditto Tanks	3,105	–	6	1	1
Sundry Scrapers and Mat-frames	18	3	14	2	–
Sundry Brass-spikes, &c., for external Railing	27,234	31	12	1	7
Bars and angle Iron for lean-to Roof of Boiler-house	6,706	1	8	2	14
Bolts, Nuts, Rivets, and Washers for ditto		–	1	3	14
Galvanized Plates for ditto		1	11	–	21
Bundles of Hoop-iron for Gallery-floor	1,285	12	2	2	–
Bars of ⅜, ½, and ⅝ round and square Iron for sundries	738	2	9	2	–
Total Wrought Iron	400,417	702	3	2	10

SUNDRIES.

627 Yards of 5-inch Gas Mains, or say 215 Pipes.
1,226 Yards of 4-inch Gas Mains, or say 420 Pipes.
4 Six-inch Sluice-cocks.
17 Four-inch Sluice-cocks.
16 Three-inch Sluice-cocks.
3 Six-inch double-faced ditto.
2 Sets of Keys and Tools for Water-cocks.

TIMBER SUPPLIED.

		No.	Lineal ft.	in.
Wrought.	Ridge pieces, No. 1	3,953	83,120	–
	Small skylight Bars, No. 2	198,493	814,858	4
	Strong ,, No. 3	26,102	107,126	10
	Sash Bars, No. 4	13,494	194,968	7
	Side-light Stiles, No. 5	2,680	38,727	7
	Ditto, with corners cut off, No. 6	849	12,773	–
	Bottom Rails, No. 7	1,553	11,726	8½
	Top Rails, No. 8	1,735	13,103	2½
	Transept Bars	16,113	69,830	6
		264,972		

		Feet cube.
Rough.	Timber in Transept Roof	7,000
	,, ,, Ends	2,500
	,, ,, Fronts	1,200
	,, Ground-floor	200,634
	,, Gallery-floor	85,000
	,, Lead-flat	5,500
	,, Plinth-framing and Louvres	8,000
	,, Face-work	29,800
	,, Gutters over Trusses and Paxton Gutters	50,000
	,, Wood Girders	3,000
	,, Offices, Refreshment-court, and Machinery Partition	18,000
	,, Stairs	2,000
		412,634

GLASS.

246,210 Panes, 49 inches by 10 inches.
47,445 Ditto, other dimensions.

293,655 Panes.

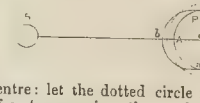
Some Particulars abstracted from the Accounts submitted to the Royal Commission by Messrs. Fox and Henderson, showing the Expenditure under the various Heads.

Sundry Wages, &c. paid at Park	£58,238 11 11
Salaries and Expenses not included in Park Wages	950 0 0
Expended at London Works, Birmingham, principally for Cast and Wrought Iron Work	22,103 10 5
Ditto at Renfrew	990 10 5
Cast Iron	21,309 4 9
Wrought Iron	2,050 15 10
Iron and Ironmongery	1,962 12 11
Timber	31,550 13 10
Sash Bars	3,494 9 1
Doors	462 7 4
Glass	13,174 9 9
Brickwork	1,639 18 7
Masonry	156 6 4
York Curb	192 4 1
Granite	688 6 8
Paint, Oil, Brushes, Kettles, Stair, Wrought, &c.	5,019 15 10
Covering Lead-flat	886 15 8
Zinc Moulding, Lamps, &c.	309 2 6
Gas-fittings	1,323 6 9
Hire of Horses and Cartage	1,870 7 6
Saw Mills and Expenses connected therewith	673 0 8
Coals and Coke	111 19 0
Calico	1,631 2 4
Netting	247 3 2
Ladders	121 16 10
Hire of Cloths	341 19 0
Rope	399 1 3
Lime	285 18 3
Gas	48 11 9
Stationery	170 6 10
Drawings and Lithographic Plans	824 7 5
Watching	185 8 0
Miscellaneous	2,776 9 0
	£176,030 13 8

A THEORY OF THE TIDES.

THE present theory of the tides generally ascribes them to the attraction of the moon. In one of the works upon this subject we read, that "The tides are occasioned by the attraction of the sun and moon upon the waters of the earth.

Let A, P, T, *n*, be supposed the earth, C its

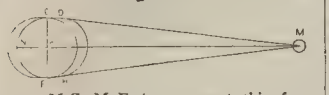


centre: let the dotted circle represent a mass of water covering the earth: let M be the moon in its orbit, and S the sun.

Since the force of gravity or attraction diminishes as the squares of the distances increase, the waters on the side T, are more attracted by the moon, M, than the central parts at C, and the central parts are more attracted than the waters at A; consequently, the waters at *a* will recede from the centre; therefore, while the moon is in the situation M, the waters will rise towards *a* and *b* on the opposite sides of the earth.

The moon goes round the earth in an elliptical orbit, and therefore she approaches nearer to the earth in some parts of her orbit than in others. When she is nearest, the attraction is the strongest, and consequently it raises the tides most; and when she is farthest from the earth, her attraction is the least, and the tides the lowest."

In another work on "Natural Philosophy," we read that, "The tides proceed from the attractive force of the sun and moon, which diminish the gravity of the waters of the ocean, or, which is the same thing, draw or lift up the water toward themselves. The force of attraction acts in straight lines; and, therefore if we draw two straight lines from the moon's



centre, M C, M F, to represent this force, acting on the parts C and F, it is obvious that the water at C and at F will not be raised, but depressed, by being drawn away from C to D and from F to H; and so of every part of the circle C E F. But the water will at the same time rise on the side of the earth away from the moon, because the *earth's centre* being more strongly drawn *towards the moon* than the point N, recedes from N, which is the same in effect as if the water at N receded or rose up from the earth's centre."

By the earth's rotation on its axis, the two tide waves will be continually making their round over the ocean.

"The force of attraction acting in straight lines, it should be high water at any place in the *open sea* when the moon is upon the meridian of that place; but, in fact, the greatest (and least) heights of the water at such a place do not occur till about three hours *after* the periods fixed in this supposition. The delay is thus explained: the elevated parts of the sea have received such an impulse towards ascent, that they continue to rise after the earth's rotation has carried them from under the line of the direct attraction of the moon; this impulse being also aided for a time by the moon continuing to attract the water upwards, though in a less degree.

The sun, though his attractive influence is three times less than that of the moon, acts upon the ocean in the same manner, though in a less degree. When these two bodies unite their influence, which they do at the seasons of new and full moon, the tides naturally rise the highest: they assist each other in raising the ocean as before described, and depressing it in a corresponding manner.

Of the irregularities in the tides, caused by the continually changing position of the sun and moon, those are the greatest which are occasioned by the obstacles offered by the land to the ebb and flow of the waters. The impediments created by shallows in the ocean, and by the shores, bays, gulfs, and promontories of islands and continents are such, that the tides are greatly delayed, altered both in degree and direction, and in many places so accumulated, that they rise to heights far exceeding what is witnessed in the open ocean." If, as Humboldt says, the tide waves of the waters of the ocean, in the open sea, rise hardly to a *few feet*, they mount, in consequence of the configuration of the coasts, which oppose the coming tide, to 50 feet at St. Malo, and to 65 to 70 feet in Acadia.*

This is, as far as I have been able briefly to represent it, the present theory of the tides. Let us now consider

THE ANOMALIES OF THE PRESENT THEORY OF THE TIDES.

And here I cannot do better than have recourse to a work under the preceding title by Thomas Kerigan, R.N. F.R.S. In his address to the reader he says:—

"I have shown that when the moon is vertical to St. Helena she is 2,362 miles nearer to it than to the point called "the Land's End," in Cornwall; and that as her *reputed* power of gravitation is *not of sufficient force* to raise a tide at the former place, it *cannot* be the cause of the high tide which flows at 'the Land's End,' particularly since she is on the meridian of both places at the same instant,—which adds another link to the chain of proofs already given respecting the *negative influence of the moon* over the tides of the ocean."

Besides this palpable instance of the moon's exercising no *attractive* influence whatever upon the ocean, I copy from his pamphlet, page 8:—

"*The Theory of the Tides* expressly states, that 'the action of the moon over the waters of the ocean is the most direct and intense when she is moving in the equinoctial; and, should the times of conjunction or opposition take place when she is so circumstanced, and at her *least distance* from the earth, the tides will be the greatest possible. But, in all cases the highest tides must take place *within the tropics;* and the nearer any port or harbour is to the equator, the greater will be the force of the tide in such harbour.'

"Now we know from actual experience that there *are no tides* at any of the islands within the torrid zone that are 200 or 300 miles from the nearest mainland. At St. Thomas's Island, lying very nearly under the equator, 'in the middle of the ocean, and free from interference on every side,' we find from actual observation that instead of a high tide in that harbour, there is a total absence of any thing like a rise and fall of the water, except the *few inches* flux and reflux which keep pace with the alternate returns of the sea and the land breezes, the same as at most other islands adjacent to the equator, and that are at a proper distance from the main land, as already noticed."

These facts, and many other valuable remarks of the author, must for ever nullify the theory of the attraction of the waters of the ocean by the moon. But, besides these anomalies, there are others which I will notice.

According to Sir I. Newton, it is the attraction of the earth which keeps the moon, revolving by centrifugal force, in her orbit; and Thomas Kerigan, in his treatise, states, that by calculation based upon the laws of *universal gravitation*, the moon is *not* retained in her orbit by the mere force of terrestrial attraction; for, if left entirely to *that*, she would fly off from her present orbit and be *lost* upon the body of the sun.

If, then, the earth attracts the moon, the larger body the smaller one, how can the moon displace the earth, as stated above? And if the earth have more attractive power than the moon; if it attract the distant moon herself—should not then the earth also exercise more attractive power over the water by which it is covered, than the distant moon is said to do? Or is there more affinity between the surface of the waters of the earth and the moon, than between the water and the earth itself? And as the earth, as it were, is drawing down the moon, keeping her forcibly in her orbit, is the moon, in opposition, drawing away in the meanwhile, and lifting up towards herself the waters of the ocean? This would be contradiction, unless it were asserted that the earth and moon attract each other, like positive and negative electricity (see BUILDER, No. 450), and that the earth sends forth her waters to attract the moon. But then the waters would come too late; for, as was said above, they do not attain their height until three hours after the moon has passed. Or, if the moon attracts the water, do her attractive rays draw more when exercised in a vertical line, or when in an oblique direction? If more in the former than in the latter, why is the tide highest three hours after the moon has left her vertical position? Is the delay *reasonably* explained above? If a given power is not able to lift up a certain weight in a vertical line, will it be able to do so in an oblique one? Quite impossible. And this is the same with the moon; her attractive power, if any, would be strongest in the vertical direction; and like the drawing up of a body by machinery or the hand of man, the moment the exercise of vertical power is changed into oblique, without even relaxing the power itself, the body will no longer *rise*, however fast it may have been drawn, unless a *particular* impulse upward had been given to it by some extra power suddenly applied. It strikes me much the same as in the case of waterspouts (see THE BUILDER, No. 450): the lower cone would not continue to rise, if the upper one were removed from its corresponding vertical position.

Moreover, attractive power is not of a sudden, impulse-imparting nature, nor a thing that accumulates, like the power of a steam-engine, which will be followed by the train, though it should be separated, or have passed away, from it. The rays of attraction (supposing the moon to possess them), like the rays of the sun, are strongest in the vertical line: the former, however, do not accumulate, but are like ropes, by which the moon, in a manner, lifts (as it is said) the water: on the other hand, the rays of the sun do accumulate by refraction and reflection, though they are never so strong as at midday; and this accumulation of heat renders the *air* warmer in the afternoon than at noon. Thus, the delay of the tide-wave, following the moon three hours after she has passed from her vertical position, cannot be compared with the delay in the warmer state of the air in the afternoon: it is like a room, which will remain warm for some time after the fire of the day has gone out. But, to compare to this the rising of the tide after the moon has passed, would be expecting the water to rise after you have ceased to pump.

Besides this, it must be borne in mind, how enormous ought to be the attraction of the moon, to cause the rise of the water still after she has ceased to attract it in a vertical direction, so much so, as to overcome the opposing pressure of the atmosphere of 15 lb. weight to the square inch.

The earth is said to attract the moon, and yet, according to the theory of the tides, the moon would draw up the entire sea, if the air was not between.

According to the statement quoted, "the water will rise on the side of the earth away from the moon, because the earth's centre is more strongly drawn towards the moon than the point N, and recedes from N, which is the same in effect as if the water at N receded or rose up from the earth's centre."

Now if this were the case that the side of the earth away from the moon leaves the water behind, would it not be more natural still, that, in being so strongly attracted by the moon, the water facing the moon should give way on all sides to the pressure of the atmosphere, and allow the earth to peep out like a man putting his head out from under the water, rather than cause a mountain of water to be raised over it? Or, if the moon exercises more power over the water than over the earth, then the former propositions cannot be true.

It is the same with the attraction of the sun: if he causes the water to rise, then the attraction must not only be more powerful upon the water than upon the earth, but so strong as to raise the water in opposition to the whole atmosphere pressing upon it; or the sun must attract the air and water at the same time in a peculiar manner. If the sun attracts the earth itself in a kind of violent way, then the fluid water, and the still more fluid and elastic air, would give way to the forward impulse of the earth, and cause, as with the moon on the same supposition) low instead of high water. If the sun and moon attract our globe, including its water and atmosphere, in an equal manner as one whole, there would then be no rising of the water: the effect of the attraction upon the water would be the same as if there were no attraction at all.

If the attraction of the moon is sufficient to raise a high tide on the open ocean, why can she not raise a tide in the Mediterranean or Baltic, and other smaller inland lakes? "In small collections of water," it is said, "the moon acts with the same line of attraction, or nearly so, upon every portion of the surface at once, and, therefore, the whole of the waters being equally elevated at the same period, no part of them is ever higher than the other."

But the same takes place in the open sea: there "the moon acts with the same line of attraction upon a similar portion of surface," beyond which the waters by degrees, more and more, cease to be within her grasp; and yet it is said "that she raises up the parts immediately under her." This is equal to saying that a loadstone attracts a large piece of iron better than a small one. "The moon raising up the parts of water immediately under her,"

* Acadie, the French and genuine Indian name for Nova Scotia; it is there, in the "Bay of Fundy," that the tide rises about 70 feet.

the depression at the sides naturally *follows*, but does not, as said, assist the raising; and this raising can only be supposed to be done, by the moon's rays of attraction being concentrated in one focus immediately underneath, or by their being more powerful there than everywhere else; and in either of these cases she would as strongly attract when above the Mediterranean or Baltic, as when above any portion of the open sea. And this would, moreover, be less striking and wonderful to us than "that the whole of the waters should be equally elevated," particularly when considered that this *equal elevation at the same period* is not perceptible at the shore, nor that the waters are elastic and capable of *such* an elevation.* W. ADOLPH.

NATIONAL EXHIBITION OF THE ARTS OF IRELAND.

WE need not tell our readers that we view with interest every endeavour to improve the arts and manufactures of the sister kingdom, and to advance her interests. We have from time to time alluded to the intended industrial exhibition of Ireland, and are glad to find that everything promises for it a successful issue. It will be confined exclusively to Irish productions, and will embrace painting and sculpture by Irish artists. The architects have not been behindhand; Sir Thomas Deane being one of the most active members of the committee. The building in Cork is being rapidly proceeded with, and will be inaugurated by the Lord Lieutenant on the 10th of June. It has been determined, in order to carry out more fully the purposes of the National Exhibition, that a series of lectures shall be given in connection with it, to be called Exhibition Lectures, and devoted to the illustration of Irish art, industry, and science. Mr. Roney is organizing cheap and ready means of transit.

PIPE DRAINS *v.* BRICK SEWERS.

I FEAR a "Ratepayer" (who may be a member of a Local Board of Health) will find *very few* professional men ready to respond to his call upon them to volunteer their experience and opinion upon the much-vexed question of brick and pipe sewers, more particularly as that professional opinion is their stock in trade, and ought not, in common justice to *self*, to be scattered abroad, *pro bono publico*, any more than the stock in trade of the "Ratepayer." But so it is at the present day: for the want of a better understanding amongst professional men, public Boards resort to all sorts of stratagems to get opinions gratuitously, or almost gratuitously, and act upon them as suits their interest or caprice: in fact, they constitute themselves the judges in matters of taste, as well as in suitableness and stability of scientific works (*from whom there is no appeal*), frequently in direct opposition to the well digested and developed plans of the experienced engineer and architect. Surely, this state of things requires a radical change, which might be effected by a combination of professional men.

Why should professional men gratuitously volunteer opinions for the Local Boards of Health, when they have the benefit of their local officers, some of whom, I presume, are engineers, and the central authority with a staff of officers, likewise qualified engineers, to whom an appeal can at any time be made? But it appears that the discussion on the drainage of Richmond at the *old school*, the Institution of Civil Engineers, has so shaken the confidence of the Local Boards of Health in their officer and the Central Board, that they are now seeking information from other parties; and I can just imagine many professional men are similarly troubled as myself with hosts of letters from members and engineers of Local Boards, seeking information upon the very subject mooted by your correspondent, although, *par excellence*, they are the men that sanctioned the schemes laid down by the inspector of the General Board, and were deputed to carry out their somewhat questionable plans. I think the question of brick or pipe sewers resolves itself into this, that we should avoid extremes. I would not adopt the *cloaca maxima* of ancient Rome or modern London, *generally*, nor the *fine drawn* 4-inch pipe of the Board of Health for sewers of the streets of towns. I think both systems may be usefully employed. I would recommend a system to be laid down upon the principle of the "happy medium;" neither too large for the ordinary necessities of a town, nor so finely calculated by mathematical *formulæ*, the deductions from which should be the diameter of a pipe just sufficient to take the ordinary drainage of the houses, and *not even a dew-drop more*.

I think it is equally absurd to require the streets of towns to be drained with pipes scarcely large enough for a single water-closet, as to require drains to be made large enough to admit a man; because the latter principle, to be fully carried out, must extend to the private drains leading to the houses, and would be adopting Mr. Gwilt's recommendation recorded in the Blue Books, and which afforded some amusement at the time, although it is evident, from present appearances, "a change is about to come over the spirit of our dreams."

I am also of opinion that objections apply, not only to the plan of drainage of the Board of Health, but also other recommendations contained in their report, which may form the subject of other papers to be read at *the ancient* Institution of Civil Engineers at a future period, more particularly as the subjects alluded to are matters of great moment to every town; and, in consequence of a difference of opinion even amongst the inspectors of the Boards of Health themselves, towns are "*doing and undoing*," just in the system of old, which the Central Board of Health undertook to reform and regenerate. B. B.

* To be continued.

EARL DE GREY'S RECEPTION OF THE INSTITUTE OF BRITISH ARCHITECTS.

ON Friday, the 14th, the Earl de Grey, as President of the Royal Institute of Architects, received the whole of that body at his house, in St. James's-square, and invited a large number of the nobility and men distinguished in art and science to meet them. The members of the present and past council dined with his Lordship previously; and almost immediately after dinner H. R. H. Prince Albert arrived, and remained some time discoursing, amongst other matters, on the proposed restoration of the royal tombs at Westminster, with those who have taken prominent part in the inquiry. The president and officers of the Royal Society, the Society of Antiquaries, Royal Academy, Institute of Civil Engineers, British Archæological Association, Archæological Institute, Architectural Association, and of various other bodies, received cards, and the assemblage was in consequence very numerous. A large number of ladies were amongst the guests (the distinguishing feature of Lord de Grey's brilliant evenings), and the tables were filled with sketches and drawings.

We have not a list of all who were present, but note down some whom we noticed. The Marquis of Lansdowne, Earl Grey, Earl of Clarendon, Earl of Carlisle, Lord Ellesmere, Lord Palmerston, Sir John Herschel, Sir Henry Ellis, Sir W. Ross, Sir W. Newton, Messrs. Donaldson, Inman, Mocatta, Cockerell, Fowler, Scoles, C. Nelson, Bunning, Bury, Hesketh, Jennings, Papworth, Woodthorpe, Godwin, Knowles, Myln, Roberts, Ferrey, Garling, Scott, Sancton Wood, Planché, Pettigrew, J. Wood, Landseer, R.A.; J. P. Knight, R.A.; E. M. Ward, A.R.A.; C. H. Smith; Pickersgill, R.A.; Habershon, Clarke, Kendall; Dr. Dickson, E. Hawkins, H Warren, Fahey, Waring, J. Martin, Foggo' Sir Charles Barry, R.A. &c.

CONVERSAZIONI, &C.—Lord Londesborough has issued cards for a conversazione on the 29th.—Lord Rosse's third conversazione to the Royal Society will take place this (Saturday) evening, the 22nd.—Lord Mahon has a dinner party to meet the Council of the Society of Antiquaries on the 1st of June.

ANCIENT TIMBER TOWN-HALLS.

JOHN ABEL.*

THE town-hall in the city of Hereford is a timber structure built upon twenty-seven pillars, and was originally a very handsome building, but was many years since denuded of its upper story, in which the fourteen different trading companies of the city transacted their business. It was erected by the celebrated John Abel, in the reign of James I. Prior to the erection of the present county hall, the assizes were held in this building.

The town-hall of Leominster, or Butter-cross, as it is frequently called by the inhabitants, was erected in the year 1633, by the above-named architect: it stands upon twelve oak pillars, and was originally ornamented with a variety of curious carvings, and the shields of arms of those who contributed towards the expense of its erection, but which have long since vanished. Around the building, just above the pillars, was inscribed the following sentences, but portions of which only now remain. On the south side:—

"Vive Deo gratus, toti mundo tumulatus, crimine mundatus, semper transire paratus."

On the east side—

"Where justice reigns, there virtue flows. Sat cito, si sat bene vive ut post vivas. As columns do support the fabric of a building, so noble gentry do subprop the honour of a state."

On the north side—

"In memoriâ æternâ erit Justus, 1663."

In the year 1793, this hall underwent very considerable repairs, more properly called spoliation, by taking down the gables, and with them the curious carvings, shields of arms, &c. which must have greatly destroyed its picturesque effect. It contains a clock, and is surmounted by a cupola, in which is a bell, whereon the hours strike.

The town-halls of Brecon, Kington,† and Weobly, and probably others, of which at present I can give no particulars, were built by the same person. Mr. Abel being in Hereford when that city was besieged in 1645, was of great service by constructing mills to grind corn for the use of the inhabitants and soldiers confined therein, for which Charles I. afterwards conferred upon him the title of one of his Majesty's carpenters.

In Sarnesfield churchyard, in the county of Hereford, is a monument consisting of the effigies of himself and his two wives, with the emblems of his profession, executed by his own hands after he reached the patriarchal age of ninety years: it has the following inscription, being his own composition:—

"This craggy stone a covering is for an architector's bed,
That lofty buildings raised high, yet now lyes low his head:
His line and rule, so death concludes, are locked up in store,
Build they who list, or they who wist, for he can build no more.
His house of clay could hold no longer,
May heaven's joy frame him a stronger.
JOHN ABEL.
Vive ut vivas in vitam æternam."

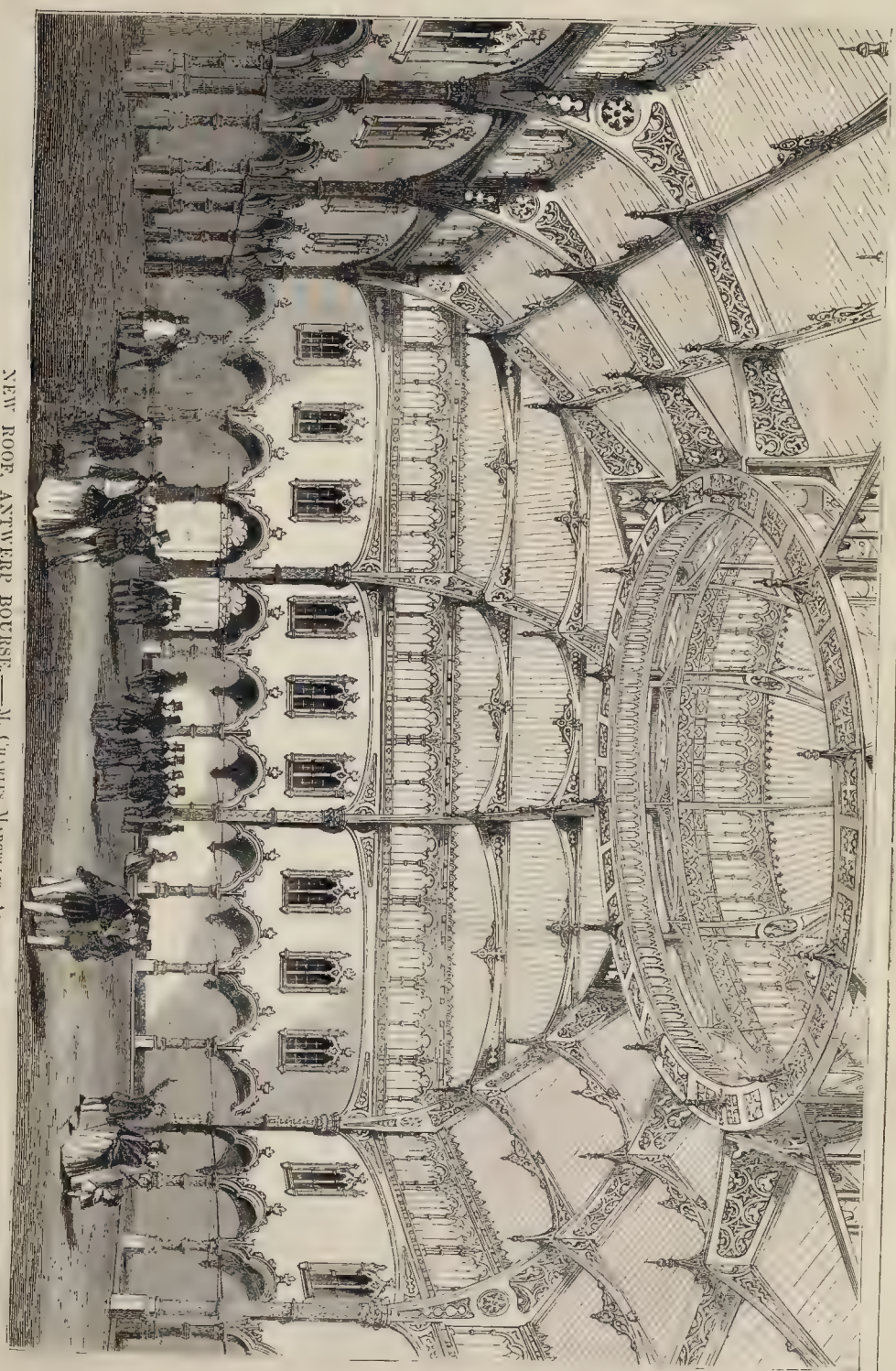
I believe Sarnesfield was his native place: he died there in 1694, having attained the great age of ninety-seven years.

J. B. WHITBORNE.

* The following is from *Notes and Queries*, the editor of which continues vigorously his useful course.

† This hall had similar inscriptions to those of Leominster.

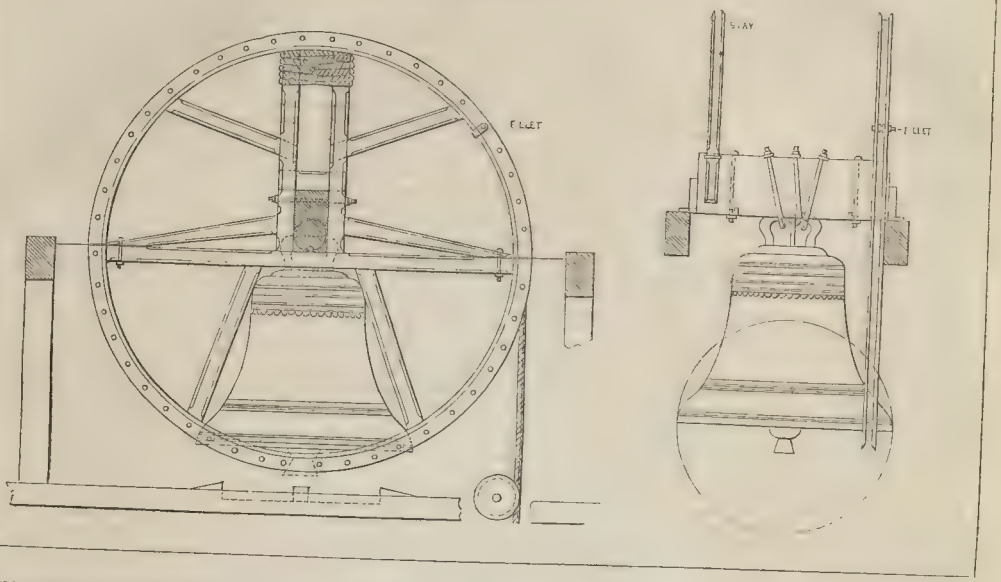
IMPROVED LUBRICATOR FOR MACHINERY.—A patent has recently been obtained by M. B. Coquatrix for a lubricator, consisting of a box containing the oil, from the bottom of which a tube descends directly on to the bearings, and on the top of this tube a boss is cast, with a screw thread turned in it, into which a thumb key, with a conical point, is screwed, so that the annular aperture formed in the tube by the insertion of the key can be instantly closed, when the machinery is at rest. By raising the key by unscrewing, the conical point serves to regulate the supply from one to as many drops per minute as may be required. In fitting on this lubricator, it is only necessary to take off the old and insert the patent one instead.



NEW ROOF, ANTWERP BOURSE.—M. Charles Marcelis, Architect.

(See page 321 in our present Number.

HANGING OF CHURCH BELLS.



HANGING OF CHURCH BELLS.

We this week give engravings of the sketches of bell-wheels sent us by the Rev. H. T. Ellacombe, as referred to in his notes on this subject on p. 251, *ante*. One of these, besides the stock, the shrouding or ring of the apparatus, and the spokes, &c. shows the fillet more particularly alluded to by H. T. E. The other shows the stay as well as the fillet. The stay, however, as he remarks, is not a necessary part of the apparatus. In "stingy parishes" the stay and slide are often wanting.

In the construction of the cage it is of the greatest consequence that the timbers should take their bearing independently of the masonry, that is, not be fixed in it. If, in the course of years, as will be the case, the frame should vibrate or get ricketty, it should not be made steady by putting wedges between the beam ends and the walls, as is commonly done by inexperienced workmen, but it may be easily stiffened by driving hard oak or iron wedges in at the backs of the tenons of the *braces*, in the mortices in the cill pieces. On this subject, Mr. Ellacombe says:—

"The construction of the timbers or cage of St. Paul's, London, may be taken as a good example of hanging heavy bells in a belfry. The timbers should always be laid on wooden plates, the whole resting either on stone corbels, or on a set-off formed in the wall. It is not the downward pressure from the weight of metal, but the lateral pressure or vibration caused by the motion of the bells which does the mischief, especially if any of the timbers are let into the walls or touch them laterally. To avoid this a well-constructed cage is trussed and braced diagonally with most substantial timbers; the weight of the whole, if properly rested on corbels or set-offs, keeps it steady. The higher the bells are placed in the tower, the more does the vibration caused by ringing them affect the masonry."

BATHS AND WASHHOUSES.—From accounts of the model establishment in Goulston-square, Whitechapel, recently printed, it appears that for 1851 there is a surplus of 281*l.* 14s. 4d. besides 80*l.* odd expended in reducing the annual assessment of Whitechapel parish from 500*l.* to 200*l.* The number of bathers was 156,311, of whom 14,397 were women, and 286 children. In 1849, the number of female bathers was only 4,695. The committee are now issuing, to subscribers and the public, tickets for gratuitous distribution to poor families.

ARCHITECTURAL PUBLICATION SOCIETY.

THE annual meeting of this society was held on the 10th inst. Mr. Mocatta was called to the chair, and after the preliminary business had been gone through, the report of the committee was read. We would direct the attention of the profession at large to the matter of this report, which will very shortly be in the hands of all the members. It contains a subject of interest to all connected with the art. It is referred to in the following passages:—

"Impressed with a deep sense of the value and great importance of a Cyclopædia following closely the path indicated by the List of Terms, not only to the members of the Profession, but to all who are interested in the art, the committee, after several consultations, when the subject was fully discussed in all its bearings, decided to lay before this annual meeting, a scheme by which such a work might be commenced and efficiently carried out within determinate limits. Fully alive to the impolicy of issuing a publication in a series of parts extending over a long number of years, creating the apprehensions and exhausting the patience of subscribers, it is hereby recommended, as a systematic and practical effort, that in consideration of the difficulty of working out the scheme of the Cyclopædia as hitherto contemplated, the project be carried into execution as a *Dictionary of Explanation and Reference*, with incidental woodcut illustrations, and occasional lithographic plates, so arranged as to be completed in about three years, at the present amount of subscription."

An increase of members would enable them to complete it in two years.

The list of terms for the Cyclopædia already issued consists of the large number of 11,000 articles: this gives an idea of the comprehensiveness of its application, and if the Society should be enabled to carry out this dictionary, carefully got up by able writers, it will be a boon to all lovers of architecture.

The audited balance-sheet for the year ending 30th April, 1851, was presented, showing a total income of 504*l.*, with a balance in hand for the year 1851-2 (ending 30th April last) of 44*l.* 4s. 7d.

A NOVEL LOCK.—During an investigation at the police court this week, one of the witnesses, an Italian, exhibited a curious lock to the magistrate, which had been wrenched off a chest. The lock contained a small bell, and the key had to turn in the lock and strike the bell a certain number of times before the bolt could be shot back.

Notices of Books.

Lectures on the Results of the Great Exhibition. London: Bogue, 1852.

THE series of lectures upon the Exhibition of the works of Industry of all Nations, delivered before the Society of Arts, at the suggestion of H.R.H. the Prince Albert, has been published by Mr. D. Bogue, and forms a very valuable book. Some of the matters might, we think, have received more attention, and we are ourselves somewhat jealous at the cursory manner in which two such subjects as civil engineering and architecture have been treated; all that could be said about them being reducible to about two pages of letterpress, and those at the termination of a lengthened lecture on machinery generally, in an octavo volume of some 600 folios. With this exception, the several discourses are excellent, as the names of the authors would testify—Whewell, De la Beche, Owen, Bell, Playfair, Lindley, Willis, Solly, Glaisher, Hensman, Royle, Washington,—and in the whole they furnish a history of industrial Art, which, as Whewell says,—"has, in general, preceded science. For men have executed great, and curious, and beautiful works, before they had a scientific insight into the principles on which the success of their labour was founded. There were good artificers in brass and iron before the principles of the chemistry of metals were known; there was wine among men before there was a philosophy of vinous fermentation; there were mighty masses raised into the air, cyclopean walls and cromlechs, obelisks and pyramids,—probably gigantic Doric pillars and entablatures,—before there was a theory of the mechanical powers. The earlier generations did; the later explained that it had been possible to do. Art was thus the mother of science,—the vigorous and comely mother of a daughter of far loftier and serener beauty. Tubal-Cain in the first ages of the world was 'the instructor of every artificer in brass and iron;' but it was very long before there came an instructor to teach what was the philosophical import of the artificer's practices. As I have said, art preceded science: if even now science can tell us why the Swedish steel is still unmatched, or to what peculiar composition the Toledo blade owes its fine temper, which allows it to coil itself up in its sheath when its rigid thrust is not needed,—art has preceded science, and

science has barely overtaken art. But in the second class, science has not only overtaken art, but is the whole foundation, the entire creator of the art. Here art is the daughter of science. The great chemical manufactories which have sprung up at Liverpool, Newcastle, Glasgow, owe their existence entirely to a profound and scientific knowledge of chemistry. These arts never could have existed if there had not been a science of chemistry, and that an exact and philosophical science."

Climate of Italy in relation to Pulmonary Consumption; with Remarks on the Influence of Foreign Climates upon Invalids. By T. H. BURGESS, M.D. &c. Longman and Co. London. 1852.

LET the busy professional invalid who sighs for the soft winds and the interesting sights of Italy, read Dr. Burgess's book, and be consoled and comforted. There are Comos, Venices, Milans, Montpeliers, in Britain no less than on the continent. The object of the little work under notice is to dissect the climates of all the fashionable resorts in the south of France and in Italy to which invalids, including the consumptive, fly in the hope of attaining what they erroneously imagine these resorts to be far more able than their native climate to yield them—better health. These continental climates, Dr. Burgess admits, are in some respects milder and more eligible; but most of them he maintains are not *equable*, and hence are more likely to injure than to benefit, especially the consumptive, and he is of opinion that there are many localities in England preferable to any of them. Venice and the lake of Como appear in his estimation to be the least objectionable.

The system of sight-seeing in many respects he disapproves of in the case of phthisical patients. In speaking of Venice, for instance, he says,—

"I have repeatedly seen patients positively moribund, conveyed about this city, sight-seeing, under the impression that constant *change of scene* was as necessary for their cure as change of atmosphere. Change of scene may, and does, produce good effects in nervous and dyspeptic invalids, or upon those exhausted by over-exertion, shock, or mental anxiety; but what benefits it can accomplish in patients with organic disease, like tubercular consumption in an advanced stage, I am at a loss to conceive. The invalids alluded to, or their advisers, however, seemed to think otherwise; for, apparently, their sole object in view when visiting Venice, was to contemplate the works of Titian, the frescoes of Tintoretto and of Paolo Veronese, the statues, palaces, temples, the mausoleums of Sansovino and Palladio, whereas they seemed as if utterly unconscious of the injury they were thus doing to their health, or their frail tenure of life."

While advocating the cause of his native climate to the Englishinvalid, the author, we may add, enters a protest against the site of the Consumption Hospital: "I cannot help thinking," he says, "that the site of the Hospital for Consumption at Brompton was injudiciously chosen. It is surely a mistake to place consumptive invalids in a damp, low-lying locality, ill drained, badly ventilated, for the problematical advantages of its 'mild climate.' An elevated situation, with a free circulation of air, if sheltered from the north-east, would not have the sedative and relaxing effect upon constitutions already too relaxed, which the climate of Brompton possesses."

OXFORD ARCHITECTURAL SOCIETY.—A meeting of this Society was held in the Society's Rooms, Holywell, on Wednesday, in last week, the Rev. the Principal of Brasenose College, President, in the chair, when the Secretary read the report of the committee, stating that the suggestions of the society had been adopted by the architects employed in the restoration of St. Mary's, Warwick, and that Mr. Freeman's report upon Fortworth Church had been accepted by the committee. The Rev. J. E. Millard, M.A., of Magdalen College, read the first part of a paper containing notes of a tour in Belgium, in 1848. The Secretary read a description of a monumental effigy of a pilgrim, in the parish church of Ashby-de-la-Zouch.

Miscellanea.

IRON STEAM-SHIP BUILDING AT LIVERPOOL.—An order has been received in this country for the construction of thirty iron steam vessels for the Danube Steam Navigation Company. They are to be of large dimensions, and of substantial materials. The order has been distributed so as to give employment in Liverpool, the Clyde, and Newcastle. Messrs. Thomas Vernon and Son, whose building-yard is on the west side of the Brunswick Dock, have received orders for the construction of ten of these new iron steamers, which are to be completed with the greatest possible despatch. They will be sent out in sections, for the purpose of being put together on reaching their destination abroad. They will be large flat-bottomed boats, 176 feet long, 25 feet beam, and 9 feet depth of water, and so constructed that they will be able, even with a very large cargo, to navigate in the shallow waters of the Danube. They are being built for conveying produce and general merchandise to the Black Sea from the interior of the country, and, where necessary, will be towed by steam-tugs, of which the company have a large fleet. The same firm have just completed an iron screw vessel, which is the pioneer of a new fleet, to be constructed for the purpose of carrying coal from Hartlepool to London. Should this, and the sister boat which Messrs. Vernon are building, succeed, several hundreds of the same class will be required. A range of docks is being constructed at Hartlepool for the accommodation of the proposed screw steamers, and other important arrangements are being made for carrying out the trade in a very extensive and spirited manner. They are first-class steamers, 160 feet long, 25 feet 6 inches beam, 80-horse power, and 500 tons burden. But, perhaps, the most important feature is, that, having double iron-bottoms, they can take in water when returning light from a voyage, thus avoiding the cost and delay of putting ballast on board, all that is required being to open the tap to the sea when ballast is wanted. Their having good inside bottoms will also contribute materially to their strength and safety. These boats are being constructed according to the designs, and under the direction, of Mr. John Grantham, consulting mechanical engineer. Another iron steam-ship, about the same size, is being built by Messrs. Vernon, for the Liverpool and Newry station, to carry passengers and general merchandise; and they are proceeding to build three screw-steamers, of novel construction, for the Mediterranean, and which, it is anticipated, will accomplish a very high rate of speed.—*Liverpool Albion.*

LONDONDERRY BRIDGE.—This will, perhaps, be one of the largest structures in the United Kingdom. The plan contemplates combining a railway and roadway in the same viaduct. We take the following from the report of the Lords of the Admiralty:—"The proposed new bridge, as explained by Mr. Charles May, consists principally of two large iron tubes, 280 feet long each, and resting upon four iron piers. These tubes are to contain a single line of railway, over which, at a height of twenty feet, the roadway is to pass; and between the iron tubes (which occupy the central part of the river) and the river bank, the railway and roadway are continued, supported by means of iron piers and pillars. The total length of the proposed bridge is to be 850 feet between its abutments, supported on eight iron piers, and with a clear waterway of 770 feet, viz., two spans of 256 feet each, four spans of 38 feet each, and one opening span of 30 feet."

THE LIVERPOOL ARCHITECTURAL SOCIETY.—At the sixteenth meeting of the session, on Wednesday, week before last, Mr. J. A. Picton in the chair, the first prize for students' designs was awarded to Mr. Price, and the second to Mr. Richardson. Several subjects were discussed, among them a paper by Mr. G. F. Chantrell, on "The application of Fire and other Clays to Building and Sanitary Purposes." The last meeting of the session was held on the 12th, when Manchester was fixed on for the next annual excursion.

OSCILLATION ON RAILWAYS.—The recent railway accident between Winchester and Basingstoke, causing the deaths of two men, besides other serious injuries, was owing to the breaking of one of the engine-wheel tyres. At the coroner's inquest it was stated, that the iron was sound, and of best quality, and that the accident could not be accounted for otherwise than as the effects of frost. Verdict, accidental deaths. The evidence is not even asked, if such fractures did not happen to wheels and axletrees in seasons of no frost, and whether the circumstances of wheels attached to a warm engine, with the friction in running so many miles, would not temper away the frosty influence; or whether there might not be mechanical causes, such as the rubbing and friction with severe shocks and jars from lateral oscillation of the carriages upon the rails? But what justice or remedy of causes can be expected, when such a mere baffling feint ends the investigation? One thing is certain; that if the tyres were much lighter, they would not stand the racket of such heavy lateral action, and therefore it may be questionable whether they are yet strong enough for such an inimical working system. Machinists, who monopolise this subject, seem to be as cold and indifferent about consequences and perfection as Jack-frost himself, and are always very guarded lest they should criminate this unqualified working system. Therefore, if railway commissioners and directors are equally regardless, killing and crippling will go on with impunity; but if they will institute rigid investigation, with conviction that to every mechanical evil there ought to be found a mechanical remedy, such inquiries would greatly stimulate ingenuity to the correction of lateral unsteadiness, when we should witness the perfection of railway travelling in the mechanical guarantee of safety, speed, and economy.—G. M.

SANITARY REFORM IN THE METROPOLIS.—SIR: I was much pleased with your remarks on sanitary reform, in a late number of THE BUILDER; but in addition to the pernicious effects there glanced at, I think that that almost national disease, consumption, is intimately affected by the state of the air breathed. To a superficial thinker the bad state of London air may not be apparent. It may not in some cases be evident to the sense of smell. He may not note any *immediate* decrease in the vigorous action of the respiratory organs. But let him ascend to the "house top," and look around on the interminable congregation of streets and houses: he will *then* distinctly see the thick murky atmosphere in which they are constantly bathed. Let him but look "with microscopic eye" on that air loaded with confervoid growth—actual decomposing organic matter, and other impurities derived from a thousand different sources: let him trace it as it enters the lungs of the inhabitants, diffusing itself through the interstices of our most delicate and vital organs: need he ask himself then, "Does this not injure the lungs?" Again, this contaminated air is further converted by the metropolitans into (if I may so express myself) *a high pressure* poisonous medium, by closing every outlet to their habitations, by which the noxious atmosphere might escape. Anxiously do I look forward to the day when the laws of health will be better understood and acted on.—OLIVER.

STEAM POWER FOR FARM PURPOSES.—The *Inverness Advertiser* publishes an abstract of a paper by Mr. R. Ritchie, to whom the Highland Society awarded their gold medal in 1850. As essential requisites in the prime movers of barn machinery, Mr. Ritchie insists, 1st, upon stability and durability without loss of power and increase of friction; 2nd, simplicity of management; 3rd, non-liability to derangement of the parts; 4th, safety, a freedom from all danger of steam explosion and 5th, thorough economy of fuel and no danger from fire. In speaking of portable engines, Mr. Ritchie says, he is at a loss to comprehend what object can be obtained by locomotion to a farmer of ordinarily prudent habits of management in the present state of husbandry: for small farms, however, he admits their utility.

THE SHOP SUN-BLIND NUISANCE.—SIR,—I beg to call your attention to the fact, that the sun-blind nuisance is assailable irrespective of the Commissioners of Pavements, and of their surveyors, which latter may be truly said to *overlook* much of which they should take cognizance. Under the Metropolitan Police Act, 2 & 3 Vict. c. 47, s. 60, those "who set up or continue any pole, blind, awning, line, or any other projection from any window, parapet, or other part of any house, shop, or other building, *so as to cause annoyance or obstruction* in any thoroughfare," are liable to a penalty of 40s. for each offence; and further, by sec. 62 of the same Act, if any such offence "shall have caused any hurt or damage to any person or property, the offender may be apprehended by any constable; and if he shall not, upon demand, make amends for such hurt or damage to the satisfaction of the person aggrieved, he shall be detained by the constable in order to be taken before a magistrate, and, upon conviction, shall pay such a sum, not more than 10*l.*, as shall appear to the magistrate before whom he shall be convicted to be reasonable amends to the person aggrieved, *besides* any penalty to which he may be liable for the offence." If you can manage to jog the memories of the Whitehall authorities, and get them to shake off any awe they may feel of the metropolitan vestrymen in this matter, you will render a great service to your fellow-citizens, and receive the thanks of,—A. LONG FELLOW.

*** The police, then, have no excuse, any more than the Commissioners of Pavements, for allowing such a nuisance as this to exist. We hope, ere long, to see a general onslaught, as before said, of 40s. penalties against it; but we suspect that public spirit, on the part of those annoyed or injured, must lead the van.

REPRODUCTIVE EMPLOYMENT OF PAUPERS.—A very numerously attended meeting has been held in the town hall, Manchester, "for the purpose of taking into consideration, the propriety of presenting a petition to Parliament in favour of such an alteration in the laws for the relief of the poor as will enforce the general adoption, as far as practicable, of reproductive employment of the destitute, in lieu of total idleness, or useless taskwork, with the view of reducing the heavy burden of poor rates, and abating the demoralising consequences resulting from the present system." The mayor presided, and the principal speakers were clergymen, who met the arguments usually urged in favour of idleness in workhouses, and carried the sense of the meeting, in various appropriate resolutions, entirely along with them, notwithstanding the endeavours of a few speakers to uphold the present state of things.

THE IRON TRADE.—The general aspect of this trade remains unchanged. A slight improvement in the price of rails has been obtained; but sheets, nail-rods, rounds, and use iron meet with a rather more limited sale at home, and without a shade of tendency to better figures. In the pig trade very little is doing, and that without alteration. Both manufactured and pig iron still exhibit the same extreme latitude of variation prices, and consequently, it may reasonably be supposed, in quality also; the former extending from 4*l.* 15s. net, to 6*l.* for bars, and other descriptions after the same proportion; and the latter from 42s. 6d. to 70s. per ton. Notwithstanding the grievous complaints of want of remuneration in that branch of the trade, we hear that instead of a reduction of the number of furnaces already in blast, more are about to be set to work.—*Aris's Birmingham Gazette.*

IMPROVED VERTICAL BORING LATHE.—Messrs. Gale and Fensom, of Upper Thames-street, have patented a new description of hand boring and drilling lathe. The drill crank works in a sliding frame, moving up or down, on a guide rod, at the top of which is a screw to regulate the distance according to thickness of material operated on. The pressure screw acts above the crank in the usual manner, and below the upper arm of the bracket is a small fly-wheel, which regulates and facilitates the motion.

SALES OF PROPERTY.—On the 11th inst. at the Mart, by Messrs. Chinnock and Galsworthy,—One 21 share in freehold houses, ground-rents, and building land, at Stockwell and Bermondsey, including the Swan Tavern, producing a rental of 32*l.* per annum, progressively increasing till 1889, when it will amount to 120*l.* per annum: 850*l.*—Leasehold investment of 194*l.* per annum, for seventeen years, well secured on property situate in Sloane-street, being a residence with two wings, forming shops: 940*l.*—Leasehold residence, with stabling, 41, Upper Bedford-place; annual value, 130*l.*; term, 75 years: 1,100*l.*—Freehold house and shop, 13, Portugal-street; annual value, 70*l.*: 860*l.*—Leasehold stabling, in Little Grosvenor-mews, let at 100*l.* per annum; ground-rent, 45*l.*: 550*l.*—Freehold ground-rents, amounting to 30*l.* per annum, secured on a square at Notting-hill, with a piece of building land for eleven houses (by private contract): 8,500*l.*—Improved ground-rents, amounting to 424*l.* per annum, secured upon leasehold houses, forming the whole of Sydney-street, King's-cross, River-terrace, &c. including several shops in the main road, of the rack annual value of 2,120*l.* per annum (privately), in one lot: 7,700*l.*

NEW ELECTRIC PHENOMENON.—I very recently witnessed at Mr. E. Dorguin's, manufacturer of chocolate and *cho'ca* (a new aliment, composed of coffee and chocolate), a most curious fact. In taking out the cho'ca paste from the tin moulds, cold and hard, it manifested an electric appearance, from which *sparks* were visible. Until now I could not account for this phenomenon, unless it is admitted that the cho'ca contains idio-electric properties, the same as in resinous or vitreous substances; but in this case there had been no friction to develope the electricity, and the moulds in which the paste had been standing for 24 hours, communicated with the earth, which might facilitate the immediate reconstitution. The cho'ca tablet has such a powerful attraction, that it holds the tin-foil, which serves to envelope it, suspended for more than ten minutes,—the tin-foil is 90 square inches in surface. I have just constructed a cho'ca electrophore, and after a friction I obtain about twenty electric sparks successively.—CHEVR. LE MOTT.

OUR PUBLIC BUILDINGS.—It is provoking to observe the alterations that are constantly being made in our public buildings within a few years after their erection. This remark is drawn forth by the recent works on the south side of the Royal Exchange. The London Assurance Company, finding their office confined for space, have made a very awkward and ugly projection, *in woodwork grooved to imitate masonry!*—the granite string course has been chopped away with ruthless hand. In another compartment on the south side, No. 1, a *new shop-front* is being put in! It is to be hoped this spirit of alteration will not be catching, or a few months hence we may find a beautiful variety in the thirty compartments surrounding our Royal Exchange. Who permits the liberties in this instance? We ought to be able to fix the *laches* on some one: poor *Mr. Nobody* is often the wrong-doer.—X.

THE PROFESSION.—A correspondent directs our attention to the fact that, in the *Chester Chronicle* of May 15th, in an account of insolvency, &c. Richard Cross is represented as being opposed by Walter Instrip, sawyer and *architect*. What next?

ENLARGEMENT OF THE CORN EXCHANGE, MARK-LANE.—Workmen have been laying the foundation for the enlargement of the old Corn Exchange, Mark-lane, on the site of the late fire in Seething-lane, Tower-street. The cost will be about 5,000*l.*

GENERAL INSURANCE.—It appears strange to me, amongst all the attempts made to improve the metropolis, in which so many societies exist to instruct and elevate the condition of the great human family, no one has suggested the idea of uniting the metropolitan parishes into a general compulsory fire insurance office, from which source funds sufficient to carry out great and important improvements might arise without increasing our rates.—A FRIEND TO IMPROVEMENT.

OPENING OF THE NOTTINGHAM ARBORETUM.—On Tuesday in last week the walks of this Arboretum were formally perambulated by the authorities, in presence of many thousands of spectators, whom the mayor addressed on opening the grounds to the public.

THE WESTMINSTER TRAINING INSTITUTION.—On Tuesday, in last week, the chief stone of a new building in Victoria-street, Westminster, to be called the Westminster Training Institution, was laid by his Royal Highness the Prince Consort, who was enthusiastically received by a numerous company.

CAMBRIDGE ARCHITECTURAL SOCIETY.—The second meeting for the Easter Term, was held at the Society's Rooms, on Thursday, in last week, the Rev. Dr. Mill, president, in the chair. Mr. R. R. Rowe, Architect, and Mr. J. B. Kelly, of Clare hall, were proposed as ordinary members. Mr. Norris Deck read a paper, accompanied by coloured examples, on the connexion between Ecclesiology and Heraldry.

THE SERPENTINE.—A deputation of physicians and others, on the 14th instant, went to the office of Works, on the subject of the stagnant and dangerous condition of the Serpentine. Mr. Lilwal introduced the subject to Lord J. Manners; and Dr. Woolley, Dr. Tilt, Dr. Wilson, and Dr. Pettigrew addressed his lordship, who several times acknowledged the necessity of early and careful attention, and promised that an additional supply of water should be immediately seen to.

TENDERS

For finishing four houses, situated in Queen's-terrace, Queen's-road, Primrose-hill, for Miss Leech. Mr. R. H. Moore, architect.

Fullagar	£1,666	0	0
Gerry	1,633	10	0
Redfin	1,548	0	0
Luxford (Hackney)	940	0	0

For finishing four first-rate houses at Sydenham, for Mr. Peter Rolt. Mr. May, architect.

Greenwood	£1,250	0	0
Barrett	1,147	0	0
Cooper	1,080	0	0
Francis and Co.	960	0	0
Rulkin	935	0	0
Haruden (accepted)	910	0	0
Robinson	890	0	0

For first design for the Richmond Railway Station. Mr. W. Tite, architect.

Lovell	£5,265	0	0
Piper	5,242	0	0
Carless	5,225	0	0
Brass and Son	5,183	0	0
Smith	5,054	0	0
Long	4,980	0	0
Nicholson and Son	4,950	0	0
Mills and Joy	4,850	0	0
Little and Son	4,780	0	0
Grundell	4,685	0	0
Pollock and M'Lennon	4,588	0	0
Jay	4,428	0	0

For a warehouse at the Poplar goods station, for the East and West-India Docks and Birmingham Junction Railway, delivered at Euston-square, on the 18th inst.

W. Cubitt and Co.	£17,298	0	0
J. and G. Munday	17,215	0	0
T. and W. Piper	16,700	0	0
G. Watts	16,463	0	0
J. Jay	16,275	0	0
J. Jeffrey	15,750	0	0
Hack and Son	14,707	0	0
G. Myers	14,150	0	0

For coal stores for Imperial Gas Company, at Fulham.

Kelk	£3,709	0	0
Jay	3,347	0	0
Cubitt	3,137	0	0
Myers	2,673	0	0

For the erection of a villa and offices at Abbeyfeale county Limerick. Mr. John J. Lyons, architect.

Dobbin	£1,700	0	0
Meade	1,550	0	0
Burgess and Son	1,500	0	0
Patterson	1,450	0	0
Meagher and Son	1,100	0	0

For schools, Pickard-street, City-road. Mr. Emmett architect.

	Schools.	Furniture.	Total.
Haynes and Eyre	£1,942	£125	£2,067
Jay	1,843	136	1,979

TO CORRESPONDENTS.

"*Skew Bridges.*"—Will one of your correspondents tell me whether a bridge, built of stone or brick, over which heavy weights must pass, would be *secure*, supposing it to be built at an angle of 40 degrees, and to have a *pointed Tudor arch* springing from the abutments; the voussoirs and abutments to be strong in proportion to the span. This being what is commonly called a skew bridge, is there no error in *principle?* Would it not have to be *groined?*

"H. P." (thanks), "G. W." "C. C." "T. L." "C. J. R." "B. B." "Subscriber from No. 1." "Malachite" (we cannot furnish prices), "A Competitor." "E. R." "R. M." "S H." "R. D." "A. B." "J. J." "G. W. R." "X. + Y." "J. E. N." "R. W. L." "A. H. P." "W. J. H." (we have not time to refer).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

IMPORTANT CORPORATION GAS WORKS.
"PROFITS OF GAS AT MANCHESTER."

SIR,—Your paper of [illegible] contains in its miscellaneous department a paragraph headed "Profits of Gas at Manchester," in which some statements made by Mr. Alderman Shuttleworth are quoted from the papers as explanatory to the Manchester shopkeepers, who continue to pay the Corporation 3s per 1,000 feet for their gas, while the London tradesman is only charged 4s by a gas company.

The data upon which the Alderman's calculations are based differ [illegible] from the facts of the case, that I am induced to request your immediate insertion of the following rectification.

It is admitted at which in Manchester Canal coal costs 12s 6d. per ton, and the coke only realizes 2s 6d, leaving 10s coal charge per ton, and the coke only realizes 2s 6d, leaving 9s 6d coal charge to the gas. Canal coal can be procured in London at 18s per ton, of which the [illegible] returned by the coke, and that consequently 2s per ton [illegible] the gas produced from one ton of canal. The only [illegible] that Lancashire Coupel coal cannot be delivered at the majority of the London gas works at less than 24s per ton [illegible] the coke saleable for more than 5s less [illegible] chargeable to the gas, and not 2s as asserted by the Manchester Alderman. It is true that some descriptions of inferior Scotch Canuel may be purchased at about 18s per ton, but the coke from them is nearly worthless, and the gas is in consequence more costly.

The large profits realized by the Manchester Corporation out of the gas works are constantly paraded before the public, as proving the advantages resulting from the supply of this important article being monopolized by the municipal authorities. The question is only superficially examined, it may here this construction, but those have studied the details can only see in them an insidious system of taxing the gas consumer for purposes, the expense of which ought to be supported by the entire population. Are you, Sir, aware that every Manchester consumer of gas, burning less than 20 feet per annum will pay at the rate of 3s per 1,000 feet, and that the sliding scale is so arranged that to obtain it at 2s, he must burn five million cubic feet in the year? Are you, Sir, further aware that every consumer is compelled to purchase not only the gas he may consume for a box in which it is his meter, but to pay the foundation for a box in which it is placed up, and that they have uniformly refused even to let out meters on hire at a rent? These are some of the means by which the large profits are secured, but which no gas company dare to practise in the present day.

It was proved in evidence before the Metropolitan Water Commission of last Session, that the Liverpool Gas Company supply as matter of fact to their customers the purchaser from the Manchester Corporation gets for less; and in addition to this, the public lighting of Manchester is a disgrace to a city of that importance." The immense distance of the public lamps asunder, and the diminutive proportions of the flames in them (becoming, not lessening towards are subjects of free remark by every stranger, and in this respect are decidedly unfavourably contrasted with the public lights in the adjoining borough of Salford, where a more liberal system is pursued. Some "truth and fresh" for my money; they are (as the old proverb has it) "stout horn things," and will enable me to [illegible]

I am, Sir, Editor, faithfully yours, &c. &c.
WILLIAM PEARCE, C.E.
Gas Machinist, &c. &c.
16, Cumberland Market, Regent's Park and 249, Tottenham Court Road, 17th April, 1852.

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Lecture II
Morning, June 10, } Woven Fabrics, Shawls,
Evening, " 14, } Carpets, &c.
Lecture III.
Morning, June 17, } Furniture and Carvings.
Evening, " 21, }
Lecture IV.
Morning, June 24, } Metals, Enamels, and Ceramic Manufactures.
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The sculptures of the most eminent living artists of every nation, caste of the works of eminent sculptors in every age, architectural remains and casts of architectural monuments of past and present times, will occupy every salient part of the building. The French, Germans, and Italians will cease to be the only European nations busy in educating the eye of the people for the appreciation of art and beauty. The most interesting models of machinery at work will present to the artizan, as well as to the student, the means of acquainting himself with the processes and the products of every great staple manufacture in the country. A lesson taught in Hyde-park, where the cotton entered in the berry and emerged in the bale of goods, where linen rags were pas ed through the paper-mill, and issued in packets of sheets of instructive literature, will be repeated in the People's Palace, where every great variety of machinery will find its enduring record and safe depository. Geology, mineralogy, and botany will be illustrated on a far greater scale than has ever before been attempted; and trees, plants, architecture, costumes, and manufactures will be so laid out as to present as far as practicable a study of every country in the world, with all its natural stores and industrial products. The Royal Commissioners were obliged to take, almost without discrimination, all that was sent to them by foreign and colonial committees, and thus many acres of space were filled with useless and uninteresting objects, and the same description of objects was repeated time after time in every division of the building. In the new building, on the other hand, the classification of the objects will be much more complete and instructive, and the vacant space will be filled by beautiful plants, flowers, and fountains.

Surrounding the Palace will be the Crystal Palace-park, constructed with all the peculiarities for which the parks of England are world-famous. Some hundred and fifty acres will be filled with every tree and plant which England's atmosphere has adapted to or acclimatized. The Crystal Palace-park will be as thoroughly English in its aspect as the Palace itself will in its contents be a miniature of the world.

Periodical shows of flowers and plants will be held in the Palace, but the general amusements of the tea-gardens and the dancing-saloon will be strictly excluded. Care will also be taken to secure a supply of refreshments of the best description, but intoxicating beverages will not be sold. In a word, throughout every department of the national work, that character will be stamped upon it which it has already won. The Crystal Palace shall suffer no deterioration in consequence of its removal from its present aristocratic site—shall lose no part of its claim to the gratitude and applause of the public, by reason of its transmission from the hands of her Majesty's Commissioners to those of the people.

The distinguished engineers who will also be taken to secure a supply of refreshments of the best description, but intoxicating beverages will not be sold. In a word, throughout every department of the national work, that character will be stamped upon it which it has already won. The Crystal Palace shall suffer no deterioration in consequence of its removal from its present aristocratic site—shall lose no part of its claim to the gratitude and applause of the public, by reason of its transmission from the hands of her Majesty's Commissioners to those of the people.

The distinguished engineers who will also be taken to secure to perpetuate the splendid fabric, constitutes a sufficient guarantee for the good faith of the promoters of the work, and for the legitimate objects which the purchasers of the Crystal Palace have throughout had in view. It is impossible to disconnect from these objects—undertaken as they are on behalf of the public by private individuals—the character which attaches to every commercial association now submitted to the public consideration, an instrument of incalculable good to the country, and of lasting happiness to the people. With the aid of the Government, who, with a view to promote the great public objects of the undertaking, have kindly promised to afford every reasonable facility, and including the co-operation of the other influential parties whose services are promised, the Directors have no fear whatever of accomplishing within a short space of time the gigantic and serviceable work to which their energies are now devoted.

For the present it remains only to state, that as a commercial enterprise, the prospect of success depends upon the following well ascertained data:

1. According to careful estimates and reports received from some of the principal parties connected with the Great Exhibition, a capital of 150,000*l.* will be amply sufficient to complete the purchase and re-erection of the Crystal Palace, with such improvements of structure as are required to give it a permanent character, and a moderate additional sum will be sufficient to provide a winter garden, and place in it such a collection of objects of art and science, of beauty and instruction, as will make its attractions and interest even superior to those which drew the enormous concourse of visitors in 1851.

2. Upon these estimates a number of visitors in the course of twelve months, equal to not more than the number which in a single fortnight entered the Great Exhibition, will be sufficient to afford a fair return on the capital from the admission fees alone, independently of other sources of revenue, whilst any excess beyond this number will be pure profit.

The new Crystal Palace will be completed in sufficient time to ensure its opening on the 1st of May, 1853, and eminent contractors have offered to maintain it in thorough repair for a long term of years, at a cost not exceeding 5,000*l.* per annum.

As regards the prospect of a large influx of visitors, some of the statistical facts connected with the Great Exhibition are most instructive. During the period of 24 weeks, for which that Exhibition was open, it was visited by upwards of 6,000,000 persons; or, on the average, by upwards of 250,000 per week; and the receipts exceeded 400,000*l.*, leaving a net profit of 200,000*l.*, after defraying the whole expense of the Exhibition, including the cost of the building. On three consecutive shilling days the number of visitors exceeded 100,000, and the receipts 5,000*l.* per day.

Arrangements have been made with the London, Brighton, and South-Coast Railway Company, by which that Company undertakes to provide the most ample accommodation for the conveyance of passengers to and from the Crystal Palace upon terms mutually advantageous, and which practically secure a minimum return of six per cent. on the capital of the Crystal Palace Company.

Applications for Shares to be made on or before the 25th of May, in the following form, to the Secretary of the Company, at their temporary offices, 85, Moorgate-street, London:

To the Directors of the Crystal Palace Company:

Gentlemen,—I request that you will allot to me ..... Shares of 5*l.* each in the above undertaking, the whole of which, or any less number that may be allotted to me, I agree to accept, and to pay the sum of 5*l.* per share on application, and to execute the deed of settlement of the Company when requested so to do.

I am, Gentlemen, your obedient servant,

Date.....
Name (in full).....
Address (in full).....
Business or profession.....

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

FAMILY ENDOWMENT LIFE ASSURANCE and ANNUITY SOCIETY, 19, Chatham-place, Blackfriars, London, and at Calcutta.
CAPITAL 500,000*l.*

DIRECTORS.

William Butterworth Bayley, esq. Chairman.
John Fuller, esq. Deputy Chairman.

Lewis Burroughs, esq.	Edward Lee, esq.
Robert Bruce Chichester, esq.	Colonel Ouseley
Major Henderson	Major Turner
C. H. Latouche, esq.	Joshua Walker, esq.

Thirty per cent. bonus was added to the Society's Policies on the profit scale in 1845.

Loans are granted on mortgage and on security of Life Interests and Reversions.

INDIA BRANCH.

The Society has extensive Indian business, and grants Policies of Assurance, Deferred Annuities, through winter agents, in Calcutta, Madras, and Bombay, to Members of the Civil and Military Services, and others. Parties calling at the Office will be furnished with full particulars, to which the Act of Parliament and Guardians of Youths proceeding to India is especially invited.

JOHN CAZENOVE, Secretary.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION,
7, ST. MARTIN'S-LE-PLACE, TRAFALGAR-SQUARE, LONDON; AND 56 PALL-MALL, MANCHESTER.
Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and is the fund provided in order to render the security of the Assured complete.

IMPORTANT NOTICE TO POLICY-HOLDERS

Policies absolutely INDISPUTABLE; and made PAYABLE TO THE HOLDER BY SPECIAL ENDORSEMENT, thus saving the expense of a transfer deed as well as legacy and probate duty.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interests of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE:

Assurances may be effected from 50*l.* to 10,000*l.* on a Single Life.
Entire profits belong to the Assured, and divided annually.
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence, greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a child, either an Annuity, payable from the age of 17 to 23, or an equivalent sum in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, in urolving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000*l.*

TRUSTEES.

Lord Wenlock, Escrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robert Swann, esq. York.

BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY.—Mr W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100*l.*

Age next birthday.	A MALE.	A FEMALE.	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 3 9	3 13 3
16	1 11 3	1 8 10	54	4 11 6	4 2 6
20	1 14 4	1 11 6	58	5 4 0	4 14 0
23	1 17 0	1 13 8	60	5 6 9	5 12 6
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 19 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000*l.* payable on his decease, for an annual payment of 23*l.* 10*s.*; and a lady of the same age can secure the same sum for an annual payment of 20*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York, or to

Mr. RICH. WOOD, Solicitor, 12, John-street, Bedford-row, Agent for London.

THE GUARDIAN PERMANENT BENEFIT BUILDING SOCIETY.—The next Meetings will be held at Exeter Hall, on Tuesday, at half-past Six in the Evening.

TRUSTEES.

Thomas Somers Cocks, esq. M.P. Charing-cross.
John Newman Harrison, esq. St. James's-street.
Robert Taylor, esq. Lambeth-terrace.

DIRECTORS.

Mr. R. Bowley, 53, Charing-cross.
Mr. T. Brewer, City of London School.
Mr. G. Hayes, 13, Dartmouth-street, Westminster.
Mr. W. O. Mitchell, 39, Charing-cross.
Mr. W. R. Paterson, Comely Bank Cottage, Harrow Weald.
Mr. T. Robison, 8, Lansdown Cottages, Islington.
Mr. J. Stewart, 88, Chenpside.
Mr. J. H. Wallis, 19, Suffolk-street, Lower-road, Islington.

BANKERS.

Messrs. Cocks, Biddulph, and Co. Charing-cross.

SOLICITOR.

Mr. T. Eden, 3, Salisbury-street, Strand.

AUDITOR.

Mr. R. A. Withall, 80, Cheapside.

SECRETARY.

Mr. J. F. Hooper, 26, Victoria-road, Kensington, and 3, Exeter Hall.

The Directors invite especial attention to the FOLLOWING TABLE, which shows the amount a Borrowing Member would have to pay.

For the advance of 100*l.*

For 12 years	£1	1 6	per Month.
„ 11 „		1 3 9	„
„ 10 „		1 4 6	„
„ 9 „		1 6 6	„
„ 8 „		1 8 6	„
„ 7 „		1 11 6	„
„ 6 „		1 15 6	„
„ 5 „		2 0 6	„

And in the same proportion for other amounts.

The above Table includes *all payments* to the Society on account of an advance.

Persons desirous of building may be accommodated with advances. Mortgagers may transfer their Mortgages to other property, or redeem a portion or the whole of the Mortgage.

The following are the more prominent advantages offered by this Society to its Borrowing Members —

1.—Repayment of Advance by Monthly Instalments, during a definite period, at the option of the Borrower.
2.—Fixed moderate Law Charges and Surveyor's Fee.
3.—Exemptions from stamp Duties.
4.—Security from sudden Sale or Foreclosure.

Applications for advances may be made to any of the Directors or Officers of the Society, or at No. 3, Exeter Hall, on the last Tuesday in each month, from half-past Six to Eight o'clock.

MORTGAGE.—About 3,000*l.* to be LENT, on approved Freehold, Copyhold, or Leasehold property, either in one sum, or in sums of not less than 500*l.*—Particulars, addressed to Mr. J. H. WEBBER, Solicitor, 3, Caroline-street, Bedford-square.

LOANS.—Persons desirous of obtaining ADVANCES from 50*l.* to 250*l.* upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rule 63, each copy, or by post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3*l.* per Cent. per Annum.—THE LEVY'S CHARITY. NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100*l.* is to bear interest after the rate of 3*l.* per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.

By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

GUTTA PERCHA TUBING.—Many inquiries having been made as to the durability of this tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received from Mr. C. Hacker, Surveyor to the Duke of Bedford:—

"Office of Works, Woburn Park, Jan. 10, 1852.

"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, although it will eat lead through in two years; we have adopted it largely, both on account of being cheaper than lead, much easier fixed, and a more perfect job.

"Yours, &c.
C. HACKER."

N B. The Company's Illustrated Circulars, containing instructions to plumbers for joining tubes, lining tanks, &c. will be forwarded on the receipt of three postage stamps.

THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.
Wholesale City Depôt, Messrs. BURGESS and KEY, 183, Newgate-street.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied by lithographed, or printed

PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c lithographed or engraved

BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous TRACING PAPER and CLOTH; ditto in lengths

GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.

WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament street, London

Contracts for the supply of large establishments.

BILLS of QUANTITIES. -DAY and SON, Lithographers to the Queen. - Lith-graph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.

Perspective Tap from Geometrical Drawings, either in Outline or Water Colours

17, GATE-STREET, LINCOLN'S-INN-FIELDS.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEAL to imitate OAK, MAHOGANY, or SATINWOOD colours. For 8, common of the effects of these Dyes, the public are referred to the WOODWORK of the GREAT EXHIBITION, and par ticularly the SENTRY DOORS, which were coloured with the stains invented and manufactured by HENRY STEPHENS, of 54, Stamford-street, Blackfriars-road, who supplied to the workmen both stain and varnish, and who was the first person to introduce and call the attention of the public to this means of colouring wood, so as to bring forth the ornamental effect of the natural grain and thus save the expense of artificial imitation. Prepared and sold by HENRY STEPHENS, 56, Stamford-street, Blackfriars-road.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead paint.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior Paints, frequently made from zinc ores, containing lead, arsenic, and other deleterious materials, like injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands connected.

In justice to the proprietors of old not to be confounded with the original, even though sold under the pretence, that it is all the same.

Hancock's Paint is entirely free from any injurious properties whatever, it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT;"

and if the cask has not been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit, &c. &c.

A Circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This PAINT is superior in effect to white lead; it is unequalled in whiteness, and grows very hard after it is applied, and is, therefore, for interior work, susceptible of a high polish. Besides, it is not free from poisonous influences, is unaffected by sea-water, sulphurated hydrogen, or any gases, and preserves its original colour, which white lead does not do.

WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's cholic, nor paralysis, &c. &c. to which dangerous complaints the workmen and manufacturers are subject, and to which persons who inhabit newly-painted apartments are also liable. Since its introduction into the United Kingdom by the patentees, the Admiralty, and the most eminent professional men have given it their preference over any other paint. The public is cautioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.

The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in BELGIUM WHITE ZINC PAINT, in a dry powder, and the casks bearing their mark. VM, are only to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agencies, residing in the following towns, viz. London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.

The same oxide ground "in oil" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from their Grinding Agents, Messrs. C. DEVAUX and Co. 69, King William-street, City, London; and Messrs. ROBT. ANDERSON and CO. Timber Bush, Leith, Scotland. Pure White Zinc Paint may likewise be purchased from Messrs. BLANDED, SPENCE, and Co. Hull.

For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster-bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent of the chemical of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was in a very early period drawn to this circumstance, and since that time, the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond a doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead and they now state the proportions to be as 64 to 100, that is, 64 lbs. of Oxichloride paint will cover as much surface as 100 lbs of the best White lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than Paint

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work, technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

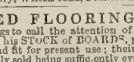
OFFICE IN LONDON.—Mr. R. COOKE, No. 7, Sise-lane.
Office of the Washington Chemical Company,
74, Grey-street, Newcastle-on-Tyne, January 1, 1852.

REDUCED PRICES.—EDWARD SIMMS late William Cleave, of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory as the first in his kind ever established a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from 4 inch to 14 inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's, Flooring Manufactory, Wilton-road, Pimlico Basin

PREPARED FLOORING.—ALFRED ROSLING begs to call the attention of Builders and Consumers generally to his STOCK of BOARDS, prepared in the best possible manner, and fit for present use; their superiority to the floor-boards generally sold being sufficiently evinced by the greatly increased demand. As ROSLING is in a position to offer every description of Baltic and other deals imported into this country at the lowest possible price consistent with fair trading; and begs to state that the orders of those who have up to this favoured him, feeling assured he can offer them advantages which they will appreciate.—Southwark bridge Wharf, Bankside.

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD, Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 300 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A. continues to offer all the advantages as stated in his previous advertisements.

TO BUILDERS AND OTHERS.
SEASONED WOODS, by the Patent Desiccating Process, FOR SALE, at E. J. FULLER'S Depôt, 27, Wharf-road, City-road



SAW MILLS, GILLINGHAM-STREET, PIMLICO
TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle; Boards, &c., prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF,
SAWING, PLANING, AND MOULDING MILLS,
Belvedere-road, Lambeth, near Waterloo-bridge,
are prepared to supply timber and deals, &c., cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c., from the company will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery is always ready to execute every description of mouldings, from drawings, &c., with an accuracy and despatch which must insure satisfaction.

The mouldings, amounting to nearly 300 diagrams, with prices attached, may be had at the mills, or shall be forwarded on receipt of six postage stamps (the amount of the postage thereon).

N.B.—The Company (without previous preparation) manufactured and delivered to the Great Exhibition fifty statute miles of sash bars within ten days after receiving the order. Fox, Henderson, and Co.'s order, which these gentlemen have certified, and that the work was executed to their entire satisfaction.

MOULDINGS BY MACHINERY.—ARCHBUTT and ATKINSON have just published a new and enlarged list, containing nearly 300 diagrams of Mouldings, with prices attached, by far the most complete and cheapest ever yet offered. A copy will be forwarded on receipt of four penny postage stamps.

A. and A. have also on sale
FLOORING PREPARED and PLANED
parallel in th and thickness by improved patent machinery, at greatly REDUCED PRICES, as under.—

	Per square. s. d.		Per square. s. d.
inch Yellow	16 0	1-inch White	13 6
1-inch ditto	15 6	1-inch ditto	14 0
1-inch ditto	13 0	1-inch ditto	12 6

140 feet run of 9-inch boards to the square, and 180 feet run of 7-inch ditto to ditto.
Timber, Planks, Deals, Battens, Scantling, Sash-sills, &c. at equally low prices.
TERMS CASH Saint Pancras Sawing, Planing, and Moulding Mills, Cambridge street, old Saint Pancras road, close to the Goods Terminus of the Great Northern Railway.

MACHINE-STRUCK MOULDINGS.—JAMES FRANCE HILL, WOOD MOULDING MANUFACTURER, 29 Wharf, North Wharf-road, Paddington, is selling the patronage of BUILDERS and OTHERS, begs respectfully to impress on them, that all Mouldings manufactured at his Establishment are well-seasoned, highly finished, mitre well, and free from that greasy matter of which consumers so frequently have to complain. J. F. H. also confidently asserts that his prices for Mouldings are regulated on the lowest possible scale, and of a quality not surpassed by any house in the trade, as the parties who favour him with their commands will find. Lists of sections forwarded on application. A large stock constantly kept on hand, and country orders promptly attended to

TO BUILDERS.
TO BE SOLD, TWO MODERN SHOP FRONTS, nicely ornamented, 16 feet by 12 feet each, with about 700 feet of fine paving bricks.—Address, or apply to C. M., 24, West-street, Green-street, Bethnal green.

CHARLES WM. WATERLOW, Manufacturer of Sashes and Frames, and Joiner to the Trade,





12½, Bunhill row, Finsbury-square.
Well seasoned materials, superior workmanship, and prompt attendance.
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes all Prepared for Glazing.
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The GROOVED RIDGE TILE, for the reception of any varied outline of vertical ornament, was invented by Mr. Robert Brown, and for which men non he also received from the Society of Arts a medal. He now makes these tiles, of any desired colour, from the Surbiton clay, as also from the Stafford-hire terro metallic clay. He has lately devoted great attention to the varied combinations of form and colour to adapt them for the different periods of Gothic Architecture. The attention of architects is particularly invited to those ridge tiles of a green colour. They are supplied at a stated price per foot run. Mr. Brown trusts that architects who consider the Grooved Ridge Tile worthy of introduction, will think it but fair and honourable that the inventor should supply it, and not be driven out of the field as well as any other party. But should even this hope not be realised, he will still have the satisfaction of having been the inventor of an article which has become of public use.

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The Builder.

No. CCCCLXXXVI.

SATURDAY, MAY 29, 1852.

A "Young Architectural Student" (we hope he is a *very* young one) writes to ask us if it be desirable that he should get any knowledge of "natural philosophy, chemistry, and such things?" He does not think it is, himself. He does not care, he says, about air or steam, or affinities or cohesion,—knows nothing about matter, and is not concerned as to the laws which regulate it,—thinks the study of these things must be dull work, and intends to "stick to drawing." It is not the first time we have received such an inquiry, strange as it may seem in these days of elementary treatises and universal lecturings; and not long ago, in the course of conversation with a pupil who had really distinguished himself in an artistical point of view, we found him ignorant of the commonest elements of physics. These are, without doubt, exceptions; but small as the number whom they represent may be, our readers generally will perhaps pardon us for addressing a few words to the "young student," and referring to two or three every-day phenomena with the view of awakening his attention to the stores of interest open to him, and leading him to think.

Not only is it "desirable" you should get knowledge of this sort, but it is absolutely necessary. A general knowledge of the leading sciences is now so universally possessed, that ignorance of them in any one is a positive disgrace: to the title of architect, especially, you could, without this knowledge, have no claim. Irrespective of its importance to you professionally, it will give you fresh eyes: without it you cannot see what you look at: with it you may see, literally, through a millstone: all Nature's processes are opened,—every substance speaks.

What is that you have just now put your hand on? A piece of timber. Yes; but do you see that it is simply a mixture of oxygen, hydrogen, and carbon. In good dry timber, free from resin, you will find the exact proportionate weights of oxygen and hydrogen required to form water, combined with an equal weight of carbon. In an oak weighing 30 tons, there are consolidated, we are told, 15 tons of water, and 15 tons of carbon or charcoal.

We must take care, you will say, not to put our timber under circumstances calculated to destroy the connection between the elements composing it. The deduction is as important as it is obvious. And whence, think you, has this mass of carbon been collected. From the earth? No; from the air, and the air alone. "I see nothing in the air." True; yet every 10,000 parts of it contain ten of carbonic acid, and vegetables have the power of decomposing this, and taking to themselves the carbon,—carbon which is the substance of the diamond, the substance of sugar, the substance of meat! Clever and omnipresent carbon!

You do not *see* the air, you say; but you know it has weight and bulk. You surely know the principle of the barometer, and how an ordinary pump acts? If you feel obliged to say "No" to this inquiry, do not go to bed till you can say "Yes." It will not keep you up very late.

And before you put your Candle out, look at it. It has been burning some time unsnuffed, and gives little or no light: the wick is long, and is topped by a heavy black clot,—a lump of unconsumed carbon. Take the candlestick in your hand, and move it gently from side to side: the superfluous wick burns away, and the candle is again bright. When you ask yourself why this is, you learn that flame is hollow, and as it admits no oxygen, which is necessary for combustion, the wick which it surrounds remains unconsumed, and diminishes the light. When the flame, by motion, leaves the wick exposed at intervals to the oxygen of the atmosphere, it speedily burns away. Note the valuable deduction from this fact,—the formation of a wick which constantly turns outward and reaches the exterior air, and so gives us a candle requiring no snuffing. There is much philosophy in the burning of a candle. The wick you may think is intended to burn and give light; but this is not exactly the fact. The wick is simply to bring the melted tallow, or oil if in a lamp, into that finely divided state in which it is best fitted for combustion. The heat applied to "light" the candle decomposes into its constituents the small quantity of tallow next the wick: heat and light are produced in the operation, and the heat so produced carries on the decomposition. Just think of this.

The effect of heat will be the "because" to many of your "whys." You passed the plumber's pot of solder this morning, and the metal was a solid mass. Apply heat and it becomes fluid: the substance of heat, *caloric*, insinuates itself between the particles of matter, and destroys, to a certain extent, their cohesion. Take a lump of ice: a certain amount of heat separates its particles, and it becomes what we call water: give more heat, and the atoms, further separated, take the form of steam, and fly asunder with such force that, confined, they would split the *globe*—irresistible. Returning for an instant to our solder, the workman will tell you that it is made of tin and lead melted together, and the advantage of this mixture is, that it melts at a lower heat than either of these materials separately: the cohesion of the atoms of lead to atoms of tin offers less hindrance to the operation of heat than the cohesion of lead to lead, or tin to tin.

And these atoms of which you speak, you may say, what are they? It is difficult to arrive at them, except in the mind, so minutely divisible is matter. You may easily get an idea of this. Take water, for example: Newton shows that the thickness of a soap-bubble at a particular point, is the 2,500,000th part of an inch, and that this has all the properties of water as essentially as the Mediterranean: the ultimate molecules forming water must of course have less dimensions than this thickness. We can beat gold so thin that a leaf of it is but the 282,000th part of an inch in thickness. An ounce of gold, by wire-drawing, may be divided into 432,000,000,000 parts, and each part will still possess all the characters and qualities of the metal. A small lump of sugar will sweeten each of the 30,000 drops forming half a pint of tea, and if the point of a needle be inserted in one of these drops, it will bring away a film of moisture without lessening the apparent size of the drop, perceptibly sweet, and containing, therefore, a portion of this 30,000th part of the lump too minute to estimate. And yet there are, probably, ultimate molecules of defined figure!

The slaking of lime, the setting of mortar, glass, bricks, properties of fluids, all suggest inquiry. We sought long ago, by a lengthened series of papers in our journal on Chemistry, as applied to Construction,* to awaken our younger readers to the importance of the study of the sciences, and the sources of delight which it opens. Of all the properties of fluids, that of transmitting pressure equally *in all directions* is the most important, and the most attractive to a young inquirer. You can scarcely be ignorant of the fact that, if, for example, into a vessel of water, a pipe be introduced, having the magnitude of a square inch, containing a pound of water, pressing upon the water in the vessel, the force it will exert is not one simple pound, but one pound upon every square inch of the surface of the interior of the vessel. When abstract science had discovered and investigated this law, practical science applied it in the shape of what is known as the Hydrostatic Press.

And here let us caution you against the common error of supposing that it is practical science alone which concerns and benefits Industry: practical science is but the application of abstract truths. As Playfair properly remarks, "the discoverer of abstract laws, however apparently remote from practice, is the real benefactor to his kind; in reality far more so than he who applies them directly to industry. Yet, in our mammon-worship, we adore the golden calf, and do not see its real creator. It is abstract and not practical Science that is the life and soul of Industry: practical appliances are the organs through which the God-born truths pass for the sustenance of its general frame."

It is the men who are looking for and eliciting great truths, careless as to whether they will have any immediate effect in increasing the resources, enjoyments, and comforts of men, that are providing arms for the coming generation, to achieve their triumphs in the industrial struggle of nations. We are getting, however, a little past what we started with, and will pause. We say to our young student again, learn how to observe: get a knowledge of Nature's laws, that you may be able to see properly Nature's works. Learn, too, to think. Thought begets thought, and you may draw on your own mind without much fear of exhausting it, if you have taken means to bring it into a proper state for service. Do not be afraid of your own thoughts: fear rather too great a dependance on those of others, which may prevent you from ever getting a thorough knowledge of what you are really capable of. Get knowledge, and then give your own mind fair play: Think!

Caution to Builders and Drivers.—At the end of last week Mr. Godwin, the conductor of this journal, was knocked down by a cart, driven by a boy, at the corner of New Cannon-street, in the City, where it crosses Queen-street. The wheel went over his leg; and though, providentially, it did not break the bone, inflicted painful injury. A pile of earth had been thrown out beyond the hoarding for a new building there, and being close to this when the cart came upon him, escape was impossible. We mention the occurrence, simply that it may serve as a caution as well to builders as to those who give the charge of vehicles to incompetent and improper hands.

* Vol. V.

NEWS FROM ROME.*

THE COLISEUM.—TOMBS IN THE APPIAN WAY.

At Rome there is a good deal going on to interest the architect and the archæologist. The excavations in the Forum at Rome still continue, though slowly. The Republic pulled down some houses that stood much in the way both of the antiquities and the view, but unluckily they cut down the trees which used to mark the line of the Via Sacra, and thus they spoiled one of the most picturesque features of that interesting site. The foundations of the Basilica Julia are cleared out: the ascent of the Via Sacra to the Capitol is quite distinct: the Arch of Titus is thoroughly repaired; and they are now excavating in and around the Basilica of Constantine—that great ruin, formerly familiar to us under another name. The result of all these excavations certainly tends to confirm the suggestions of Chevalier Bunsen, and the German archæologists; and the Forum *of the Emperors* is now cleared of difficulty and confusion; and the *vexatæ questiones* connected with it are at an end. At the Coliseum much is doing in the way of necessary repairs, and certainly just in time, for if they had been delayed much longer, the upper story must have fallen. These works are really very extensive; and when complete, they will not only rescue this magnificent ruin from destruction, but in part will show what the interior once was. I mean that the intention is to place the fragments of the upper range of internal columns in their places; to restore the divisions, and to reinstate some of the seats, so as to give an idea of what the whole of this mighty edifice might have been. The same care is now extended to most of the principal ruins, and the excavations formerly made are well preserved.

I perceive in the papers some notice of the excavations and researches on the old Appian way. That account is in the main correct; but, perhaps, a somewhat more extensive notice may be acceptable. You will recollect that the old Appian way descended the hill from Albano, and went straight across the Campagna to the gate of S. Sebastian, formerly the Porta Appia, immediately within which is the Arch of Drusus. Of this ancient way, the Nuovo Appia only really occupied so much as served to descend the hill at Albano: it then turned aside to the East, and by a good, but somewhat crooked road, entered Rome by the Porta San Giovanni, and the Great Basilica of St. John Lateran. The old road was therefore abandoned, except about three miles at the farthest end. At the Roman extremity, however, it was still kept up by the road passing the ancient Basilica of S. Sebastian, and up the hill to the tomb of Cecilia Metella; soon after this it entered the Campagna, first as a road, then as a track, and finally, it was entirely lost in the turf. Its course, however, was to be seen by the ruins of a line of tombs, in some cases of enormous dimensions. Canina suggested the excavating around these ruins, and though not intending to re-establish the ancient road, still to trace out its course, and to make it carriageable throughout its whole length. He obliged me by allowing me to accompany him on one of his visits of inspection, and by giving me, at the various points of interest, his views and opinions. At that time, the last day in March, he had 220 men at work under a most intelligent staff. The men were paid 2½ pauls per diem, almost a shilling English, and they seemed to work with great spirit and care. Soon after passing the tomb of Cecilia Metella these excavations had begun, and the result, in many cases, was a complete street of tombs, almost as close as houses, with here and there some remarkable monument. The course directed by Canina is this—first, to excavate in and round each mass, whether large or small: every fragment is numbered, and left *in sitú*, the earth only being removed into the adjoining fields. These fragments are then carefully examined and matched, and so far as possible built up into the ancient forms; and the inscriptions, bas-reliefs, or sculpture, are replaced and secured by substantial walls. In this way many tombs, of very curious workmanship, and a host of curious inscriptions, have been developed; and in some parts the restorations are so perfect as to give the road a good deal the character of the street of tombs at Pompeii. The material is very often marble, and there is much exquisite detail at times; but the sculpture at present found is not very remarkable, though three or four statues of good workmanship have been sent to the Vatican. At a distance of about four miles from Rome, Canina has restored two or three of these curious tombs, which consist in a circular podium, or retaining wall, with a conical mound of earth, planted with cypresses. Strabo thus describes the ancient appearance of the mausoleum of Augustus, in the Campus Martius; and here this character of restoration is not only "vraisemblable," but most agreeable in the landscape.

Just beyond that great mass of ruins in the Campagna, called Roma Vecchia, is that immense circular building, known familiarly as the Casa Rotonda. It was an enormous mass of brickwork and tufa: on the top is a moderate-sized farm-house, and an olive garden, to which a way had been made from the ground raised by the ruins, at the back through the monument. On clearing out the earth round this ruin, nearly all the marble casing has been discovered, and the Comandante means to restore it. There is a rich marble base moulding: the face was cased with marble to some height, probably rusticated: then came a magnificent marble entablature, decorated with shields in the frieze, with a highly decorated cornice of immense blocks of marble, resting on modillions: above this was an attic of small Corinthian pilasters. There was an inscription; and it is somewhat curious, that the only fragment remaining gives the name of the founder of the tomb Cotta, on a large block of marble, beautifully cut, with the letters at least 18 inches high. The general features of this tomb therefore resemble those of Cecilia Metella, but greatly increased in dimensions and in magnificence, particularly of material; as her tomb is cased with travertino, this with marble. Soon after leaving this tomb all traces of the road is lost, and the ruins stood, "'mid the deep silence of the pathless wild." By excavating, however, it is easily followed, as the enormous curbs of the footpaths generally remain, though the paving is usually broken up and carried away.

The excavations are carried on to the eighth mile-stone from Rome, and here the Itineraries speak of a temple to Hercules; and in the turf some shafts of small dimensions were seen still erect. This ruin was somewhat cleared out when we were there, and it disclosed six ancient columns, and part of the wall of the cell *in sitú*. They are not very large, perhaps 2 ft. 6 in. in diameter, but in a very good Greek style and Doric. They are of peperino, and much wasted. The capitals had been found, but no traces of the entablature: perhaps the architrave had been wood, for Canina was quite of opinion that this temple was of the earliest time of the Republic. I could not trace any necking, nor did there appear to have been any very evident entasis as in the columns at Pæstum. Beyond this point all at present is the turf of the Campagna, though in the distance the line of the road climbing the hill to Albano is distinctly seen. The works, I believe, are now suspended, because the labourers are wanted for the operations of the farmers, but they will be resumed in the winter. Canina will give the results of the most important of these excavations in a work he is about to publish, to be entitled "Gli Edifizj di Roma antica e di sua Campagna."

W. TITE.

* The following are extracts from a letter from Mr. Tite to Mr. Donaldson.

ARTIFICIAL MARBLE.—A quantity of plaster of Paris is soaked in a solution of alum, baked in an oven, and ground to a powder: it is then used as wanted, by being mixed with water similar to plaster: it sets into an exceedingly hard composition, and takes a high polish. It may be mixed with various coloured minerals, or ochres, to represent the various marbles, and is a valuable recipe.—*Mining Journal.*

ON BREADTH AND REPOSE.*

MODERN DESIGN.

LONDON is becoming full of towers, spires, columns, obelisks, and innumerable other elevations, but I cannot help thinking how much our metropolis would be improved by a few more domes. I would especially wish to see a few domes applied to Gothic architecture, like those at Ancona and Siena, or some large bold polygonal lanterns, like St. Gereon, at Cologne, or Chiaravalle, near Milan. We are become surfeited with broach spires.

And in the church architecture of cities, at least, I would endeavour to make the compositions very broad in outline, and extremely pyramidal. I would make some grand feature right in the centre, and group the minor features round it, trying to make them compose like the centre part of Sta. Maria del Fiore, at Florence.

There is a beautiful but almost unknown work of Bramante at the little ancient city of Todi, in Umbria, a town rich in monuments, Gothic, Classic, and Etruscan. This is a little church on a most simple and beautiful plan,—a square, surrounded by four apsides, and a dome springing from the centre. This is one of Bramante's last works: in fact, he did not live to finish it; and some of the detail, therefore, is not quite satisfactory. Now, this is or *was*, before the present hideous sacristy was added, perfectly uniform, and I defy all the modern professors of higgledy-piggledy to produce anything more thoroughly picturesque.

It would be a task very difficult at present, but one which I hope may be done in time, to overcome existing prejudices with respect to church arrangement, notwithstanding it is extremely inconvenient for seeing and hearing, deficient in effect, as compared with what it might be, and not in the spirit either of the Church of England or its rubrics.

Of all the forms of plan with which I am acquainted, there is none which so offends to my eye against all the principles of breadth and repose as the Latin cross: to make a thing half uniform and half higgledy-piggledy, equal short arms and unequal long ones, is a fundamental piece of bad taste, which can only be appreciated by drawing out in perspective, or constructing on a model, a church on a Greek Cross plan, and comparing it with the Latin Cross. Now the Basilica form is grand and broad, I admit, *inside*, but I cannot admit that a small barn stuck at the end of a large one is worthy of the nineteenth century. Noble structures have been built of these forms, I confess, but it is only two of the myriads of instances that might be quoted of how the mediæval builders overcame every difficulty of form by their masterly treatment.

"The chancels," says the Church of England rubric, "shall remain as in times past," but it does not say "build new ones." The compilers of our English ritual never dreamt of building new churches. It was unnecessary: the piety of their predecessors had left them enough and to spare. The question was only what to do with these as they existed, and from the very insertion of such an order, it must be evident that their destruction had once been contemplated, and deemed unadvisable. That they did not look upon a chancel at all in the same light that those who built them did, may be inferred from the fact that "the table at communion time may stand in the body of the church, or in the chancel," leaving it optional; and Mr. Macaulay informs us that Bishop Ridley pulled down all the ancient altars in his diocese, and put up tables in the centre of the church.

Now let us put *our* table in the centre of the church; but then, say the clergy, we have not

Our Christian altar faithful to the East,
Whence the tall window drinks the morning rays.

The reasons for the orientation of churches as given by Wordsworth and old George Herbert, are poetical in the extreme, and no man reverences poetry more than I do, particularly when applied to sacred things; but the shifts to which modern church builders are often re-

* The following is an extract from a paper read at the Architectural Association on the 30th ult. We give it, as suggesting comment.

duced to attain this object are often prosaic to the backbone. And let it be well remembered, that in the early Christian churches of Rome, Ravenna, and Constantinople, the altars turn *every possible way except to the east*. There can be no objection to our putting the communion-table in the middle of our church, and there let it be in the centre of the intersection of a Greek cross plan, where every one can see and hear. The arms of our cross shall be lighted with small windows, and in the centre over our altar, we will rear a majestic dome, or lantern, which shall shed a flood of light upon our holy of holies, and we will fill up the inner angles of our cross with lower buildings, which shall accommodate more worshippers, or shall serve as porches, vestries, or baptisteries: this will improve our outline, both externally and internally. At the end of the arms of our cross, we will place our organ in a concave apse, which shall reflect its sounds toward the centre, to be answered at the other end by the white-robed choir.

In domestic architecture, as well as ecclesiastical, I must still hold fast my opinion that, whether uniform or irregular, nothing can be truly picturesque if wanting in breadth. It is a mistake to suppose that it is an easy thing to design irregular buildings: nothing can be falser than the modern principle of taking buildings as they come, and decorating them accordingly. And, again, when you have to deal with broad uniform surfaces and regular openings, do not be in a hurry to do what is called "relieving the monotony of the design." Shun architraves round windows: no one can see them 200 feet off, unless they are of a different colour to the face of the building. I know this is very heterodox, but I will try and illustrate what I mean. Suppose that by some chance or other our window is flush with the external wall, or only recessed one or two inches, then an architrave becomes absolutely necessary: it does the duty of a picture-frame: it separates the window from the wall; but only give your window a good deep reveal and your architrave is superfluous for that purpose.

Burke has put forth a maxim that "depth is sublimer than height;" that it is more awful to look down a precipice than up at a mountain; and I will exaggerate this principle so far as to say, that recess is grander than projection. The ruin of modern domestic architecture is to my mind the small mean projections with which it is composed; the tile and cement work stuck on; architraves, window labels, pilasters, trusses, and such like.

We have just been trying to build a church; now let us try to build a house. We have got a broad surface of wall, with holes in it; so far so good; and however we may decorate our front, let this still remain a broad surface with holes in it. I care not what my surface is: let it be of rough stone or flint, or of squared stone, or of brick, or of broad, smooth, unjointed stucco; and we will have few projections, and those grand ones. A bold horizontal cornice, which shall be, as Ruskin describes, that of the Palazzo Vecchio, at Florence—"a solemn power of projection;" and we will put our parapet on this cornice, and not behind it. We will have no other projections, but string courses of small projection, and rather rich, but not broken, not at all like midway cornices. We will do without labels if we can, but if not, they shall only be dripstones. The only places where I would allow window labels are in very large windows standing alone or very far apart, and they should have very grand and bold ones,—labels which one would feel as one walked by them, like Michelangelo's windows at the Porta Pia, at Rome.

And where are we to put the decorations of our house? I answer that, if our reveals are deep, our house *wants* none, but would be better with some. Mould your reveals well and boldly: this is worth a hundred architraves: then begin your enrichments and ornaments: let the cornice have them first: this is the principal object; then the string courses; and, if you wish to attain great richness, you may ornament every square foot of it from top to bottom without destroying one atom of its breadth. You may fresco it provided the tones are the same; or stripe it like the Veronese churches; or you may sink diapers on it like the Alhambra courts, or you may panel like Giotto's tower; or you may cover it with tracery like the Houses of Parliament; but let it all be equal power, no one part more prominent than the other. But some will say this is too bold, it must have some relief. True. It wants a few points of light, or small dots of shade: the shadows of our cornice and reveals are broad, but that is not enough. Suppose a painter has finished a picture of a broad-toned mountain, or a huge plain, or a vast lake, he wants a few sharp touches in his foreground. A red cloak, or a white handkerchief are worth everything to him; and we want a few black holes or sharp bossy ornaments, like the gargoyles of church towers: anything will do. A good R. W. P. head would be excellent. Now, this is a suggestion for a regular street; but, perhaps, I shall be asked if I do not admire the old picturesque gables of Chester, Coventry, Rochester, Bruges, Mechlin, Rouen, or Nuremberg. I love them more than any domestic architecture existing. The gable is the salvation of all irregular design; it softens down all unpleasant angles. The horizontal line and the triangle are the grandest forms in nature and art, and we may learn from nature how to use them. When the sea is calm the horizontal line is never broken: when our houses are all the same size, let *our* horizontal line never be broken; but when a storm comes the surface is irregular, and the waves rise in *pyramids:* groups of mountains are also pyramidal forms; but if waves rose in horizontal square masses, or mountains were all shaped like Shakspeare's Cliff, we should not admire them as we do.

Where, then, we cannot keep the horizontal line, as where houses are of different sizes, or on a hill, I would use the gable. Would that Holborn, Fleet-street, and the Strand were all gables; but I would not like to see Westbourne-terrace or Belgravia full of gables. A row of even gables looks as ugly and formal as if the waves of the sea, or a group of mountains were all the same size.

Of all the ways of house-building, the most comical is to see a series of modern houses built on a hill side. I know a street at Clifton built on the Avon rocks, where cornices, windows, string courses, and even verandahs, go rising step-fashion all the way up; but had this been a series of gables, how it would have chastened down the whole into perfect repose.

To one other point I attach great importance. Nothing makes architecture so grand as *grand perforations;* and no perforations are so grand as those cut right through, with the sky showing. This is a point very seldom attainable in modern architecture, but may be sometimes in gates or park entrances. I feel sure this is one great cause of the picturesqueness of ruins. This was one of the very few points which the debased architects of the Roman empire understood thoroughly. Witness their theatres, amphitheatres, and aqueducts, and, above all, the black gate at Treves. There is one point remains, and that I will not now touch upon: I mean the broad treatment of ornament; but I think I have said enough already to show that this is a subject at least worth thinking about.

"Shall I send in a design for St. George's Hall?" asked young Elmes of Haydon. "By all means, my boy, and let it be something grand; none of your cut-up things." And nobly he obeyed the injunction; but how few have done the same. Not Wilkins with his pavilions and projections; not Inigo Jones with his broken entablatures; not Adams with his pilaster slips; not even Wren with his convex and concave surfaces, studied this principle, men of genius as they were.

I hate indulging in the solemn cant about the decline of architecture: many modern buildings are good instances of breadth, repose, and quiet grandeur; and with such works as the Houses of Parliament, the Reform Club, and St. George's Hall before us, one would think that John Bull would wish to preserve everything that is grand to transmit to posterity, as being evidences of our own grandeur, and to destroy everything flimsy for our own credit's sake.

A. BAILEY.

THE LATE SAMUEL PROUT.

YOUR periodical, which, fortunately for the cause of architecture and art, has not only acquired popularity but deserved credit, occasionally notices the decease and character of public persons who have been connected with both. You will not hesitate therefore to appropriate a small space to the name and memory of SAMUEL PROUT, an artist, who has passed from us, but who during many successive years afforded much information and pleasure to thousands of lovers of art, by drawings exhibited in the Gallery of the Society of Painters in Water Colours.

In December, 1801, I left London for Cornwall, *via* Chippenham, Bath, Exeter, and Plymouth, at each of which places I sojourned a few days. In the last town I became acquainted with Mr. Haydon, a respectable bookseller, to whom I was introduced by my friend Mr. Northcote, R.A. In the reading-room of Mr. Haydon, I met his son Benjamin, then a youth, and the Rev. John Bidlake, D.D. who was mentor of the grammar-school of the town, under whose tuition were Benjamin, who afterwards became eminent in art and literature; Master Howard Nathaniel, a *protégé* of the good divine's, who published a very clever translation of Dante's "Inferno" into blank verse; and Samuel Prout, then a youth of about seventeen. This party, with Mr. Williams, a professional artist, interested me in an extraordinary manner, for the master and his pupils seemed imbued with one feeling—one ruling passion—a love of literature and art.

Wishing to have drawings of buildings and scenes in Cornwall for the "Beauties of England," I offered to take Mr. Prout with me into that county, and pay his expenses. His parents cheerfully agreed to this proposal, and the youth was delighted with an anticipated treat. My intention was to enter at Saltash, at the south-east corner of the county, walk thence to the Land's-End, calling at and examining towns, seats, ancient buildings, and remarkable objects, on or near to the line of the main public road. Unfortunately for the pedestrian author and artist, neither of whom was hardy or robust in constitution, the time of year was unpropitious, and we had to encounter rain, snow, cold, and other accompanying unpleasantries.

Our first day's walk was from Plymouth to St. Germains through a heavy fall of snow. On reaching the latter borough town, our reception at the inn was not calculated to afford much comfort or a pleasant presage for the peripatetics through Cornwall in winter. The small room into which we were shown certainly had a fireplace, and something like a fire; at least there was abundance of smoke, which seemed to prefer the apartment to the chimney. It was truly miserable. Our approach to the bed-room was by a flight of stone steps, on the outside of the house. The object of visiting this place was to draw and describe the old parish church, which is within the grounds of the seat of Port Elliot, belonging to Lord Elliot. Prout's first task was to make a sketch of the west end of this building, which is of early Norman architecture, with two towers, one of which is square, the other octagonal. Between these is a large semi-circular doorway, with several receding arches, but there is very little of other detail. My young artist was, however, sadly embarrassed, not knowing where to begin, how to settle the perspective, or determine the relative proportions of the heights and widths of parts. He continued before the building for four or five hours, and at last his sketch was so inaccurate in proportion and detail, that it was unfit for engraving. This was a mortifying beginning both to the author and the artist. He began another sketch the next morning, and persevered at it nearly the whole day; but still failed to obtain such a drawing as I could have engraved.

His next attempt was the church tower of Probus, an enriched and rather elaborate spe-

cimen of Cornish architecture. It is built of the moor stone of the county, and is adorned with quatrefoil panelling between string courses in the different stories, niches in the walls, pinnacled buttresses enriched with crockets and finials, and with large blank windows, having mullions and tracery. A sketch of this was a long day's work; and, though afterwards engraved, reflected no credit on the author or the artist. The poor fellow cried, and was really distressed, and I felt as acutely as he possibly could, for I had calculated on having a pleasing companion in such a dreary journey, and also to obtain some correct and satisfactory sketches. On proceeding farther, we had occasion to visit certain Druidical monuments, vast rocks, monastic wells, and stone crosses, on the moors north of Liskeard. Some of these objects my young friend delineated with smartness and tolerable accuracy. We proceeded on to St. Austel, and thence to Ruan-Lany-horne, where we found comfortable and happy quarters in the house of the Rev. John Whittaker, the historian of Manchester, and author of several other literary works. Here we sojourned six days, and quite luxuriated in the comforts of a warm house, a warm reception, the converse of a learned man, who had associated with a Johnson, a Gibbon, a Goldsmith, and other literary comets of the age. Placed in this living by his college, he appeared as if transplanted to a foreign land, amongst a set of uncivilised beings. Fortunately, he had a most estimable domestic wife, and, at the time of our visit, two daughters, aged respectively about sixteen and eighteen. Besides, he possessed a well-stored library, and appeared to be daily occupied in reading and writing. Much of the latter was devoted to criticism, as he was in the habit of supplying two monthly Reviews of the time with able and learned articles. These were the *British Critic*, and the *Anti-Jacobin Review*,—the avowed and uncompromising partisans of "Church and King," the champions of Ministers of State, and ministers of religion. On these subjects, Mr. Whittaker's writings were the most pungent of the class. Being at his house during one Sunday, we accompanied the family to their church, and I can never forget the congregation or the preacher. Excepting two or three of the farmer class, the remainder were boatmen, with their wives and children; miners also, with their families, and cottagers of the parish. For such a congregation, my learned friend had selected a sermon from his stock, which must have been as unintelligible to his flock as if it had been pronounced in the Hebrew or Chinese language. It was a topographical and archæological essay on the locality of the natal place of our Saviour—of the sacredness of the spot—of the building which contained the manger—and of the different chapels which had been successively erected to guard and honour the site. Even the architectural styles and character of these buildings were described, in what the preacher thought technical language. Both myself and my young artist were not a little surprised in listening to such a sermon, and to witness such a company; but were told, after dinner, that it was intended only for our ears, and for our understandings. Prout, during his stay at Ruan, made five or six pleasing and truly picturesque sketches, one of which included the church, the parsonage, some cottages mixing with trees, the waters of the river Fall, the moors in the distance, and a fisherman's ragged cot in the foreground, raised against, and mixing with the mass of rocks,—also, a broken boat, with nets, sails, &c. in the foreground. This sketch, with others then made, were presented to the "agreeable and kind Miss Whitakers," as tokens of remembrance. We were obliged to part with these amiable and hospitable friends to proceed on our mission. The next haltingplace was Truro, the principal town of the county, where Prout made a sketch of the church, a large building in an open place surrounded by houses. Here again he was embarrassed with the mullioned windows, and other architectural parts, and also with a large extent of iron railing that surrounded the building. At this place we parted: I to proceed on foot westward, towards the Land's End, &c. and Prout to return by coach to Plymouth. This parting was on perfectly good terms, though exceedingly mortifying to both parties; for his skill as an artist had been impeached, and I had to pay a few pounds for a speculation which completely failed. It will be found in the sequel that this connection and these adventures led to events which ultimately crowned the artist with fame and fortune. I pursued my journey and appointed task, and, as agreed, found a letter from him at the post-office, Exeter, on my return home. The following extract from this epistle shows something of his feelings, and the experience of his first coach travelling in winter:—

"On Friday morning, after an unpleasant journey, I arrived at Plymouth, not without feeling much fatigue; the coach being bad, but the roads worse. The weather has been very unpleasant. I hope the latter part of your journey has proved better than the former. The remembrance of Ruan will never be eradicated from my memory. I am at present very busy learning perspective. When better qualified to draw buildings, I will visit Launceston, Tavistock, &c. and try to make some correct sketches which may be proper for the 'Beauties.' My father is much obliged for your attentions to me, as I am, though conscious of my own unworthiness. I hope you will favour me soon with the loan of a portfolio of drawings, which you kindly promised to lend me to copy," &c.

In May 1802 he again wrote, and sent me several sketches of Launceston, Tavistock, Oakhampton Castle, and other places, manifesting very considerable improvement in perspective lines, proportions, and architectural details. Some of these I have now before me: a few were engraved for the "Beauties of England," and others for a small publication called "The Antiquarian and Topographical Cabinet." After some little negotiation it was agreed that he should visit London to prosecute his studies as an artist; and he came to reside, board, and lodge with me, in Wilderness-row, Clerkenwell, where he remained about two years. During that time he was employed in copying some of the best sketches and drawings I possessed, by Turner, Hearne, Alexander, Mackenzie, Cotman, and others. I introduced him to Northcote and to Benjamin West, the last of whom gave him most valuable and practical advice on the principles of light and shadow, by making a drawing of a ball or globe, on which were shown all the gradations and attributes of exhibiting rotund bodies on flat surfaces. It was a most valuable lesson, given in a few minutes, and accompanied by such theoretical and kind remarks as served to characterise the master, and make indelible impression on the head and heart of the pupil. Prout often referred to this important interview with gratitude and delight. I was a frequent visitor in Mr. West's painting-room, and occasionally took my young friend with me. In Mr. Northcote, being a native of the same county, and who delighted in talking about Devonshire, its artists, scenery, &c. Mr. Prout found a valuable and instructive companion and adviser. Haydon came and settled in London soon after Prout, and speedily attracted the notice of the young artists by his personal eccentricities and precocity of genius. Prout was on friendly terms with him, but never very familiar. There were but few traits of similitude of disposition in the two: one was modest, diffident, and mild; the other did not evince in his personal or professional character either of these amiable qualities. In 1803 and 1804 I employed my young *protégé* to visit the counties of Cambridge, Essex, and Wilts, to make sketches and studies of buildings, monuments, and scenery: my instructions, both verbal and written, were to be scrupulously accurate in the delineation of architectural and sculptural forms, proportions, and details; to make studies and notes of effects on the spot—also of light and shade. Many of the sketches, drawings, and manuscript notes he then made are now in my possession, and have often been referred to and examined with sincere gratification. Some of the subjects have been engraved for the "Beauties," and others for the "Architectural Antiquities." In the year 1805 he returned home; chiefly on account of his health, as frequent attacks of bilious head-ache rendered him unfitted to prosecute his studies with ease, and any degree of energy.

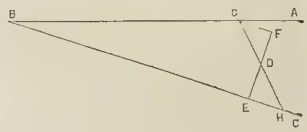
I have several interesting letters from my old friend, some of which are well calculated to exemplify the amiable heart and the philosophical head of an artist whose life was one of much bodily suffering, of enthusiastic zeal in his profession, and of high moral integrity.

JOHN BRITTON.*

MATHEMATICAL EXERCISES.*

THE following will, perhaps, satisfy our correspondent "T. W. P. I." (p. 318, *ante*):—

1. Through a given point, between two given lines, to draw a line so that part of it intercepted between them may be bisected in that point.



Let AB, CB be the given lines, and D the given point (the same being nearer to CB than to AB). On CB demit the perpendicular DE, and prolong same to F, so that DF = DE. Through F draw a parallel to CB, meeting AB in G. Through G draw GD, and produce the same to meet CB in H. GH is the line required.

For because of the parallels FG and HE the alternate angles FGD and DHE are equal; and the opposite vertical angles at D are equal. Likewise FD is equal to DE by construction, therefore GD = DH.

Cor. From this construction it appears that if the two given lines are parallel, and the given point does not bisect the perpendicular to both, the problem is impossible.

And, if the given point does bisect such perpendicular, any line whatever drawn through the same, and terminated by the two given lines, will be bisected by such point.

It is also evident that any other line drawn from D to meet CB, not coinciding with DH, would equally answer the purpose.

And if D chanced to be in the line bisecting the angle ABC, the perpendicular to such bisecting line (drawn through D) would be the line required.

2. Dr. Lardner (*in loco*) points out, that Euclid, in dividing a line in medial section, first *produces* it, so that the rectangle of the given line together with the part produced, and the part produced, is equal to the square of the said given line, which is the point required to be proved. X + Y.

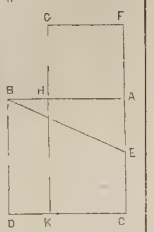
Second Question.—We must first cut the line in medial section (or in extreme and mean ratio, as it is called in the Book VI. Euclid), as shown in Prop. XI. Book II. or, in other words, must cut it, so that the rectangle contained by the whole line and one segment may be equal to the square of the other, and then show how the line composed of it and the larger segment is similarly divided.

Let AB be the given line, and on it describe the square ABCD. Bisect AC in E, produce

* We are glad to hear that our esteemed correspondent has made considerable progress towards the completion of his autobiography: he has printed eight or ten sheets since last issue, in which are given his Reminiscences of Bristol, Bath, Oxford, Birmingham, and Hereford, with many anecdotes of persons and places. The present Chancellor of the Exchequer, in recognition of early labours, has placed his name on the Pension List. The social Club, which grew out of the dinner given to Mr. Britton, at Richmond, a few years ago, have recommenced their meetings. At the first dinner, Mr. Charles Hill was host; and Mr. W. Tooke, Alderman Cubitt, Mr. Grissell, Dr. Conolly, Mr. N. Gould, Mr. Cunningham, and others, continue members. They have lost one much esteemed colleague, the late Mr. L. C. Humfrey, Q.C. and have added one in the person of the Lord Chief Baron. Professor Donaldson, Mr. James Walker, the Rev. Baden Powell, &c. have been visitors.—ED.

* We have to thank eleven correspondents for solution of these questions.—ED.

CA to F, and make EF = EB: through F draw FG ‖ to AB, and ⊥r to CF: make FG = AF, and through G draw GHK ‖ to FAC.



The line AB will be cut in medial section in H. or cut so that the rectangle AB, BH = square of AH. In the figure, CF will be equal to the line composed of the line AB, and the larger segment AH, for AC is one side of the square on AB, and AF is one side of the square on AH, and it will be cut in medial section in the point A; for since CA is bisected in E, and produced to F (by Prop. VI. Book II.), the rectangle

$$\begin{aligned} CF, FA + EA^2 &= EF^2 \\ &= EA^2 + AB^2 \\ &= EA^2 + AC^2. \end{aligned}$$

Take away EA^2, which is common to both, and rectangle CF, FA = AC^2; hence the line CF, composed of the lines CA = AB, and AF = AH, the larger segment of AB is cut in medial section in the point A, which was to be done.

This may be also shown in another way:—

Let a = line AB.
b = larger segment AH.
c = smaller segment BH.

Then $ac = b^2$.

Again, let a′ = line CF, or = a + b.
b′ = segment AC, or = a.
c′ = segment AF, or = b.

Then, also, $a'c' = b'^2$
or, $a'c' - b'^2 = 0$.

For $a'c' - b'^2 = (a + b)\,b - a^2$
$= ab + b^2 - a^2$.
$= ab + ac - a^2$.
$= (b + c)\,b + (b + c)\,c - (b + c)^2$.
$= b^2 + bc + bc + c^2 - b^2 - 2bc - c^2$.
$= 0$. J. Y.

THE LATE MR. HAVILAND, ARCHITECT, OF AMERICA.

MR. JOHN HAVILAND, distinguished in America as a "prison architect," died in April last. Mr. Haviland was born in England in 1792, and was connected, on his mother's side, with the late Mr. B. R. Haydon, the artist. He settled early in America, and his first design was for a penitentiary at Pittsburgh on the "radiating plan," not then adopted. Subsequently he designed and built the Eastern Penitentiary, at Cherry-hill, the first penal building erected upon the radiating plan. After this Mr. Haviland was throughout his life, whenever occasion demanded, engaged in prison structures. The Governments of France, Prussia, England, and Russia, each sent commissioners to America, it is said, to examine his prisons, and to obtain designs from him.

Among Mr. Haviland's many designs and works, the *National Intelligencer* (U. S.) mentions the United States Naval Asylum, at Norfolk; the Western Penitentiary, at Pittsburgh; the New Jersey, Missouri, and Rhode Island State Penitentiaries; the Alleghany, Lancaster, Berks, and many other gaols; the Deaf and Dumb Asylum, at Philadelphia; the State Insane Hospital, Harrisburgh; the United States Mint, at Philadelphia; County Halls of Newark, York, and other places; and numerous churches and private mansions. He received the first premium for a design for the New York Exchange. One of the last of Mr. Haviland's plans was that of Brown's Hotel, just erected at Washington. He was a corresponding member of the Institute of British Architects, and appears to have been much respected in Philadelphia, where he resided.

INDUSTRIAL AND PROVIDENT PARTNERSHIPS.—The Bill, as amended by the Select Committee of the House of Commons, was printed on Friday, to legalize the formation of industrial and provident partnerships. As amended there are 14 clauses in the Bill. The object of it is to enable societies of working men to attain the points of the Friendly Societies' Acts by means of joint trades.

THE (R.C.) CHURCH OF ST. MARY MAGDALEN, MORTLAKE.



THE (R. C.) CHURCH OF ST. MARY MAGDALEN, MORTLAKE, SURREY.

THIS little church is erected upon ground immediately adjoining the parish church (an ugly re-erection in the square style) of Mortlake and the railway station. Its plan is a short parallelogram, with north porch, the chancel being taken off the east end of nave, with side chapel and sacristies, over which is the organ chamber. It is in the "Decorated," or second pointed style, with geometric tracery. The tower, with spire, rises from the south-west angle, over the doorway of which is a handsome niche, with figure of St. Mary Magdalen. The interior is divided into nave and aisles by two rows of pillars, alternately round and octangular. The chancel is elevated three steps above the nave, and the altar on three more. There are sedilia and credence. The roofs are open, and of simple construction. The internal dimensions are 78 feet long by 47 feet wide. The church is faced with Kentish rag, and the stone employed for windows, doorways, and dressings, is the best Bath. The architect is Mr. Gilbert R. Blount, and the builders are Messrs. Smith and Appleford. The cost of the building, which will accommodate 500 worshippers, has been 3,000*l.*, defrayed by public subscriptions, greatly assisted by the Lady Mostyn, of Portobello House, and her excellent family. W.

DEATH OF THE CHAIRMAN OF THE METROPOLITAN COMMISSION OF SEWERS.

THE work of the Metropolitan Commission of Sewers devolved mainly upon three gentlemen,—Mr. Edward Lawes, the chairman, Mr. Allason, the architect, and Mr. Frank Forster, the engineer. Others gave only occasional or incidental attendance. The two principal paid officers, the chairman and the engineer, worked anxiously *de die in diem*. Mr. Allason was as anxious, and he worked with them incessantly, until a day or two before his death.

They had all three the promise of a long life before their entrance into office, and now, after a short career, their existence has been closed by nervous fevers.

Those few persons who may be aware of what it is to have the responsibility of dealing with large evils, with imperfect means, and to contend against vexatious obstructions, will fully appreciate the fatal influence of the mental anxieties which are the antecedents of the diseases which terminated their lives.

An engineer, who knew Mr. Frank Forster intimately, said, on hearing of his appointment to his office of engineer to that commission,—"That appointment is a fatal mistake. I know well the susceptible nature of his mind. Now mark me; the opposition which he will there encounter will kill him. You will soon hear of his being in a nervous fever; and unless he is rescued he will be killed." The nervous fever came as was predicted, and Mr. Foster resigned too late. Mr. Roe, the previous engineer, who had been a veteran, was also attacked with a nervous fever, produced by the anxieties and the worry of the office, and he was compelled to resign, and has been slowly recovering between two or three years the effect of the service during one.

The health of Mr. Austin, the first engineer of the consolidated commission, was failing rapidly, though he is a younger man, under service with imperfect support, but his friends interfered and rescued him in time. When the removal of the technical difficulties which impeded the borrowing of the money necessary to proceed with large amended works was refused, and when, moreover, such a restriction was allowed to be placed on the powers of the commission for borrowing money, as threw them into debt, the chairman was subjected to accumulated anxieties. It became necessary to dismiss officers who had been specially trained, and who were prepared for large service. Then reclamations were showered upon the commissioners, implying blame for pestilences which they had no means to prevent. To meet the public demands with reduced means, Mr. Lawes, the chairman, undertook recently the responsibility of looking into every report and order for the drainage of every single house—a step which betokened a state of anxiety, and which well-informed friends would have prevented him taking (as it was a duty previously well despatched by subordinate officers), or indeed for taking the office at all. The prediction in this case also, was too speedily verified. Though the causes of disease were similar, they fell upon frames differently constituted, and weakened in different ways, giving the appearances of different forms of mortality; but the potency of the causes were distinctly foreseen in the case of Mr. Lawes as well as of Mr. Forster. When a gentleman, who had had experience in the commission (and had himself withdrawn from it), heard of the proceeding of Mr. Lawes, he confidently predicted that he

could not be able to stand it, and that his health would give way under it.

Mr. Lawes was the youngest man, not being more than thirty-five years of age when he died. In him no doubt the anxieties of the appointment were aggravated by a necessarily imperfect acquaintance with the principles of the works in respect of which he undertook the responsibility of dealing. He was an industrious and able technical lawyer. He is understood to have had the chief labour in framing the Acts known as Sir John Jervis's Acts. When Lord John Russell requested the Attorney-General to prepare the Public Health Act, he, the Attorney-General, Sir John Jervis, allowed the duty to devolve upon Mr. Lawes, and afterwards used his influence to procure him the appointment of paid chairman of the Metropolitan Sewers Commission.

The story has its moral for those who repine at what they call the "luck" of others.

NOTES IN THE PROVINCES.

Stratford. — The consecration of Christ Church, Stratford, by the Bishop of London, took place on Saturday week.

Norwich.—The church of St. Martin's at Palace, in this city, was re-opened on Friday week. It has been in great part rebuilt. It will be remembered that in August last, while undergoing repair, the eastern side of the roof fell, bringing down with it the eastern end of the north aisle, and other parts of the building. Subscriptions were raised for rebuilding the fallen parts and restoring the edifice throughout. The architect employed was Mr. Hakewill, of London. Mr. Adams, of Norwich, was employed for the stonework, and Mr. Burrell, for the carpentry and carving. Great part of the roof is new, and the rest repaired. The old unsightly porch has been removed, and a new one built. The walls have been partly rebuilt, and the rest repaired. The arch of the tower has been opened, thus adding to the length of the nave. Some of the windows are entirely new. The opening of the arch is lighted by the western window. The whole interior has been refurnished, deal benches being so arranged as to accommodate as large a number of persons as possible. Most of the benches are stained to resemble oak: the new pulpits, reading-desk, and some of the pews are of oak. Behind the communion table the Ten Commandments, the Apostles' Creed, and the Lord's Prayer, are represented in illuminated mediæval characters. The communion table is enclosed by brass rails.

Stamford.—It is proposed to restore the interior of St. Mary's Church here, repewing with low open seats, pulling down the gallery, and removing the organ from its present position. A public subscription must first be got up.

Hertford.—A public meeting was held on Thursday in last week, to promote the establishment of baths and washhouses, when Lord Mahon, M.P. for the borough, advocated the measure, at the same time promising similar efforts on behalf of other popular improvements, should he and his constituents get on harmoniously together. Now is the time for advancing many a good public cause throughout the country.

Long Sutton.—On Friday week, the roof of the parish church was fired by a cigar, which a mere lad had been smoking while ascending the steeple, and had stuck into an angle of the timbers which support the platted lead-work of the roof. Mr. Simon Hardy, plumber and glazier, promptly ascended, at great risk from the melted lead, and, with assistance, extinguished the fire. New windows had shortly before been put up in this church.

Oxford.—The site selected for the new University Museum is said to be the east end of Broad-street, comprising the block of houses from Mr. Wood's residence to New College.

Stansted (Hants).—Stansted College has been erected by Mr. Dixon, of Stansted Park, for the reception of six decayed merchants of London, Liverpool, or Bristol. Mr. Dixon has endowed the college with 10,000*l.* in the Three per Cent. Consols, and other 10,000*l.* in the Reduced Three per Cents. producing annually 600*l.*

Wells.—The Wells Gas Company has reduced the price of gas to their customers from 8s. to 6s. per 1,000 feet.

Warrington.—The town council have resolved to advertise for plans and specifications for a new covered market to be erected in the Market-place, at a cost of 2,000*l.*

Liverpool.—The foundation-stone of the new National Schools, for the populous and increasing district of St. Augustine's, Everton, was laid on 18th inst. on the site, in Salisbury-street, by the Bishop of Chester. The number of children for whom accommodation will be provided in the new building is upwards of 900. The site to be occupied runs to Back Salisbury-street, a depth of 37 yards, with a frontage of 20 yards to each street. The accommodation comprises infants', boys', and girls' schools, each 65 feet by 28 feet, with large class-rooms—those to the infants' and boys' schools being each 24 feet by 23 feet, and that attached to the girls' school, 27 feet 6 inches by 24 feet; with a committee-room also, 24 feet by 23 feet. There are also cloak and book rooms provided in the front wing of the building, and each school has its distinct play-yard. The building will be of Gothic character, partaking of that of the plainer conventual buildings of the 13th century. The front to Salisbury-street will present a lofty gable, forming the end of the schools, and having three tiers of windows, and rising 60 feet above the street. A bell turret, with a high pitched roof, surmounted with gilt crosses (in all 70 feet high), will divide the school gable from the front or entrance wing, containing the stairs and cloak-rooms, &c. which will be kept subordinate to the principal features before named. This front will be of Upholland stone, with dressings of Minera stone, from Wrexham. The remaining parts of the building will be of grey stock brick, with red-stone dressings. The contract has been taken by Mr. James Burroughs, at 2,800*l.* The sub-contractors are Mr. Wells, mason; Messrs. J. and R. Duckworth, bricklayers; Mr. Thomas Jones, plasterer; Mr. James Crellin, plumber; and Mr. William Bennett, iron-founder. The architect is Mr. H. P. Horner. The whole buildings are to be completed within the present year.

Manchester.—The new church of St. Mark, Hulme, was consecrated on Thursday week. It stands in the City-road. The building is of stone, in the perpendicular style of architecture, and consists of a clerestoried nave 70 feet long, with north and south aisles, making the interior width 50 feet; a chancel at the east end, 23 feet, by 20 feet 6 inches, with two vestries on the south side, communicating with it, and entered from the exterior; and a tower at the west end, 28 yards high and 14 feet square inside, with two stone staircases, leading to galleries which run round the north and south sides and the tower end. The exterior appearance of the church, as seen from City-road, is described by the local *Courier* as somewhat dumpy; the architect being bound, by a pressing necessity, to produce within a small space of ground a very large amount of accommodation. The height has been increased to allow of the erection of galleries, but there were no means of increasing the length: the tower, also, is stunted, and requires a spire to raise it: indeed, the structure is not to be considered complete until it has one, but want of money made the architect finish that part of the design with a battlement. Externally the north side is placed parallel with the City-road, and is divided into five bays, by buttresses of three heights, each bay being filled up with a large mullioned window of three lights, and tracery head of perpendicular character, with label moulding. Above, in the clerestory of the nave, are placed five two-light windows, with heads of a flat form, also traceried. The chancel is a continuation of the nave, but of less height. There are in it two traceried windows of two lights, divided by a transom and mullion, finished with a label moulding and turned arch of ashlar. The end contains mullioned window of five lights, with ornamental head. The tower is strengthened at the angles by buttresses of five heights, and finished by an embattled cornice and parapet. The whole of the exterior walls are finished with parapets, and the roofs are slated. The pews throughout are of stained wood. The fronts of the galleries are enriched with a series of tracery, trefoil-headed, and a moulded cornice, all of stained wood. The trusses supporting the galleries and the rafters and timbers of the roofs are exposed to view, partaking of the same dark colour. The roof trusses of nave and chancel are enriched with ornamented tracery panelling: the purlins and cornices also are moulded. The accommodation is for a little over 1,000 persons, including children of Sabbath-school, in tower gallery. The architect is Mr. E. H. Shellard, and the builder Mr. M. Froggatt. The land on which the building is erected cost 1,540*l.* and between 3,500*l.* and 4,000*l.* have been expended upon the building. There is still about 500*l.* required to complete the undertaking.

Portsea.—Twenty-three designs were submitted for the new church at this place. The committee have selected the design bearing the motto "Templa quam delecta," by Mr. Raffles Brown and Messrs. Barry and Murray, of Liverpool. The church, which will stand east and west, will consist of nave, north and south aisles, north and south transepts, with tower and spire at the west side of north transept. The nave is of eight bays, the two most easterly being screened off for chancel; the division being indicated externally by a gilt metal-work ridge and cross. The height of spire will be 120 feet. The style is Early Decorated. A parsonage-house and schools are to be erected at the same time. They will be of similar character.

REGULATION OF METROPOLITAN BURIALS.

THE "Metropolitan Burials Bill," brought in by Lord John Manners, consists of forty-five clauses, on fifteen pages, and two schedules. It repeals the "Interments Act" of 1850; makes it lawful for her Majesty, by Order in Council, to order discontinuance of burials in any part of the metropolis; prevents the formation of any new burial-ground or cemetery, without approval of Secretary of State; enables parishes, either separately or in junction, to provide and lay out burial-grounds, and to appoint a burial board (to be a corporate body) to regulate the same. New ground may be within or without the limits of parish, but not within 200 yards of a dwelling-house, without consent of owner and occupier of it. Incumbents, clerks of parishes, &c. to receive same fees, and have same rights as now. Board may make arrangements to facilitate the conveyance of bodies, and provide places of reception. The Bill provides for the completion of purchase of the Brompton Cemetery, and vests it in Board of Works, until sold. It will be seen that the Act is simply permissive, and admits of no feeling of assurance whatever that the required change in our present indecent and destructive system will be made.

THE HOUSES AND SHOPS OF OLD LONDON.

IT has been said that no city of similar antiquity possesses so few existing vestiges of its former condition as London: this is to a certain extent true, and may be accounted for,—

1st. By the peculiarity of its position, rendering it in ancient times a frequent scene of aggression and destruction.

2ndly. By the combustible nature of the materials used for building in this locality.

3rdly. By the numerous changes which have been required by the continued increase of British commerce.

Notwithstanding these various causes of demolition, more remains of Old London than the generality of persons suppose are scattered amid the great labyrinths of the modern metropolis, which are evidences of its prior occupation by Roman, Saxon, Norman, and mediæval inhabitants: in addition to these places which comparatively date but as yesterday, and which

are still extant, have become of interest by their connection with great men in literature, science, and art, or by their association with peculiar events. A knowledge of these associations makes the city pleasant, and relieves the monotony of endless rows of bricks and mortar. It makes interesting many unsightly neighbourhoods to know that in such a spot has been dug up a Roman altar to Diana, and that in others, beautiful statues, tesseræ, baths, and numerous other instances of the taste and refinement of Roman London have been brought to the light of day after a concealment of 1,500 years; that within a stone's-throw of the bustle of Smithfield-market, a large space was covered in the Norman times with costly buildings, many portions of which remain; that on a portion of the market itself perished in the flames and otherwise many martyrs to the ignorance and bigotry of their times; and that in other places are the remains of fortifications, crypts, and fragments of ecclesiastical and other edifices of great antiquity. Many a weary step in the streets of London is in like manner lightened by the knowledge that in one, the house still exists (with shoemakers working in the *observatory* on the top) where Isaac Newton produced the works which have so much benefited the world; that in another, Reynolds produced his greatest pictures; in another, Hogarth; in another, Lawrence; that above the gateway of Doctors Commons, Christopher Wren resided during the building of St. Paul's Cathedral; that in Cock-lane, Smithfield, is the house in which was enacted the famous Cock-lane ghost imposition, and that not far from this, is the crypt of St. John, Clerkenwell, almost the only remaining portion of the sumptuous hospital of the Knights of St. John of Jerusalem, when Doctor Johnson went with others in all due solemnity to summon the troubled spirit of Cock-lane. These and thousands of other recollections, both varied and curious, come thick upon the mind when wandering in London; into the particulars of which it is not our present purpose to enter, but to endeavour to collect, so far as our space will permit, the particulars in connection with the important class of London antiquities mentioned at the commencement of our article.

When standing at the present day in Cheapside or any of the other great channels of traffic, and witnessing the unceasing processions of people and carriages, or on London-bridge to view the flow of commerce to and from all parts of the world, it is no easy matter to bring the mind to form a conception of the appearance of London previous to the invasion of the Romans, when it was most probably a collection of rude huts, surrounded by marshes and dense forests, on the one hand, and the Thames, which was supposed at that time to have been an arm of the sea, on the other. These huts were, no doubt, of the rudest construction,—perhaps not unlike the engraving, No. 1, which was sketched three or four years ago, and is one of the numerous residences used at the present day by the charcoal burners in the Forest of Dean, in Gloucestershire. The extent of London at the time of the arrival of the Romans is not known; but other British towns are described by Cæsar as being surrounded by earthworks and ditches, and occupied by the inhabitants, who there assembled for shelter, and by as many cattle as sufficed for a few months' consumption. The earliest mention of London by any extant writer of antiquity, occurs in the pages of Tacitus, who says that in the year 62, in the reign of the Emperor Nero, London, or Londinium as he calls it, was already a place of great importance. In considering the extent and consequence of Roman London, we are too liable to overlook the circumstance that Britain was, for not less than 600 years, to a certain extent, a Roman country. "So long was it," says Craik, in Knight's London, "from the invasion of Julius Cæsar, which, if it did not actually make us tributaries to Rome, not only brought us into constant intercourse with Romanised Gaul, but as Strabo, writing within fifty years after, records, made almost the whole island familiarly known to the Romans, till the remnants of the social fabric raised by that great people were thrown down and swept away by the Saxons, in the latter part of the sixth century. That is very nearly one-third of the whole period that has elapsed from the landing of Cæsar to the present hour. It is within a few years of as long a time as the English have settled in Ireland. It is a portion of our history of as great extent as has passed since the middle of the reign of Henry III. since the intermediate point between the grant of the Magna Charta and the establishment of the House of Commons, a date which may be said to stand almost at the commencement of our existing civilization."

The architectural remains of this important period of London history have been found in various places, extending over a space nearly as great as that within the present boundary of the City: sepulchral remains are met with beyond the City walls, for even at that remote day the inhabitants of London were too civilized to permit the unwholesome practice of burying the dead in the midst of the living. The remains of Roman London consist chiefly of portions of the city wall, foundations of buildings, tesselated pavements, some of them of so much beauty as to denote a corresponding style in the superstructure, baths, sewers, bronzes, and various other ornaments, beautiful as works of art. A Roman bath in a complete state still exists in the Strand. The remains of the superstructures of Roman London which have yet been discovered are so trifling as to afford us no assistance in forming a complete idea of the appearance of London at that time, but that it possessed a considerable population is shown by the circumstance that the Roman general, Suetonius, finding that this city was too large to be defended by his army, abandoned it to the rage of Boadicia, who, without distinction of age or sex, put all the inhabitants to the sword and then burnt the city. This being done, she marched in search of Suetonius, whom she overtook and defeated, killing about 70,000 Romans and their allies, one-half of whom, considering the extensive commerce of London at that time, we may reasonably conclude were inhabitants of that city. That so few fragments of Roman London have been left to us is not surprising when we consider, in addition to the certain decay of time, the numerous calamities of fire and warfare to which the city has been subjected. In 764 London suffered very considerably by fire: in 798 it was almost wholly burnt down; and the streets being very narrow, even at that time, so soon after the departure of the Romans; this, in addition to the houses being built with wood, caused numbers to perish in the flames; another dreadful fire happened before the city was rebuilt. During the troubled time of the struggles between the Anglo-Saxons and the Danes, London suffered various disasters, which were in each case speedily remedied by the energy of the inhabitants.

Respecting the domestic and other buildings on the site of London, and other important positions in England, from the time of the departure of the Romans, until the arrival of William the Conqueror, but little really authentic is known. The faint glimmerings of English history which are handed to us by Bede and other Anglo-Saxon writers, show that not only the domestic edifices, but the churches of the early Christians were rude and ill built. In 627 Paulinus built the first Christian church in Northumbria of wood—most probably in the same manner as the church still remains at Greenstead in Essex, a portion of which we engrave (2*a*). The Northumbrian church was afterwards built on a larger scale with stone. The faulty construction of the buildings of this period is shown by the circumstance that another church built by Paulinus at York was found in less than a century with its stony offices half-destroyed, and its roof in a state of complete ruin: this destruction would to a certain extent be caused by the windows being without glass, admitting at all seasons the rain, wind, and snow of our changeable climate. The windows of the churches some time after this are described as only partly filled with fine linen and latticed woodwork, so that the birds flew in and out, and made nests in the buildings.

In 676 glass-makers were introduced into England from Gaul, but this luxury, from its great rarity and expense, did not soon come into general use.

In the time of Alfred (about A.D. 900), the abodes of even the highest in the land are described as being so troubled by currents of air that it was necessary to have the lights in houses protected by lanterns, chiefly formed of horn. The engraving (No. 2) will give an idea of a building of this period. Sir Francis Palgrave in his History of the Anglo-Saxons, gives the following particulars respecting a building in 977-78. A meeting was appointed at Calne, in Wiltshire, and the council or Witenagemote, which included the best part of the nobility of England, assembled in a large upper chamber. Beornhelm addressed this meeting at length. "His speech exhibited all the fire and eloquence which could have been expected from his fame. Dunstan now rose slowly and deliberately, and, as it were, oppressed with age: he avoided entering into any argument, declaring that his time of labour was past: he sought no conflict: no,—he desired to end the remainder of his life in peace; but as to his cause, the cause of the church, he trusted that the power of heaven would be displayed against the enemies of heaven.

Dunstan had scarcely closed his lips when the edifice shook—the timbers cracked—the floor gave way on the opposite side of the chamber; all those who came together amongst the monkish party were precipitated into the depths below, and maimed or killed amongst the falling beams; but the end of the floor on which Dunstan and his party stood remained quite steady and firm."

However rude and ill-built may have been the houses of Saxon London, the interior garnish would seem to have been often of a rich and elegant description: the habitations of the better classes were hung with needlework and woven cloths, which, on important occasions, were of a costly description. The furniture, as may be seen by referring to various of the beautiful illuminations of the time, was both good in workmanship and elegant in design. The dresses of the females were chaste and varied. Indeed, the skill of the Anglo-Saxons in what we now call art-manufactures was considerable. This was partly the result of natural taste, and in some measure by the instructions of the early Christians, who not only disseminated their knowledge of religious matters, but who frequently exchanged or presented to their English heathen brethren choice specimens of continental art, which were no doubt not only useful as models, but also as a means of exciting that spirit of honest rivalry which so much distinguished the descendants of the Anglo-Saxons in the Great Exhibition of last year.

At the time of the arrival of William the Conqueror, 1066, the Anglo-Saxons had greatly improved in their manner of building, and London at that time probably consisted of churches and other edifices of consequence, and was so strong and well defended that the Conqueror did not consider it prudent to attack it, although he reduced Southwark to ashes; and it was only after some time that the priesthood prevailed on the Londoners to submit. In 1077 the greatest part of Saxon London was destroyed by fire, which had the ill effect of creating enmity between the English and French, the former regarding the latter as incendiaries; and this animosity increased so much that the king, doubtful of the fidelity of the citizens, caused the present great square white tower of London to be erected with a view to awe them into obedience.

About this time a number of Jews settled in a part of the ward of Coleman-street which is known by the name of the Old Jewry to this day.

Mention is made of a great fire in London about 1080. In the month of November 1091, above 600 houses and many churches were blown down by a hurricane.

In 1097 a great part of the city was again destroyed by fire, and in 1136 a dreadful fire broke out near London-bridge, which it destroyed (the bridge was then built with wood), and raging in a furious manner to the west-

ward as far as St. Clement's Danes, caused the most horrible devastation in its progress.

In 1189 (time of Richard I.) all men in the city were ordered to build up their houses to a certain height with stone, and cover them with slate.

In 1232 a great part of the city was again destroyed by fire.

It is evident from these numerous and extensive fires happening in such rapid succession, that wood was, even in the Norman period, greatly used in the buildings of London: no doubt the churches, the residences of the powerful barons, warehouses, &c. of the principal merchants, were built in the substantial manner for which the Normans were celebrated, but the great mass of the residences of the craftsmen and other Londoners were of a slight and perishable nature. Amongst the few examples of Norman domestic edifices in towns are the Jews'-house at Lincoln and the example at Southampton, which we have slightly copied from Hudson Turner's interesting book on the English Domestic Architecture of the Middle Ages (No. 3).

Before 1360 (time of Edward III.) Cheapside is several times spoken of as a regularly formed street.

In 1357, John, king of France, was brought through the streets of London, which were decorated with the richest tapestry, while the citizens exhibited to public view their plate, silk, and other furniture, as a proof of their riches; and as a testimony of their warlike genius, they exposed in the balconies and shop windows an incredible number of bows, arrows, helmets, shields, harness for horses, and other military accoutrements.

1361.—The sanitary condition of London was such as to require the interference of the authorities: the news of the plague raging in France having made him sensible of the danger, the king issued his commands to the mayor and sheriffs in a letter, of which the following is a translation:—

"Because by killing of great beasts, &c. from whose putrefied blood running down the streets, and the bowels cast into the Thames, the air of the city is very much corrupted and infected, whence abominable and most filthy stinks do proceed, sicknesses and many other evils have happened to such as have abode in the said city, or have resorted to it; and great dangers are feared to fall out for the time to come, unless remedy be presently made against it.

"We, willing to prevent such danger, and to provide as much as in us lies for the honesty of the said city, and the safety of our people, by the consent of our council in our present parliament, have ordained that all bulls, oxen, hogs, and other gross creatures, to be slain for the sustenance of the said city, be led as far as the town of Stratford on one part of London, and the town of Knightsbridge on the other, and there, and not on this side, be slain; and that their bowels be there cleansed, to be brought, together with the flesh, to the said city to be sold; and if any butcher shall presume any thing rashly against this ordinance, let him incur forfeiture of the flesh of the creatures which he hath caused to be slain on this side of the said towns, and the punishment of imprisonment for one year. This ordinance to be publickly proclaimed and held; and all butchers doing otherwise to be chastized and punished according to the form of the ordinance aforesaid.—Witness, the King at Westminster, this 25th day of February."

It is a melancholy reflection that a similar measure is required in the nineteenth century.

Notwithstanding this precautionary care, the pestilence reached England, when it raged to such an astonishing degree, that in the city of London alone no less than 1,200 persons fell a sacrifice to its fury in the space of two days, —a great number, if we consider the difference of the population between those times and the present.

In 1365, the Parliament made an ordinance to ascertain what things a tenant should be obliged to leave behind him on his quitting a house that he had rented in the city, or within the liberties of London, of which the following is a translation.

It was ordained, that "if any person hire a tenement, house, or houses, in the city of London, or in the suburbs thereof, to hold the same for a term of life or for years, or only from year to year, or from quarter to quarter, if the said tenant shall make or cause to be made any pentyses or other easements in the said tenement, house, or houses, fixed with nails of iron or wooden pegs to the premises or to the soil thereof, it shall not be lawful for such tenant to remove such pentyses or easements at the end of the term, or at any other time to destroy them; but they shall always remain to the landlord of the said premises as a parcel thereof."

In consequence of this ordinance, the mayor and aldermen published the following confirmation thereof, in which the following portions of buildings are particularly mentioned as fixtures, if "affyxed with nayles of iron or of tree:"—"Pentyses, glasse, lockys, bencheys, or any suche other, or elles if they be affixed with morter or lyme, or of either, or any other morter, as forneys, leedys, candorons, chemyneys, corbels, pavements, or such other, or elles yf plantys be rootyd in the ground,—as vines, trees, grasse, stocks, trees of fruit," &c.

In 1369 the plague again visited London, and destroyed great numbers. About this time the city wall was repaired: it had grown "old and weak, &c. for want of repair; had fallen down in some places; as also the ditches of the city are exceedingly filled with dirt, dunghills, and other filth, and with grass growing in the same, not only to the evident danger of the said city and inhabitants thereof, but also to the manifest disgrace and scandal of us and the whole city." During the progress of these repairs, many houses outside the wall and adjoining to it were demolished, in order to afford space for defence against the then threatened French invasion.

In 1392 measures were again required to be taken against the butchers, who were directed to erect a certain house or houses, for the reception of their refuse,—thence to be carried in boats into the middle of the Thames, and to be thrown in at the turn of the tide at high water. Persons offending against this regulation were fined 10*l.*

The citizens of London, in 1401, converted the prison called the Tun, in Cornhill, into a conduit, for the reception of water, which was brought in leaden pipes from Tyburn.

In 1416 Sir Henry Barton, the mayor of London, ordered lanterns to be hung out for the purpose of lighting the streets at night. In 1419, Sir Thomas Eyre, the then mayor, compassionating the distresses of the poor, in consequence of the frequent scarcity of grain, built Leadenhall at his sole expense, and gave it to the City as a public granary.

Sir John Wells, another public benefactor, in 1429 laid a number of pipes at his own expense, to convey water from Tyburn to the standard in Cheapside.

The means of supplying London with water, would seem about this period to have been taken into serious consideration, as more conduits were erected in 1438, in Aldermanbury, at Cripplegate, and in Fleet-street, which were supplied with water from Highbury Barn and Tyburn.

In 1441 the cross in Cheapside, which had been originally built in 1290, in honour of Queen Eleonar, was rebuilt by John Hatherly. The same magistrate repaired certain of the conduits, &c.

About 1455, numerous schools were erected in various parts of London, and it may be observed that there were at that time within the city of London and suburbs thereof, 118 parish churches. A curious regulation was made about this time to settle the amount of offerings, or payments to the clergy, from houses, shops, &c. which will be found printed at length in "Chamberlain's London," p. 126.

In the year 1472, there was only one pair of stocks in the whole city, at the place called the Stocks Market; but this year they were ordered to be erected in every ward, for the more effectual punishment of vagabonds.

1476. The Lord Mayor, Aldermen, and Common Council, came to a resolution that the walls of the city should be repaired with bricks made of earth, tempered, and burnt in Moorfields.

1479. A dreadful pestilence raged in the city.

1486. More complaints against the butchers, particularly those at Newgate Market. An Act is passed, that no butcher shall presume to kill any beast within the walls of London, under a penalty of one shilling for every ox and cow so killed, and eightpence for every sheep. Our readers will perceive that the fine for this unwholesome practice had decreased.

About 1502 Henry VII. commenced the building of the chapel known by his name, at Westminster.

1503. A great fire broke out at Londonbridge, which did much damage.

On the 20th June, 1509, Henry VIII. rode in great pomp from the Tower to Westminster. On that occasion Goldsmith's-row, shown in our engraving, No. 9, was gaily decorated.

Goldsmith's-row was opposite Wood-street, Cheapside, where the Cross formerly stood, and was erected in 1491, by Sir Thomas Wood Goldsmith, on the site of sheds and stalls, before called the Mercery.

We have felt it necessary, for our present purpose, to glance slightly, as we have done, at the history of London up to the above date, and in doing so have endeavoured to condense as much as possible the occurrences which have taken place during a long period, and which bear upon our subject, and will now proceed to consider the condition of the houses and shops in London during the reigns of Henry VIII. Edward VI. Mary and Elizabeth, a period of transition from the feudal governments of our forefathers to the enlightened government and liberty of the present time.†

REFERENCES TO ENGRAVINGS.‡

*1. Charcoal Burners' Hut, in the Forest of Dean, Gloucestershire.
2. Residence of a Saxon Nobleman; from a manuscript, No. 603, in the Harleian collection, British Museum.
2*a*. Greensted Church.
3. Norman House, from (Hudson Turner's Domestic Architecture).
4. Norman House, engraved on a coin, date 1275 (Transactions of the British Archæological Association).
5. Old Houses, formerly at Bishopsgate-street (Wilkinson, London).
6. Timber Houses, formerly near Smithfield (Smith's Antiquities).
*7. The Cock, Tothill-street, Westminster.
*8. Room in the Interior of ditto.
9. Part of Goldsmith's Row, opposite Cheapside Cross, built in the reign of Henry VIII. dressed for the Coronation Procession of Edward VI. (Cheapside Cross formerly stood opposite to Wood-street).
10. Sign of the White Horse Tavern, formerly at the corner of Friday-street, Cheapside.
11. North-East View of Cheapside, arranged for Procession, in honour of the Queen Mother Mary de Medicis.
*12. Fragment of a Tudor Window at Smithfield Bars.

The Illustrations marked * are from existing examples.

THE COTTONIAN LIBRARY, PLYMOUTH.—An effort is being made to raise a fund for the maintenance of the Cottonian Collection of books and MSS., prints, drawings, paintings, bronzes, models, &c. for the reception of which an addition was recently made to the Plymouth Public Library in Cornwall-street, of which we some time since gave an engraving. A circular has been issued to lovers of art and literature, for aid by subscriptions or donations. Annual subscribers of 1*l.* 1s. and donors of 21*l.* will be entitled to the special privileges of admission. The list of subscriptions is headed by His Royal Highness Prince Albert, for 50*l.* Mr. Jewitt, Librarian of the Plymouth Library, can give particulars.

† For the benefit of such readers as may wish to inquire into this subject further than our space will permit, we subjoin the following books of reference, and will continue to add to the number: — Stowe's Annals; Stowe's London, various editions, from 1598 to Strype's in 1720; Vestuta Monumentis, published by the Society of Antiquaries; Archeologia; Maitland's London; Pennant's London; the Illustrated Pennant in the print-room, British Museum; Collection of London Topography, King's collection, British Museum; Wilkinson's London Illustrata; Chamberlain's London; Knight's London; Knight's Pictorial England; Peter Cunningham's Hand-Book for London; Archer's Vestiges of Old London; Sharon Turner's History of the Anglo Saxons; Sir Francis Palgrave's History of the Anglo Saxons; Gentleman's Magazine; European Magazine, Hollingshed's Chronicle, &c.

‡ The engravings not mentioned in this paper will be included in our next.

THE HOUSES AND SHOPS OF OLD LONDON.



FIG. *1.

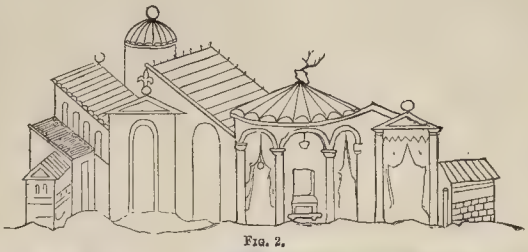


FIG. 2.



FIG. 2a.



FIG. 3.



FIG. 7.



FIG. 9.



FIG. 10.



FIG. 6.



FIG. *5.



FIG. 4.



FIG. 12.



FIG. *8.



FIG. 11.

THE ROYAL ACADEMY.

VARNISHING REGULATION.

I have read with great pleasure your account of the anniversary dinner of the Artists' Fund, and your observation on Sir Charles Eastlake's announcement that the Royal Academicians had, from a sense of justice, given up the privilege of painting up their pictures on the walls of the exhibition previous to its opening. Indeed, nothing ever done by the Royal Academy was so well calculated to retrieve the honour of the institution and disarm opposition, to establish a mutual good feeling among artists and a wholesome condition and influence of the fine arts. To be told that the late Mr. Turner, an artist of vast celebrity and genius, was the last supporter of the unfair privilege, throws a deep shadow over the subject; but let us turn to the bright side of the picture; let us hope that the same liberality that has abolished the offensive and indefensible practice will proceed to effect a judicious reform in other respects, and thus, by a generous interpretation of their pledge "to support the honour and interest of the society," prove that it is a "trust for the benefit of art." Next to the late praiseworthy step of the president and Academicians, there can be nothing more desirable than an annual statement of the finance of the institution' similar to the balance-sheet of the Art-Union. A clear account of the income, the expenditure, and the accumulated fund, would, by dispersing doubt and mystery, put an end to suspicion, and add much to the real strength and honourable influence of the society.

The success of Sir Charles Eastlake's first experiment in a liberal policy, not less than the example of his friend and patron, the late Sir Robert Peel, must convince that gentleman that more honour and good-will are obtained by a liberal policy than by restriction and protective regulations; for whatever some may have imagined the exhibition gained by the Academicians painting up their performances, the public are this year as much pleased with the simple unvarnished face of the present collection (barring the absence of Landseer, Eastlake, &c.) as they were on former occasions with the deceitful glare of "flying colours."

The regulation in respect to varnishing is not a total prohibition, but a fair and impartial mode of affording a remedy in case of accident. Any exhibitor, on writing for that purpose to the president, receives in return a printed order, authorising him to varnish his picture at a convenient time; that is, before the exhibition opens to the public, viz. between six and eight o'clock in the morning,—time enough to wash or varnish, not enough to bepaint a picture. Academicians are subject to this regulation the same as others.

I have only to add, Sir, my thanks to you, for the readiness with which The Builder disseminates valuable information to artists, and the generous and indefatigable zeal with which you have promoted the advancement of the Fine Arts. An Old Artist.

THE METROPOLITAN BUILDINGS ACT.

On the 24th Mr. Osborne asked the First Commissioner of Woods and Forests, whether he proposes to bring in a Metropolis Buildings Act in the course of the present session? Lord John Manners said it was not his intention to ask leave to bring in a bill such as that alluded to by the hon. gentleman; but he would bring in a bill in order to reorganize the present court, as we understood the noble lord. When Mr. Osborne said, "Am I to understand that the noble lord merely intends to bring in a bill to renew the powers of the court? Lord J. Manners, replied, "No. To re-organise and re-constitute it."

The officers of his lordship's department have been collecting information on the subject we know, but we do not think any bill is yet in shape, so that we cannot suppose Lord John Manners will be able to do anything more in so important a matter (even if he do so much), thus late in the session, than print his bill for consideration during the recess.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

On Wednesday, May 26, Mr. Baigent, of Winchester, communicated a notice of Bramdean Church, Hampshire, with descriptions of some mineral paintings in it, of the thirteenth century; also of St. John's Church, Winchester, with an account of his discovery of the figure of St. Andrew the Apostle and another personage on the walls of that edifice. Mr. Baigent expressed his belief that he should find paintings of considerable extent under the whitewash, which he is removing by permission of the incumbent. Mr. Aday Repton communicated a paper on Roman and British urns, accompanied by drawings; and Mr. Clarke, of Easton, Suffolk, an account of the discovery of a Roman vault at Roses Pit, containing five urns, some teeth, and bones, and one horn. Mr. Clarke also exhibited the impression of a gold Portuguese coin found at Hoo, with a testoon of Edward VI.

Mr. Syer Cuming read a paper on the Pau cases of India, in illustration of a brass cornet exhibited by Dr. V. Pettigrew, of Bengalese manufacture, which had been erroneously supposed by its proprietor to be the rest for the foot of a lance. A similar one had been used for the mounting of the ancient seal of the Grammar School of Ashbourne, Derbyshire! Mr. Cuming demonstrated that the use of this cornet was to hold the chunam, or shell-lime with which the Indians sprinkle or smear the leaves of the beetle-nut for mastication, and commented on the frequent misrepresentation of Oriental ornaments and instruments as European mediæval antiquities.

Mr. Gunston exhibited a pilgrim's token of the fifteenth century recently found in Brickhill-lane, London; and Mr. Warren, of Ixworth, an interesting collection of recently discovered rings, including a gold ring, supposed to be Saxon, and an extraordinary silver ring, also Saxon.

The last evening meeting this season will take place on Wednesday, June 9.

NEW WORKS OF ART IN AMERICA.

A Group in marble, "The Shipwrecked Mother and Child," by Mr. E. A. Brackett, is attracting attention at New York. An interesting sketch of the artist's struggles appears in the *Home Journal* (U.S.). Shoe-cutting, block engraving for calico printing, and tomb-stone making, were his first employments; and when he began to be a sculptor, it was amidst great difficulties and privations. —"In October, 1848, in a small attic room in Tremont-row, Boston, Mr. Brackett began to model his group of the 'Shipwrecked Mother and Child.' In that garret, early and late, alone, poor, sustained by hope and that interest in his task which only an artist knows, he toiled for five months and a-half; and the group then lay before him fashioned in clay. And here, to the honour of the poet Dana be it recorded, that he had not merely cheered on the artist in his labours, but raised for his support a loan of one hundred and forty dollars, without which timely assistance the work could not have gone on." But to what good work was the hand of that distinguished ornament of literature ever backward in lending its best help? The exhibition of the group in plaster brought a small sum; and, trusting to promised aid, he ordered a block of Vermont marble, and erected a small building to receive it. At this stage of his proceedings he learned, to his utter dismay, that the aid upon which he had relied could not—owing to the misfortunes, not the fault, of those who had promised it—be afforded him. He had nearly exhausted his little capital in the erection of the temporary studio. The marble was to be paid for on its arrival. His family—a wife and two children—were to be maintained during the progress of the work. Despair again took possession of his soul, and he proposed to his brother, with bitter jocularity, to place a keg of powder under the model and blow it into the air. His brother, however, whose generous fidelity to his brother's welfare always became most conspicuous when there was most need of it, and whose faith in the sculptor's ultimate triumph never wavered, undertook the task of obtaining means to go through with the work. He accordingly drew up a paper, stating clearly and briefly the case as it stood. He called upon twenty-two of the leading men of Boston, applying to each for a loan, on behalf of his brother, of fifty dollars, to be repaid with interest on the sale of the group. All but two subscribed with the utmost alacrity; and in one short week he had the rare pleasure of placing a thousand dollars in his brother's hands.

Aided by his brother at night, there was sixteen hours' work done on the group every day for twelve months, and in January last it received the last touches. Whatever right one brother has to be proud of the other's ability, the latter should be equally proud of *his* brother's devotion.

Leutze's Pictures of American History.—The *National Intelligencer* (U.S.), speaks well of a series of pictures illustrating American history, commenced by Mr. Leutze; "Washington Crossing the Delaware," and "Washington Rallying his Troops at Monmouth." The paper we have quoted says, his great difficulty was the want of a *type* of American character, and especially a type that would help him to delineate the men whose characters were moulded by the revolution. "While all the more prominent countries of the world were old enough in civilisation to be characterised by a type, he saw that the United States, though marching on to immense power and greatness, were without this symbol of distinction. He discovered the type for which he was seeking in *a peculiar contraction of the brow and a brilliant eye, and a mouth which denoted indomitable perseverance, industry, energy, and fearlessness.* No sooner had he made this discovery than it appeared to him as plain as a solved riddle. This type of the American character was indeed the enigma of his life, and strange as it may seem, we have been assured that his mind was troubled about it for no less a period than six years."

Beauty in St. Thomas, West Indies.—Mr. N. P. Willis, in Letters from the Tropics, which he is addressing to the *Home Journal*, suggests that artists should go to St. Thomas, to arrest types of human beauty that are passing away. He says—"Artists know very well that the *original and distinct* types of human beauty and expression are few and rare. In all the engravings of female heads, in France and England, there are not a dozen. The others are variations of these, more or less slight, but all traceable. In St. Thomas, during the four or five days that I have rambled through its streets and markets, I have surprisingly enriched my knowledge of how Nature can vary these priceless *gifts of individuality*. Faces, curiously different from any I had ever before seen, met me at every turn; and it was not till I had reasoned a little upon the origin and habits of the people, and made some inquiries as to their races and combinations, that I could at all understand it."

Banvard's New Panorama.—Mr. Banvard is engaged upon a new panorama, which is "to throw into the shade all previous panoramic paintings." It is to be called the Orient, and is composed of scenes painted by the artist in the course of a two years' tour in the Mediterranean, Egypt, Nubia, Arabia, the Dead Sea, Palestine, Jerusalem, Baalbec, Tyre, and Sidon. This panorama will contain six times as large a surface of canvas as his panorama of the Mississippi, and will be exhibited in London some time in the course of the next season.

The National Academy of Design.—The exhibition of works of art, now open, is not an advance upon that of last year. In portraiture the American press claim for their painters a great superiority over those of England!

Proposed Equestrian Statue of Washington.—An idea, often talked of in New York, is, we have reason to believe, about to take visible form and shape. A bronze equestrian statue of Washington has been projected, to be the joint work of the sculptors Greenough and Brown, who have already commenced the designs for the work. The military costume

of the Revolution is to be preserved, and a height of 14 feet for the statue, exclusive of the pedestal, is contemplated.

BUILDERS' BENEVOLENT INSTITUTION.

A SPECIAL general meeting of the friends and subscribers to this useful charity, which was founded for the purpose of giving relief to aged and decayed members of the building trades, was held on Thursday morning at the London Tavern, Bishopsgate-street, for the purpose of electing three persons upon the fund from a long list of candidates; Thomas Grissell, Esq. F.S.A. president of the institution, in the chair.

The report, which was highly satisfactory, stated that there are now on the funds of the society eight males and four females, making with those elected yesterday morning ten males and five females. Owing to a recent alteration in the bye-laws, the benefits of the institution are extended to the provinces, and the directors are empowered to appoint district committees for carrying out the necessary details. The first branch of the society was lately opened at Brighton, and is making satisfactory progress, the project having been received with great favour by the large builders in that town and neighbourhood. The report concluded by observing that the expectations formed of the success of the institution at its formation had been fully borne out by results, and the directors hoped that the public would come forward and enable them to still further extend its benefits.

The Chairman briefly addressed the meeting, and stated that since the last election an alteration had been made in the rules of the society, for allowing the votes polled by unsuccessful candidates to be carried forward to their account until they should be finally successful. He concluded by urging the claims of the Institution upon the benevolent for support, and stated that he hoped the public would come forward and enable the directors to further carry out their philanthropic endeavours to support their poorer brethren, three only out of a list of sixteen candidates being that day to be elected.

Mr. George Bird, the treasurer, said that he should not feel satisfied until there were twenty persons on the fund, and hoped that funds would speedily come in for that purpose.

THE ACANTHUS AND THE BASKET.

Balmy the air, gentle the breeze,
Wafting the perfume out of the trees;
Sacred the place where Corinth's maid sleeps,
Blest be the matron that over her weeps.

"Here," says the Basket, "safe she shall lie,
So fair and so young—dear me—I could cry!"
The Acanthus from under, calls out with a shout,
"Do you think I'm content to be smother'd right out?

"Move, if you please, just to one side
Let me grow up in the height of my pride."
The Basket mourn'd for the gentle maid,
And heard not a word that the proud plant said.

"You won't? Very well—I make a vow
You shan't move a step—recollect now!"
Balmy the air, gentle the breeze,
Wafting the perfume out of the trees.

Stealthily creeping, she spreads out her leaves,
So fragile, so pliant, the threads are she weaves,
Curving them over, twining them round,
The Basket, at last, finds out that she's bound!

Pleased with its work, the Acanthus sticks to,
And won't move an inch, tho' the Basket says "*do*."
"Here we will stay, and the world shall admire
What you urged me to do, in a moment of ire."

Balmy the air, gentle the breeze,
Wafting the perfume forth from the leaves,
Softly the Cyprus waves, as if weeping
Over the place where the maiden is sleeping.

C. R.

Notices of Books.

The Autobiography of William Jerdan, M.R.S.L. with his Literary, Political, and Social Reminiscences and Correspondence during the last fifty years. Vol. I. London: Hall, Virtue, and Co. 1852.

WE have not read a more interesting volume than this for a long time;—amusing from first to last, and not without its teachings. For fifty years Mr. Jerdan has been in the world of letters: for thirty-four years he edited the *Literary Gazette*, originated by himself at a time when there was no similar organ in the country for the expression of literary and artistic criticism, and during the whole of that period he was connected intimately with the men of most note and eminence before the public. As he says in his introductory chapter,—

"When I state that my juvenile associates numbered, among others not unknown to fame, such individuals as the late Lord High Chancellor of England, Lord Truro, and the Lord Chief Baron; that years of my middle life were past in confidential intercourse with the statesmen of the day, such as Lord Farnborough, Huskisson, Arbuthnot, Cooke, and still later, with many of the eminent characters who have held high places in the government of the country; and that, both in the preceding and later periods of my course, I enjoyed the friendship and unreserved intimacy of George Canning, and the regard and familiar acquaintance of almost every person of celebrity in the land—political, scientific, artistic, literary, or otherwise remarkable—it may not be too much to predicate that I have a great deal to communicate worthy of popular and even national acceptation. Without presumption, I can truly assert that my stores are very considerable both in variety and value, and I hope to make a good use of my materials."

The volume now published fully justifies the anticipation, and we sincerely hope that it will have such a sale as may lead the author of it to prosecute his task vigorously and with good heart. He will find sadness in the retrospect: as Swain sings,—

"The days gone by—from shore to shore
Their ever lengthening shadows spread;
On, on, 'till Time shall breathe no more,
And Earth itself be with the dead:
Each brief unnoticed minute bears
The mandate of its God on high;
And death and silence are the heirs
Of days gone by—of days gone by."

He has found it so, indeed, already.

"Where are they (he asks) who began their hopeful career with me? Where are they? Oh, how few have threaded the trying path, and are now among the living! How many have perished and are forgotten; or, at most, but momentarily recalled by the converse of old friends, who are so shortly to follow them into a like oblivion! No need have I, or men of the same period of life, to go, like Hervey, among the tombs for meditations. Every bustling street and teeming thoroughfare, every home visit and social meeting, every private party and public occasion, utter silent voices which speak mournfully of the absent, and trumpet-tongued of the dead. Friend after friend has departed, and when struck by misfortune, by trouble, by sickness, in vain do we look around for the succour that relieved, the sympathy that supported, the love that consoled: all, or nearly all, are gone, and we are left alone—alone!"

It is not our province to inquire why of three ardent intellectual spirits who entered London life arm-in-arm, and for a time fought the fight together, we find one, late Lord Chancellor of England, Truro; the second, the Lord Chief Baron, Sir Frederick Pollock; and the third, with little garnered but experiences and memories, writing his recollections to meet necessities, somewhat too pressing. We remember only the kindly expressions and encouraging comments, in younger life, of a generous critic, willing, on all occasions, to say the good word, whenever the good word *could* be said, and even if the volume had needed an excuse from us, it would have found it. So far, however, from this being the case, we can conscientiously recommend it for itself, as well to those who do not know the author as to those who do.

Revue Générale de l'Architecture et des Travaux Publics; a Journal for Architects, Archæologists, Engineers, and Contractors. Published under the direction of M. Cæsar Daly: Paris, Rue de Furstemberg, No. 4. Parts I. II. III. and IV. for 1852.

THE present parts of this ably conducted journal contain papers on Monastic Architecture, by M. Albert Lenoir; on the Ironwork of the Middle Ages, by M. Cæsar Daly; and other essays. Amongst the engravings will be found, besides illustrations of these papers, plans and views of the *Bibliothèque Ste. Geneviève*, at Paris; plans of Paris houses; a valuable plan of the *Maison Nationale de Santé*, at Charenton, and many others.

This *Revue Générale* is devoted specially to the history, theory, and practice of building. It treats particularly, first, of the architectural archæology of all times and countries; secondly, æsthetic and scientific researches relating to architecture; thirdly, the different applications of the art of building, such as masonry, carpentry, decoration, new inventions, sanitary arrangements; and, fourthly, industrial, artistic, and scientific news, competitions, and accounts of public works. Each part is profusely illustrated, and the cost is 45 francs per annum. Nine volumes have been already published, and form a worthy monument of the ability and knowledge of their editor, M. Daly.

A BUDGET OF TRAVELS,

AND an interesting one it is; comprising, firstly, "A Journey to Nepaul, with the Camp of Jung Bahadoor. By Lawrence Oliphant," a son of Sir Anthony Oliphant, C.B. Chief Justice of Ceylon. This little volume is published by Mr. Murray, in his "Railway Reading." It is not a reprint, but fresh from pen and press. Secondly, follows, "Huc's Travels in Tartary, Thibet, and China, a condensed translation, by Mrs. Percy Sinnett," in two parts of Messrs. Longman's "Traveller's Library;" and thirdly, belonging to the same library, "African Wanderings; or an Expedition from Sennaar to Taka, Basa, and Beni-Amer; with a particular glance at the Races of Bellad Sudan. By Ferdinand Werne, author of 'Expedition in Search of the Sources of the White Nile;' translated from the German by J. R. Johnston."

Though all full of curious and entertaining matter, doubtless the interest we have all felt in our recent visitor, Jung Bahadoor, the Nepaulese ambassador, and his brothers, will render the first of these recent issues especially popular. It is written in a lively style, which is well sustained by the novelty and interest of its subject. There are frequent notices and descriptions of buildings, and other architectural details in its pages, and from these we shall glean a sample of the whole.

The ancient capital of Nepaul is Patn; the capital of the present day, Katmandu, being a comparatively modern city, built by the Ghorkan conquerors of the Newars, or natives of Nepaul. In speaking of the fantastic and singular structures in Patn, Mr. Oliphant says:—

"Whence the designs originated, or in what other part of the known world anything is to be seen approaching to the style of Newar architecture, it would be impossible to conjecture. Houses built of horn are said to exist at Lassa; and from Lassa, I should imagine, came the designs for the temples and houses of Patn. Time has mellowed their bright colours—if they were ever painted at all like those at Katmandu—into a sombre, quiet grey. The Durbar, a huge, massive building, is absolutely covered with black wood-carving. The care displayed in its execution is still apparent through the mass of dust and cobwebs which almost conceal it; for the old Durbar of Patn is deserted. The residence of the monarchs who ruled the happy valley is in strong contrast with the smiling appearance of their former territory. It alone seems to have gone into mourning for its former occupants, while the valley seems to thrive as well under the rule of the Ghorkas as it did under that of the Newars. The Durbar is of great extent, and occupies one side of the square, in the centre of which stand two monoliths, between 30 and 40 feet high: one of them is the figure of an angel, represented in all respects as angels usually are, with the addition of a magnificent gilt tail: this, together with a pair of large gilt wings, gave it a most gorgeous appearance."

The Newars appear to be skilful artizans:—

"The bricks of Nepaul are deservedly famed: whether the virtue lies in the clay of which they are formed, or the skill with which they are made, I do not know—most probably in both. The Newars excel also in bell-making: it is the trade of the land: they are all bellmakers from their youth, and proofs of their skill are exhibited hanging at the corners of pagodas, swinging from the roofs of houses, surmounting dagobas—in fact, the device upon a Nepaulese banner should be a bell."

Jung's palace, amongst others, is described: it is—

"A large white building, which looks as if a Chinaman had mixed together a Birmingham factory and an Italian villa, every now and then throwing in a strong dash of the style of his own country by way of improvement. It is three stories high, and one wing is devoted to the six 'beautiful missises' who compose the female part of his establishment."

On his return from Nepaul by Bombay, the author visited Lucknow, Delhi, Agra, Ellora, and other places of interest. Of Shah Jehan's tomb, at Agra, he says:—

"The greatest sight which Agra affords is the far-famed Taj Mahal: situated on the banks of the river, it is a conspicuous object from every quarter, and is as beautiful in its proportions when seen from a distance as in its details when more closely and minutely inspected: an unfailing source of gratification to the beholder, it well merits repeated visits. In its vastness, in its costly material, in its beautiful proportion, and in its delicacy of detail, it stands a noble monument of the talent which devised, and the skill which executed it. It is said to have incessantly occupied 20,000 men for twenty-two years, and three million pounds sterling were expended upon it."

Miscellanea.

The Skeleton Building System.—Our readers may have heard of that extraordinary phenomenon, the skeleton-ship. We begin to think that in a few years Glasgow will, in some respects, be a skeleton-city, and that it will ultimately disappear in a gale of wind, or tumble into a mass of ruins, like Lisbon in 1755. There is no doubt that the mere shell of a city is rising around us, and that, although dressed and decked out in all the frippery of modern elegance and refinement, many of the new houses are ricketty unsubstantial fabrics, in which it would be positively dangerous to take shelter in a storm. These remarks are more especially applicable to the dwellings now in course of erection in different parts of the city for poorer classes of tenants. Specimens of similar ricketty structures, which, although erected with almost miraculous rapidity, are old enough to be taken down before they are finished, are now rising like mushrooms in the West End. This system is most shameful, and will, sooner or later, be productive of fatal disasters. The tumbling-down season will come at last—we may venture to say at no very distant period; and then we shall have houses, or the shells of houses, rattling about our ears in all directions. The only question of that day will be, which house or which street goes next? What crescent tumbled last night? How many poor people were buried alive in their kitchens this morning? Let once the epidemic or falling-sickness among the houses commence, and then we shall have Glasgow melting away like snow in summer, and nothing left to mark its site, except the cathedral, the college, and a few other solid structures many centuries old. As for some of the steeples, of which such a plentiful crop has sprung up in particular directions of late, they will be all blown over in a few years, like the timber tabernacle at Tarbet, which was capsized in a storm last winter.—*Glasgow Reformer's Gazette.*

Destruction of Old Verulam.—Mr. Roach Smith has brought before the Society of Antiquaries the case of Old Verulam, the well-known site of the celebrated Verulamium of Roman Britain. It appears that the south-eastern portion of the ground has been bought by a freehold building society, and is already marked out for excavations for houses. Mr. Roach Smith reproached the society for its apathy in past times on such occasions, and referring to the destruction of the Roman theatre found at Old Verulam a few years since, expressed a hope that the present Government might be induced to take up the question of preserving the ancient national monuments, which were daily being sacrificed for the sake of alleged improvements. The greatest interest is attached to Old Verulam, as it is of very great extent, and no systematic researches have ever been made, while it is well known the ground cannot be dug into without discovering the foundations of buildings.

Institution of Civil Engineers: Conversazione.—The session was terminated on Tuesday evening by the usual conversazione, given by the president, Mr. J. M. Rendel. In the reception saloons were Landseer's "Random Shot," Ward's picture of "James II. reading the Despatch," Turner's "Blue Lights," and other pictures by Stanfield, Haghe, Egg, Herring, Ansdell, Phillip, Wehnert, Lance, Wood, Crowley, Rothwell, Niemann, Kennedy, Winterhalter, Wilson, and Carmichael. Amongst the models was one shewing the anastatic process of printing, exhibited by Messrs. Glynn and Appel, who had recently introduced a method of preparing paper by the addition to it, while still in a state of pulp, of an insoluble salt of copper, and a peculiar preparation of palm oil, so that when an attempt was made to reproduce any document, it became fixed to the plate, and no transfer could be made. Messrs. Napier and Son exhibited an automaton sovereign weighing machine, which differed from those now in use at the bank by its separating the coin into three classes, the too light,—those between certain limits, which might be variable,—and the too heavy, instead of simply into the light and the full. Mr. Appolds' arrangement for shewing water below 20 degrees without freezing, excited attention. Mr. Goddard (of Ipswich) explained a gas cooking-stove, and an asbestos fire, in lieu of that formerly produced by platinum.

Cast-Iron Carriage Ways.—In noticing some experiments at Glasgow, we lately called attention to the risk of slipperiness on a little tear and wear in the cast-iron paving proposed for carriage roads. The same fear we perceive has led the City Sewers Commission, acting on a report from their surveyor, Mr. Haywood, to refuse permission to Messrs. Kean and Co. to lay down such paving at their own expense in some leading thoroughfare in the City. The practicability of such paving when new depends on its cross grooving, and so long as that lasts the way is said to be safe, as well as free from much noise; but notwithstanding favourable reports from Glasgow, Mr. Haywood states that he cannot divest himself of the belief that the paving must be more slippery than stone paving. "It is quite evident," he remarks, "that whatever foot-hold is obtained, must be obtained by the aid of the grooving. Upon the grooving the whole safety of the traffic depends. Should this be effectual when new, it is only a question of time before it must become insufficient; but what time and amount of traffic it will take to destroy this security, involves the question of the durability of the paving, and the durability is the real question of its cost, points yet undetermined, and only to be determined by trial. From observations I have made of the effect of the traffic upon the gully gratings, I am induced to believe that cast-iron will not be found to possess that durability beneath a heavy traffic which most persons seem to expect from it." Were it possible, by recasting, to keep up the freshness of the grooving at a moderate cost, diminution of noise and other advantages might render such paving a practicable substitute in the metropolis for wood-paving, but this seems to be a very doubtful question.

Sale of Marshal Soult's Pictures.—This sale has greatly excited the artistical public in Paris, and has surprised them as well by the small prices brought by some excellent pictures as by the enormous sum given for "The Conception," by Murillo, which was no less than 23,440*l.* It was purchased for the Louvre. Two other Murillos, one, "St. Peter in Prison," and the other, "Jesus and John, children," were purchased by M. Thurneyssen, the banker, for the Emperor of Russia, the price of the former being 6,040*l.* and of the latter 2,520*l.* "The Christ carrying his Cross," of Sebastian del Piombo, was also purchased by the same gentleman for the Emperor of Russia, for 1,040*l.* The "Mater Dolorosa," (Murillo), brought 424*l.* "The Miracle of the Diego" (by the same), 3,420*l.* "The Flight into Egypt" (by the same), 2,040*l.* The "Via de los Dolores" (Morales), 960*l.*

Unstamped Agreements for Tenancies.—*Birmingham County Court.—Blood* v. *Kimberley.*—This action was brought to recover 9*l.* 10s. as for a half-year's rent of premises in Newhall-street, let by Mr. Blood to Mr. Kimberley. The letting was by an instrument running in the usual terms in many similar cases, and signed by the parties, viz. "*Plaintiff* agrees to let, and *defendant* to take the premises in Newhall-street, at the yearly rental of 19*l.*" On this, Mr. Brown, for defendant, without going into the merits, at once objected to its reception, and contended that although in form "an agreement," it was in reality a lease. Consequently before it could be received in evidence it must have the proper stamp impressed upon it. Mr. Brown supported this view by quoting the several statutes referring to the point. Mr. Hall, for the plaintiff, was not prepared to negative the proposition thus advanced, and the learned judge taking the same view of the law as propounded in Mr. Brown's argument, and characterising the question raised as one of very great importance, directed that the plaintiff should be nonsuited, and on application also allowed costs.—*Birmingham Journal.*

Electro-telegraphic Progress.—A submarine telegraph between Holland and England is projected. The Dutch Government have granted to Mr. A. Ruyssenaers a concession for its establishment. Mr. Ruyssenaers is now engaged in forming in London a company for carrying it out. This line would render our telegraphic communication with the Continent independent of the French and Belgian lines (which war, or other contingencies, may any day close against us). The Dutch and Prussian Governments take a lively interest in its success. The business of the French and English submarine line is said to be so increasing, that it is proposed to have, in all, between this country and the Continent, exclusive of the Holland line, sixteen lines of wire at work. As the lines multiply, might they not be made of a less ponderous and expensive description, even though less durable? The temporary damage of one or two merely out of a considerable number, would be little or no public inconvenience, while, on the contrary, the convenience of the public would be greatly promoted, and capital saved by multiplying cheap lines.

A Plate-glass Window Assurance Company has been established. In their explanation the promoters of the plan state that—"Its object is the security of the owners of plate-glass windows from any of various risks, and of which the following may be recapitulated, viz., carelessness of servants, opening and closing of shop fronts, cleansing of windows, explosion from gas, settlements of buildings and shop facias, the crowded state of the various thoroughfares, the alternations of temperature, malice, and also, no uncommon circumstance where roads are macadamized, from accidents arising from the casting of stones from the feet of horses when going at great speed." Such a company we suspect will, for one thing at least, literally afford a premium on carelessness, both of servants and of masters.

Mr. Fairbairn, F.R.S.—The National Institute of France have elected Mr. William Fairbairn, C.E. of Manchester, a member of the Institute.

Road Making.—Tenders sent in for making roads and drains to the Fairoak Estate, the property of the Newport, Monmouthshire, Freehold Land Society. Mr. R. G. Thomas, engineer.

George Seaborn, Chepstow	£2,730	1	5
Benjamin Farmer, Newport	2,588	11	8
Morgan and Marsh, ditto	2,455	17	0
Thomas Richards, ditto	2,232	0	0
James and Hardie, ditto (accepted)	1,985	0	0

Road Making.—Tenders for making roads, and doing the required works at Beerhacket Enclosure, in the county of Dorset. Quantity given.

England, Bradford	£479	15	0
Lansdale, Marston	415	13	0
Vincent, Thornford	366	15	4½
Green and Penny, Sherborne	346	1	0
Lonsdale, West Camel	325	11	0
Fish, Sturminster.....	190	2	4

GAS LIGHTING—COST OF COAL IN LONDON AND MANCHESTER.—With reference to some recent remarks on the "Profits of Gas, at Manchester," a Manchester correspondent says:—"I have just noticed the remarks in the BUILDER, on the Manchester Corporation Gas Works, and think it as well to state, for your information, the facts of the case. That Wigan cannel costs in London 20s. per ton, and that the coke it produces is worth 5s. per ton may be perfectly correct, but Wigan cannel is not the material used *generally* for making gas in London, but *Newcastle* coal, which I believe can be bought at 13s. per ton, and the coke it produces sold for 10s. or 11s. per ton. The Wigan cannel is only used in small quantities by the London Gas Companies, for the purpose of *improving* the quality of their gas, otherwise they would not use so expensive a material. The gas produced from Wigan cannel is from 50 to 75 per cent. higher in illuminating power than Newcastle coal gas, and hence its value in London. Now, if the price of gas in London is 4s. for 1,000 cubic feet, and in Manchester 5s., and the latter gives, say 50 per cent. more light, it will cost 6s. for the same quantity of light in London as in Manchester can be got for 5s. This is the correct view of the case. It is true, in the *Manchester Guardian*, of April 10th, the word 'cannel' *alone* is used, but I should think this is a misprint, or perhaps the mistake was made by using the term "cannel" in place of 'coal.'" He thinks that our previous correspondent, who stated "facts" in reply to, and in correction of, our first paragraph on this head, "does not know the subject he writes about."

SPINNING MILLS IN IRELAND.—An Irish correspondent sends us an account of the laying of the foundation-stone of the Erne Flax-spinning Mills, near Ballyshannon, the property of Mr. King, late of Manchester, with a request that as we are bringing unfortunate Ireland before the building public, we will note the occurrence of a circumstance of so much interest. The building in question will be of considerable dimensions, and will be fitted up with machinery, impelled by one of Thomson's vortex waterwheels of about 150 horse power. The plans, &c. have been furnished by Mr. Paul M'Henry, of Belfast, civil engineer, who, by the way, is about to introduce a mode of fire-proofing with malleable iron, and a peculiar form of hollow brick, avoiding cast-iron, excepting for columns.

METROPOLITAN WATER SUPPLY COMMITTEE.—The committee after having heard the general evidence on the New River (Improvement of Supply) Bill, the New River and East London Bill, the East London Amendment Bill, and the River Lee Trust Bill, were of opinion that recourse must be had to the river Lee and its tributaries in the neighbourhood of Hertford and Ware for a supply of water to the northern and eastern districts of the metropolis. They were therefore dissatisfied with all the four Bills before them, and disposed to stop proceedings, in the hope that the parties interested in the various schemes might come to some arrangement for a proper supply. The committee then proceeded to consider the Bill of the River Wandle Water and Sewerage Company.

SCOTTISH SOCIETY OF ANTIQUARIES.—A meeting of this Society was held in their hall, in George-street, Edinburgh, on Monday week, Mr. R. Chambers in the chair. Donations from the Treasury were presented. A paper, by Mr. W. F. Skene, on some ancient Gaelic inscriptions on Scottish monuments, was then read. A communication by Dr. D. Wilson, on the history and architectural features of the ancient church of St. Cuthbert at Coldingham, was also laid before the meeting, with illustrative drawings, &c. recently executed by Mr. P. Hamilton, architect, who was present, and proposed certain restorations of the building. Attention was called to the Congress of the Archæological Institute at Newcastle, on the 20th of June.

EMIGRATION OF ENGINEERS.—The Amalgamated Society of Operatives are now endeavouring to procure funds to enable their unemployed members to emigrate with their families.

LONDON NECROPOLIS AND NATIONAL MAUSOLEUM BILL.—This Bill has been read a third time and passed.

THE EXHIBITION BUILDING.—The Committee for the preservation of the structure on its present site, having failed in its efforts, has formally dissolved itself, discharging all its liabilities, and presenting its honorary secretaries with an acknowledgment of their services in the substantial shape of fifty guineas each.

ST. MICHAEL'S CHURCH, WOOD STREET, in the City, has been considerably injured by the opening of the ground for sewers. Its walls have been shored up, and an architect called in to examine and advise. Where does the blame rest? The church was built from the designs of Sir Christopher Wren, in 1675.

THE IRON TRADE.—Quotations are said to be "creeping up a little towards the nominal prices," and hopes of "a move in the right direction" are being entertained for the hundredth time by the advocates of higher prices. Orders for rails from India, America, and the Continent, appear to have given some increased employment in the meantime to the furnaces.

DERBY.—In a report to the Derby council, Mr. H. I. Stevens offers a series of suggestions with reference to a scheme for certain enlargements and alterations of the markets, erection of baths and washhouses, and other improvements in the appropriation of corporation property. The object of the report is to induce the corporation to act on a comprehensive plan in carrying out minor improvements, to however small or partial an extent. The scheme in question, as a whole, also comprises the formation of new streets, bridges, and railway connections.

TENDERS

For the New Market House, Swindon. Mr. S. Sage, architect.

Frampton	£1,240	0	0
Barrett	1,218	7	0
Phillips	1,195	0	0
Major	1,185	0	0

For new brewery, Dublin. Mr. Robt. Davison, London, architect. Quantities taken out by Mr. E. P. Gribbon, of Dublin, architect.

Cockburn	£8,650	0	0
Roberts	6,600	0	0
Roiborough	6,250	0	0
Butler	5,950	0	0
Murphy	5,900	0	0
Barker	5,800	0	0
Connolly	5,706	0	0
Williams	5,465	0	0
Doolin	5,300	0	0
Beardwood (accepted)	5,100	0	0
Farrell	5,080	0	0

The above does not include plant, but simply for the brewery and storehouse; the former covering an area of 6,332 feet, and the latter 3,200 feet. The external work is to be rubble masonry, with granite string courses, door-jambs, window mullions, &c.; rusticated quoins and large gateway of the same material.

Received on the 10th May for the erection of the St. Pancras Almshouses. Mr. James K. Colling, architect. Quantities prepared by Mr. James Roberts, of Norwich.

				Extra for red-brick facing of north front.		
Macey and Son	£6,797	0	0	£	0	0
Ward	6,690	0	0	105	0	0
Patience	5,821	0	0	151	0	0
Locke and Nesham	5,738	0	0	80	0	0
Wood (Gravesend)	5,687	0	0	130	0	0
H. W. Cooper	5,669	0	0	120	9	5
Mildwater	5,479	0	0	0	0	0
Reading	5,350	10	0	80	0	0
Thompson and Crosswell	5,313	0	0	149	10	0
Rowland and Evans	5,200	0	0	90	0	0
Rudkin	5,090	0	0	0	0	0
Hopkins and Roberts (accepted)	4,995	0	0	75	0	0
Jones	4,490	17	0	60	16	0

TO CORRESPONDENTS.

"R. M.," "J. Y." (thanks), "E. C. P." (thanks), "T. N." "R. B.," "J. T." "W. I.," "C. & Co.," "J. B.," "C. C." "J. G." "R. F. H." "G. H. S.," "G. W. B." "J. C. P." (depends on locality: he should consult his architect), "A. B." (rough mortar laid upon sound boarding placed between the joists of the ceiling above, called *pugging*, will lessen the annoyance), "Member of the Sewering Committee," "J. W." "E. H." (under our mark), "M." (ditto), "W. M. Sevenoaks" (battening with canvas is expensive and liable to injury: use hollow bricks), "R. H." (we wait for diagram), "W. M." Lambeth, "H. L." "J. R. W." "G. W." "C. R. S." "B. G." "Riga," "A Pimlico Brick," "T. B. S." "J. C." "R. L. S." "W. P." "C. G." "W. P. G." "A Short Fellow," "G. H. S." (drawing shall be returned when done with), "J. B.", St. Pancras, "J. W. P."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

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THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publication of Works of the above description.

Office of "The Builder," 1, York-street, Covent Garden.

MASONS' PROVIDENT INSTITUTION.—
W. TITE, Esq. F.R.S. President.

A PUBLIC DINNER, in aid of the funds of the above Institution, will be held on THURSDAY, JUNE 17th, at the FREEMASONS' TAVERN, Great Queen-street, Lincoln's-inn-fields.
The Right Hon. LORD ROBERT GROSVENOR in the Chair.

HONORARY STEWARDS.

Thos. Brassey, esq.	Geo. Godwin, esq. F.R.S.
W. Cubitt, esq. M.P. Alderman	Chas. Lushington, esq. M.P.
James Chadwick, esq.	P. Mac Dowell, esq. R.A.
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Further particulars, and an enlarged list of stewards, will be announced in future advertisements. The committee meet on Wednesday evenings, from eight to ten o'clock, at Hawkstone Hall, Waterloo-road, where every information may be obtained of the Secretary, at his residence, 1 Johnson-street, Westminster. JOSEPH T. WHITEHEAD, Secretary.

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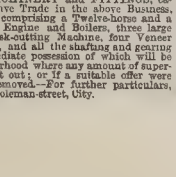
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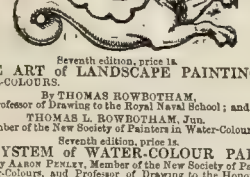
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The Builder.

No. CCCCLXXXVII.

SATURDAY, JUNE 5, 1852.

THE proposed compulsory enfranchisement of COPYHOLDS is a matter which greatly concerns all our readers, and indeed, as it seems to us, the whole community. No one denies the unsuitableness of copyhold tenure to the present state of society: all acknowledge the injurious effects of the copyhold laws, the powers of oppression which they give, the costly litigation and ruin which they often involve. So long ago as 1838, a committee of the House of Commons recommended the compulsory enfranchisement of copyholds, and yet here is 1852 and nothing has been done; and what is more, unless an effort be made out of doors nothing will be done, so powerful is the influence of stewards and other individuals personally interested in the maintenance of an evil system. We do not write on the present occasion to enlighten those who know nothing of the origin and nature of the tenure, but rather to induce those who do to aid in the endeavour, *at this moment being made*, to obtain an improved law: nevertheless, a brief reference to its rise may be useful.

Copyhold, in law, is a species of *customary estate*, said to be held by copy of court-roll; *i. e.* where the tenant's title is evidenced by a copy of the rolls of a manor made by the steward of a lord's court. "Customary estates," says Brande's *Dictionary of Science*, "are those which exist in real property, subject to the custom of manors; and their peculiar characteristic is, that all alienations of them must be transacted in part, at least, in the lord's court; the ordinary mode of alienations being by surrender to the lord and admittance of the new tenant. The peculiar tenure, called copyhold, is derived from the tenure in *villain socage*, as it was termed, held formerly under a manor. This was in its origin a mere permissive tenure by serfs attached to the soil; and copyhold estates are still expressed, in legal phraseology, to be held 'at the will of the lord by the custom of the manor.'"

The fact was this: the king granted to a Chief jurisdiction over a certain extent of land, on condition of his performing certain services and making such payments as were stipulated. This was a *manor*, from the French *manoir*, a mansion-house; derived from the Latin *maneo*, to dwell, or remain; and the lord of it afterwards again divided it, giving to one a part on condition of his ploughing, say, ten acres of land; to another, with the condition that he should cart all his manure; and to a third, with a stipulation that he should go with him to war. Under these the *villeins*, now the copyholders, held according to other conditions, and these holdings have, by lapse of time, as well as custom, become confirmed rights. This feudal system, although not completed till the arrival of the Normans, existed even earlier amongst us, but into this we need not enter. The lords soon began to define closely their obligations to the crown, as, for example, in the interview between king Edward I. and the earls of Hereford and Norfolk, who, when the king ordered them to go with his army to Guienne, replied "that the tenure of their lands did not oblige them to go, unless his Majesty also went." The king then insisted on their going, by saying to Hereford, "By God, Sir Earl, you shall either go or hang;" when he replied, "By God, Sir King, I will neither go nor hang:" neither did he go if history is to be believed.* They continually obtained mitigations of their obligations, and ultimately by an Act in the reign of Charles II. they were absolved from those that remained, but expressly retained for themselves all the fines and obligations of the copyholders; and they gave the king in return, being wise in their generation, a tax upon beer and liquors made for sale, which fell of course principally on the middle and working classes. Clever barons! Innocent people!

We do not wish it should be inferred from this, however, that the present lords of manors hold their rights unjustly, and so should lose them: admitting there be injustice, those who have now long held them did not commit it. What is desired is, that these rights should be made certain and commutable.

Numerous petitions for enfranchisement have been presented to the House of Commons, and we have before us copies of those from inhabitants of Brighton; Dorking; St. Mary's, Newington; St. Pancras; St. Mary's, Islington; Finsbury; and last, though certainly not least, from builders, timber merchants, and others "interested in the erection of houses in the metropolis and its neighbourhood, and in the safety of the capital invested therein or thereupon."

The petitioners from Brighton show that in some of the manors the fines are small and certain, and the profits of the lords are merely nominal; but the uncertainties, extra expense, and inconveniences occasioned by the peculiarities of the tenures, are even in these manors very vexatious; and in manors in which there are fines uncertain or arbitrable according to the improved value of the land, there is an unwholesome restraint upon the employment of labour and capital for the erection of buildings amounting to a prohibition. Even in the case of mere agricultural lands, the absurd retention of the copyhold laws for centuries after the circumstances and objects under which they originated have altered or ceased, involves many serious evils to the community: the complexity and uncertainty of laws lead to much trouble and costly litigation: the copyholder is subject to a most impolitic restraint in the improvement of his lands, and is exposed to the hazard of the loss of his estate under the unjust and unequal law of forfeiture, even for acts tending to the lord's advantage as well as his own. But in the case of lands in the neighbourhood of large towns, copyholders are in many cases absolutely deprived of large incomes, from their inability to use their land for building purposes, and the immediate neighbourhood is deprived of the advantages that would result from the employment of labour and capital on sites most suitable for buildings.

* Quoted in "Enfranchisement of Copyhold Property Considered," by G. A. Dean, architect. 1851. London: Atchley.

The advantages derived by the community, as well as the copyholder, from the application of land to building purposes are very great: not only are the wants of the people met as to more salubrious or convenient dwellings and roads, but the employment of capital and labour is exercised to the great increase of the national wealth and prosperity.

The inhabitants of the parishes of St. Pancras and Islington submit four propositions:—

"Firstly. That the abolition of copyhold tenure will be a great public benefit, and is absolutely necessary for the general interests of the state.

Secondly. That such abolition is actually due from the lords of the manors, and will be beneficial to them, on terms of fair compensation.

Thirdly. That such abolition is due to the copyholders upon the principle of equal justice in legislation, which has always been the great and distinguishing feature of our constitution.

Fourthly. That, regard being had to the delay in a general enfranchisement, copyholders should at once be enabled to grant leases of their estates."

And they discuss these very fully and ably. These parishes afford striking instances of the evils attendant upon copyhold tenure: there are within the two parishes at least eight different manors, with all the confusion of boundaries, varieties of descent and tenure, customs, uncertainties, inconveniences, and power of oppression. In these manors, also, grants of road-side waste have been most recklessly made, to the great inconvenience of the public, the deterioration in value of the lands of copyholders and freeholders possessing lands fronting the highways, and even to the prejudice of the lords of adjoining manors. The directors of several railways have been obliged to enfranchise lands held of different manors, and been put to great costs in the necessary investigations relative thereto, and in the deductions of the lords' titles.

The Finsbury petitioners urge that—greatly wanting sites for houses and gardens, in order that they and their families may be relieved from the serious consequences of residing in close and over-crowded neighbourhoods, and yet be within a convenient distance from their place of business,—yet considerable quantities of land lying northward of the borough, are found unattainable for such purposes, on account of their being subject to a body of copyhold laws under which lords of manors, possessing very small interests, are enabled to exercise an unnatural and unwholesome power over the land; and they point out what we have already referred to, namely, that while the lords, in early times, gradually got rid of all the fines and obligations under which they held the land from the sovereign, they have pertinaciously maintained their powers over the copyholders, burthensome and prejudicial as they are to the whole community.

The petition from builders and others, which is signed by Messrs. Thomas Cubitt, Frederick Barlow, M. T. Hooke, &c. points out the difficulty which arises from a considerable quantity of land in the neighbourhood of London being subject to the copyhold laws and customs; and that as the custom of granting leases to builders, and so employing capital in the improvement of land, and to meet the exigencies of the community, did not formerly prevail, there is great uncertainty as to the law relating to that tenure; for, although it has been the law for centuries past that copyhold land is as inheritable, and also at the will of the owner as alienable, as freehold land, on payment of fixed or reasonable fines, yet from want of some

sufficient adaptation, or amendment of the law, it is held that a copyholder cannot of his own will lease, and that if even he could lease with the consent of the lord for the time being upon an agreement that the usual fines of one and a-half or two years' value shall be assessable on the ground rents, yet in case it should turn out that the lord so granting such license had only a limited interest, as tenant for life or otherwise, the lord in remainder whose assessable interest in the fines had been increased ten or twenty fold, with the certainty of a much larger increase on the rack rents on the termination of the lease, *may either enforce fines on the rack rents, or bring ejectments, to the confiscation of the capital honestly laid out, and to the utter ruin of innocent parties.*

The petitioners pray, therefore, that "it may be declared and provided that leases of lands granted by copyholders for building purposes shall be valid; that fines reasonable or arbitrable shall only be assessed on the ground-rents, and that builders and others investing their capital in houses and buildings on copyhold lands shall be duly protected from the consequences of forfeiture under the copyhold laws; and, inasmuch as the simplification of the laws of real property is highly desirable, your petitioners further pray that a law may be passed for the enfranchisement of all copyhold lands as speedily as due regard to the interests and convenience of the parties interested will permit."

There are, of course, many matters to be borne in mind in making this law. For example, some think that if all the copyholds of a manor be enfranchised, the waste will become the absolute property of the lord, as there will be no longer any copyholders to exercise the rights, and that most of our heaths and commons will be covered with buildings. This is a question of such importance that all doubt should be removed by a clause expressly reserving all existing rights of common. Let us keep about us some free spaces where we may see the furze in bloom,—Nature's livery of green and gold.

Pending conclusive enfranchisement, copyholders should be at liberty to lease and improve their lands without license, and in case of building-leases, fines uncertain or arbitrable should be assessable upon the ground-rents.

The judges, as reported by Sir Edward Coke, declared that one year's value was a reasonable fine to be paid by a copyholder on death or alienation; but in modern times fines have been raised to one-and-a-half year's, and even two years' value. If the land be built on, of course the value is increased. In one well-known instance a peer of the realm had granted a license for leases of a few acres of land, and entered into an engagement for the assessment of the fines on the ground-rents during the leases. On the faith of this 200 houses were built, to the manifold improvement of the lord's interest; nevertheless, his son, after his accession to the manor, on the death of the copyholder, brought 200 ejectments, with a view to enforce two years' fines *on the rack rents*, but the proceedings were accidentally defeated through a technical omission.

There are other strong reasons in favour of enfranchising copyhold lands besides those already mentioned; but we have probably said enough to convince our readers that it is a subject in which they are all more or less concerned, and to lead some of them to aid in obtaining a satisfactory settlement of this important question.

WINDOW ARCHITRAVES.

WHILE I highly approve of many of the remarks in the paper "On Breadth and Repose," I take the writer to be decidedly in the wrong when he advises us to "shun architraves round windows." "No one," he says, "can see them 200 feet off;" yet, if that be sufficient reason for discarding them, it would be an equally good one for omitting all details that do not plainly disclose themselves at the same, or even a much less distance. Wherefore, too, should one who recommends string-courses as effective, be so intolerant of architraves, and of course other window-dressings, the latter being surely quite as visible as the others? Or if they are not, it is only because they are too tame and feeble, and not sufficiently *prononcé*. I fully concur with the writer in what he says as to the value of depth of reveal or external window-recessing; but that that is so all-sufficient as to allow us to dispense with any finishing around the aperture itself, I for one most stoutly deny. I do not, however, deny that too much reliance has been frequently placed upon windows and their ornamental dressings, considered in themselves, without regard to general effect.

In advocating breadth and repose, Mr. Bailey shows himself to be too much of a special pleader, shutting his eyes to all other qualities of design than those two particular ones; which, after having been long disregarded, he would, it seems, have us now attend to without regard to any others, mistaking, perhaps, as many others have done before him, the reverse of wrong for right.

He is not even consistent when, while laying so much stress as he does upon "Breadth and Repose," he refers to the Houses of Parliament as a successful work, notwithstanding that of either quality not a particle is to be there detected. A similar laudatory reference is made by him to the Reform Clubhouse, strongly as it militates against his principle of "a broad surface with *holes* in it."

It is surely but consonant to reason that the indispensably requisite features of a building should be rendered ornate in themselves before ornament is applied merely for ornamentation's sake. Most persons will, I conceive, agree with me that to panel or diaper walls which had merely "holes" in them for windows, would be a proceeding marked by double preposterousness,—the want of due architectural finish in what cannot be omitted, in conjunction with extraneous decoration,—mutually reproaching each other. The nakedness of the apertures would cause the embellishment of the wall surface to appear wasteful prodigality, which would, in its turn, accuse the other of showing most offensive and sordid meanness.

The writer does not show himself to be the most astute advocate; for the Reform Clubhouse, which he is pleased to commend as it deserves, and the other productions of the same architect, exhibit the very opposite of "the-hole-in-the-wall" system of fenestration, their windows being made particularly rich features, and in the case of Bridgewater House highly elaborated ones.. It would have been more to the purpose had he brought forward some instance of striking artistic effect attending that mode of treatment which he recommends, in order to corroborate his own theory by some positive successful example. His not doing so must therefore be attributed either to strange negligence on his part, or to his inability to discover any such satisfactory example. Yet one he might have found in the *terra incognita* of Bond-street, where the Clarendon Hotel manifests—and by no means unpersuasively—all those three qualities upon which he lays so much stress, namely, breadth and repose, and total abstinence from window-architraves,—in fact, from aught approaching in any way to decoration For its quality of "breadth," I myself have always, I will not say exactly admired, but relished it; the more, perhaps, because it contrasts so forcibly with the petty squeezed-up and vulgar-looking house-fronts in that neighbourhood. Although nothing can be more plain and unpretending, more destitute of all that answers to the idea of design, the Clarendon possesses the valuable, and I may add, rare artistic quality of design, called "breadth," in an eminent degree; and it confers on it a certain air of dignity which, unfortunately, we often altogether miss in buildings that ought and, no doubt, are intended to be samples of very superior taste.

What is it then that chiefly conduces to and produces this same desirable quality of 'breadth?' To such very natural and reasonable question my reply would be, the comparative infrequency and smallness of the apertures in a façade; otherwise, although there may be richness, grandeur is hardly attainable, since an air of littleness and want of space will almost invariably be occasioned by an undue excess of voids in proportion to the solid. It is for those who hold a contrary opinion to take up their pencil and show us how breadth and repose, and the greatness of manner resulting from them, may be preserved in a composition where the fenestration answers—as it generally does—to the idea of *pycnostyle*. Q. E. D.

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A THEORY OF THE TIDES.†

WITHOUT entering further into the contradictions of the present, I will now proceed to explain my new and, more probably, correct theory of the tides, hoping that in abler hands it will solve all the difficulties that may yet exist in this respect.

I take it, then, for granted, that the law of universal gravitation is not, as yet, quite established, and therefore beg to say, that "God's will" guides the heavenly bodies, as the will of my soul guides my pen, moves my limbs, and governs my whole body. So, then, it is the will of God that this earth should be girt by the ocean, that its waters should neither displace the air and fly off to the moon, nor be absorbed by the bowels of our globe. So it is the will of God that this earth should be enveloped in a fluid, called the air; that this mixture of the air should have no tendency towards the centre of the earth, but withdraw and keep away from its pits and subterranean cavities; nor a tendency to escape beyond our sphere, as is proved by its rarity in the upper regions.

* R. A.—Royal Academy; B. I.—British Institution; S. B. A.—Society of British Artists; N. I.—National Institution; W. C. S.—Water Colour Society; N. W. C. S.—New Water Colour Society.

† See p. 326, *ante*.

It was His will that this ocean of air should constantly flow round and about, and cover our globe; that above this ocean, called the atmosphere, there should be a still clearer and purer matter, commonly called ether, but of whose substance we know nothing; and that above this ocean of ether, destined, like the water and air, to remain in the space assigned to it by God, there should appear the bright moon in her glory, surrounded, perhaps, by an ocean of still purer matter than ether itself, or even, like a ship on the sea, enveloped above in a matter quite different from that in which she is moving below.

Be this as it may, whether two, three, or four oceans or rings of different matter, separate us from the moon; whether she accompanies our earth in her path through the heavens by the reputed law of gravitation, or by some other law we are ignorant of,—this I know, that she does so by the will of God. He has placed her on the ocean of ether that surrounds our atmosphere, like a well-laden ship on the sea: on this ocean she performs her journey round our globe according to laws which God has not allowed us as yet to find out, always presenting to us part or the whole of her hull, without our ever, like a fish in the water, beholding the deck or the masts.

From the coincidence of the exact time of the tides with the exact time of the progress of the moon round the earth, in connection with the rotation of the earth round its own axis, there can be no question but that they are occasioned by the moon, contrary to the idea of Mr. Kerigan, who believes her influence to be entirely negative. Now if we substitute "pressure" of the moon for "attraction" we shall be able easily to point it out as the cause of high and low water.

It seems natural that, like a ship on the sea or a boat on a canal, the passage of the moon over the ocean of ether should produce a pressure below, and a corresponding expansion at the sides: this pressure upon the ether acts upon the air, as the pressure of the air acts upon the water, and the nearer the moon the stronger the pressure, and the further away the less it will be, like the pressure of a ship according to the width of the channel, and the distance from, or nearness of, the shore.

We all know the corresponding effect of the wind, or of an agitated atmosphere, upon the water, in causing it to rise in waves. The agitation of the atmosphere itself is caused in a variety of ways, partly known, partly unknown, into which, however, I here cannot enter; but I have shown already in my treatise on thunderstorms (see THE BUILDER of 20th Sept. 1851), with what force the lowering cloud presses upon and displaces the air beneath it: what then must be the pressure, though unfelt, because so even and so far extended, of the moon upon our atmosphere!

That, apart from the winds and the various currents in the air, there is a regular movement belonging to the whole of the atmosphere is proved by Humboldt. In his "Cosmos" he says:—"One of the main features of the atmosphere is the variation of the pressure of the air between the tropics, a regular, so easily observable, hourly oscillation, a kind of ebb and flow, of the atmosphere, which is not to be ascribed to the attraction of the moon, and which very much varies according to the geographical latitude, the seasons, and the height of the point of observation above the level of the sea." In another place he speaks of "the hourly variations of the atmospheric pressure, which successively take place from east to west, and which in the tropics are so regular."

Whence, then, comes this regular ebb and flow of the tide of the atmosphere? It does not result from the *attraction* of the moon, as Humboldt truly states, nor from any cause operating on the surface of the earth, no more than the tide of the ocean is caused by some operation at its bottom. If the surface of our atmosphere were as tangible to observation as the surface of the sea, I have no manner of doubt but that its tide, in all its features, would resemble the tide of the sea, particularly after what is said by Humboldt of its variation according to place and season. This, and that the tide of both the sea and the air successively take place from east to west, renders it still more probable that the tide of the sea is but the effect of the tide of the air, and that both are caused by the *pressure* of the moon.

My new theory of the tides seems to me the most probably correct one, inasmuch as it requires no forced application, and is simple without any conflicting points, and because it solves the anomalies which cannot be reconciled with the theory hitherto accepted. I do not think, for instance, that it is overstraining my theory if I account for the two opposite points of high water, and the two intervening opposite points of low water, in the following manner:—

To the scientific world it is a well-known fact, that, apart from particular currents, produced by particular causes, the general flow or motion of the air, as well as of the waters of the sea, is from east to west, the same as the tidewaves of the one and the other; and this flow, from east to west, with Galileo and Kepler, I ascribe to the rotation of the earth in the opposite direction from west to east. The moon, sailing, as it were, in the same direction, from west to east, sails against the currents of water and air that flow from east to west. By her pressure upon the atmosphere, the air, as an elastic body, is depressed underneath, and raised before her by her onward course against the contrary current. The first tidewave is thus created in front of the moon, and the air, escaping behind, will rise as much, or nearly so, beyond its ordinary level, as it had been depressed below it, and thus cause the second tidewave to take place. These tidewaves of the air will press upon the water, and cause the tides of the ocean in a corresponding manner; and the pressure of the moon, extending in its effect over at least one-fourth part of the earth, each of the tidewaves will cover the same area, leaving between them, on the opposite side of the earth, another fourth of low water.

As the height of the tides of the sea is influenced by shallows in the sea, by the configuration of the coasts of the mainland, so the variation of the ebb and flow of the air depends much on the chains of mountains it has to pass over, and on the nearness of the moon to, or distance from, such coasts or mountain chains.

I will now try to reconcile a few anomalies of the present, with my new, THEORY of the tides.

If the attractive power of the moon is not sufficient to raise a tide at St. Helena, whilst it is said to be the cause of the high tide at "the Land's End," then this anomaly disappears by substituting the *pressure* of the moon for its *attraction*.

A ship on the water will displace as much water as its hulk is immersed in it, and the pressure of the ship on the water below will not be greater than that of the water which it displaced, as the water displaced is equal in weight to the body that has taken its place. But the pressure of the ship will force the water displaced to the sides, and manifest itself in a rise at the shore to which it is driven, supposing the ship to be large, and the water narrow, enough for the purpose.

The moon is nothing else but a ship, to which the ocean is a large river, and gulfs, bays and rivers, are canals: the elastic air readily gives way to the pressure of the moon, and therefore exercises but little, if any, influence on the water underneath, but accumulates in a wave, and pressing upon the water at a distance, makes it rise on the shore. Hence the imperceptible change in the ebb and flow of the water at St. Helena, though the moon be there in the zenith, and the high tide at the Land's End so far away. Hence also *no tides* at any of the *islands* within the torrid zone. Islands, moreover, are to the flow of the water what single hills or solitary mountains are to the motion of the air: neither are of sufficient breadth to offer any perceptible impediment to the course of either.

The anomaly of the tidewave running after the moon, like a carriage drawn by horses round a corner at five minutes' distance, falls likewise to the ground; for, by pressure the moon *does* give a propelling impulse to the water, which will continue to flow and to rise at the shore, though she has passed away.

Respecting the absence of tides in the Baltic and Mediterranean, it is easy to conceive that the continents of Europe and Africa, and their configuration, prevent the tidewaves of the atmosphere having effect upon them, or that these seas are already *beyond* their influence. If, however, as an instance, the Mediterranean were connected with the Southern Ocean, by means of the Red Sea, it would certainly have tides at the place of junction, if not further.

When the moon is in conjunction with, or opposition to, the sun; when she either receives the full reflected light of the earth, or the earth receives that of the moon, her pressure is the greatest, because, in her circuit round the earth, she happens, at that time, to be nearest. It may be, that the pressure of the moon upon our atmosphere, and its effect upon the sea, is the result of her being *attracted by the earth* (which would not alter my theory), and that this attraction, and consequent pressure upon the matter between, is strongest when the one receives the full reflected light of the other, being the time of their greatest approximation.

WM. ADOLPH.

THE "CALORIC" SHIP.

"STEAM SUPERSEDED."

WHILE our American brethren are boasting of their doings in steam engineering, they are trying their best to undo it altogether; and if even half of what we hear of the economy, the safety, and the power of their "caloric engines" be true, steam indeed is doomed to give place to *air*, empowered, however, by the very same force, namely heat, to which we are indebted for all that steam has done or can do. The "caloric engine" is thus, in fact, a misnomer. The steam engine is just as much a "caloric" engine as the "air engine," properly so called by parity of title to that of the "steam engine."

The Ericsson is the name of an "air ship," if we may call it so—rather awkwardly we confess, though, strictly speaking, as correct as "steam-ship" in its own sphere. This air-ship, or "caloric ship," as the Americans call it, is in course of construction at New York, and will be ready for transatlantic navigation by October next. It will be of 2,200 tons burden. Caloric engines are in course of construction for it, but these are not the first of the sort, one of 60 horse power having, it is said, been in successful operation for the last eight months, without repair or accident, at the engine manufactory of Messrs. Hogg and Delameter, of New York. The cylinders of the Ericsson's engines are no less than 14 feet in diameter, nearly twice the size of those in the Collins steamers.

The *Boston Transcript*, in describing the engine now at work in New York, says:—

"The leading principle of the caloric engine consists in producing motive power by the employment of the expansive force of atmospheric air instead of that of steam; the force being produced by compression of the air in one part of the machine and by its dilatation by the application of heat in another part. [How the compression is produced is not clearly stated; but as heat dilates the air, it is probable that it is cold which in this case is made to compress it, or at least to withdraw the heat, otherwise force would be *expended* in its compression instead of *gained*.] This dilatation, however, is not effected by a continuous application of combustibles, but by a peculiar process of transfer, by which the caloric is made to operate over and over again, viz.—the heat of the air escaping from the working cylinder at each successive stroke of the engine is transferred to the cold compressed air entering the same, so that in fact a continued application of fuel is only necessary in order to make good the losses of heat occasioned by the unavoidable radiation of the heated parts of the machine."

The only fires employed are in small grates, under the working cylinders themselves. There is of course no boiler with furnace, &c., and no chance of explosion. Anthracite forms a cheap and sufficient fire, and the attendance and expense are comparatively trifling, so that passengers' fares are to be on a reduced scale. The only result of neglect would be the stoppage of the engine. No funnel will be required, there being no smoke. A short pipe carries off the products of combustion.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My Dear Sorillah:

SHORT as this series of gossipping letters yet is, parts of it have been written in widely different places, and under very varied circumstances. I begin the present communication tied by a disaster to a sofa, and sighing for a little exercise and fresh air. To be kept from motion even for a fortnight,—to lose "the bloom and ravishment of spring" for that period,—is not a trifle. Like all things, however, it has its good. It is under such circumstances that one discovers the kindness of friends and the value of *books*. Books,—the wonderful gateway, if I may so speak, by which you get admittance to the Past,—the means by which you obtain a knowledge of the great ones of all time, travel to all nations, and become, so to speak, omnipresent. Books will take you from the unpleasant present; sooth, teach, elevate; will bring back what has gone by, and show the way to a glorious future. However, it is not either to lament or to apostrophize that I now take the pen in my hand, but to continue our brief review of the History that has been written by succeeding nations in Brick and Stone. The pyramids of Egypt, the temples of Greece, the forum and triumphal arches of Rome, the sky-pointing spires of the Middle Ages, the palaces of the Revival, represent and illustrate the mind and manners of the people by whom they were erected with unquestionable truth and force. Let us, however, continue the journey step by step.

With reference to a sentence in the general view which I gave in my last of some of the principal buildings in ancient Rome, you say you do not remember an arch of Trajan in Rome. Trajan did erect an arch in his Forum at Rome: it was despoiled to assist in erecting the arch of Constantine; but the arch to which I referred, as having, in conjunction with a column, made his name known to all ears, is at Ancona, and is one of the most complete monuments of Roman art remaining to us.

There was one important class of buildings in ancient Rome which I did not mention: I mean the *Basilicæ*, which are particularly interesting to us, because many of them were converted into Christian churches in the reign of Constantine, and became the model for the earliest edifices that were afterwards expressly built for Christian worshippers. The term basilica, indeed, lost its original signification, and came to mean a church.

The ancient Roman Basilica served as a Court of Law, and an Exchange for men of business: it afforded, too, ample space for a fashionable promenade, of which the Romans were fond; but whether or not the Roman ladies ever used it as a place to show their "blond" bonnets and lilac gloves, and nod to their friends, as ours do at the "Horticultural," seems uncertain. The term probably came from Greece, but there is not a vestige in that country now of any edifice of the sort. The Greeks called their second archon or magistrate, *Archon Basileus* (basileus was their term for king), and his court was the basilica. The first basilica in Rome was built by Cato, 184 years B.C. Twenty others were afterwards erected. The ground plan of all these buildings was rectangular, and this area was mostly divided into three parts, consisting of a nave and two side aisles, each separated from the centre by a single row of columns. Sometimes there was a double aisle on each side. At one end was the tribunal for the judge, either square or circular, and sometimes projecting from the end as an apsis.

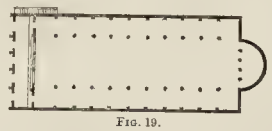


FIG. 19.

You doubtless remember the basilica at Pompeii. Fig. 19 is the plan of such a building, and you will see at once how closely the type has been followed in our churches. The side-aisles, which in the earliest basilica were merely open porticoes, were sometimes in two stories, and the upper gallery thus formed, served to receive crowds of loiterers. The Basilica Ulpia, or Basilica of Trajan, had two aisles on each side, was roofed with bronze, and was one of the most important works in Rome.

Some scholars deny that the Roman basilica had its name from Greece; and one, Zestermann, shows that the adjective *basilicus* was used in Rome as synonymous with *eximius* and *magnificus*, and that Cato, in conferring this name on his new building, merely meant to say that it was the *royal* edifice,—the unparalleled one. I have given an undue space to this class of buildings, but its connection with the structures that followed will serve as a reason.

You will have observed that the Romans introduced a new element into architectural composition, which led to very important results, namely, the ARCH. By means of this they were enabled to span larger openings than they could by placing horizontal stones from column to column, and with very ordinary materials to roof-in large areas, and produce very surprising effects. It was long maintained that neither the Egyptians nor the Greeks were acquainted with the properties of the arch. Instances of its use in Egypt, at a very remote period, however, exist.

Sir G. Wilkinson thinks brick arches were used in the tombs as early as 1540, B.C. At Saqqara there is a stone arch ascribed to 600 B.C. Perring mentions an arch in the portico of a pyramid at Meroe, which he believes as old as 700 B.C. In the Assyrian marbles of earlier date now in the British Museum, the arched form will be observed, and there is on one of the slabs even what would seem to be a bridge with arches.

Let this be as it may, it is clear that the Egyptians did not make general use of the arch, and the same may be said of the Greeks up to the time of Alexander. The Treasury of Atreus, before alluded to, one of the earliest buildings in Greece, was at first sight supposed to present a perfect example of a vault; but on minute examination, it was found to be covered by stones, lapping one over another, the underside of which had been afterwards cut into a domical shape. Fig. 20 will explain this to you. In Etruria there is a tomb supposed to date 600 years before our era, which is covered in the same way. In Ireland there are some very early subterranean chambers similarly constructed. This arrangement of a vault is not of itself a proof that the nations using it were ignorant of the principle of a real arch. The simple fact that Sir Christopher Wren used over-lapping stones in preference to a proper vault, to place the spires on at the top of his principal towers (those of Bow Church and St. Bride's) would disprove that idea.

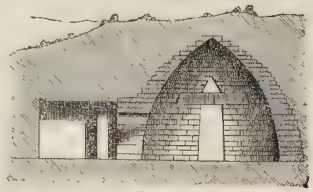


FIG. 20.

At the entrance to the great Pyramid, you will remember, the weight is taken off the opening by two stones placed triangularly, and leaning against each other at the top. The same thing is seen in the Cyclopean walls of Tiryns, where there is a gallery so covered; also, in the Mexican pyramids, and in some buildings in England ascribed to the Saxons.

It is in Rome, as I said, that we first find the real arch generally used, and here it led to an entire revolution in architectural arrangement. It will be well for you to bear it in mind as one of the striking differences between Greek and Roman architecture.

Of the differences in other respects, let me now say a few words. The Doric, the Ionic, and the Corinthian of the Greeks were adopted by the Romans, and they added a modification of the Doric, called *Tuscan*, and one of the Corinthian, called *Composite*. At one time these latter were accepted as distinct varieties, and it was the practice to speak of "the *five* orders." We are contented now to acknowledge three. You will recognise them in Roman work by the peculiarities already pointed out (Greek artists helped to produce them), but you will find them far inferior in beauty to their prototypes, excepting the Corinthian, which, as in the Temple of Jupiter Stator, in the Campo Vaccino at Rome, has an elegance wholly its own. The mouldings of the Romans are less beautiful, the columns more attenuated. One very observable difference, easily remembered, between Greek Doric and Roman Doric, is this, that in the latter *the triglyph is placed over the centre of the column*, while in the Grecian examples, as you will see in Fig. 15, a triglyph is placed *at each end of the entablature*, and others at regular intervals in the space between. The Grecian Doric has no base, nor had some of the best ancient examples of Roman Doric, but it was so generally adopted, nevertheless, that it is considered as belonging to the Italian version of the style.

Of the Corinthian capital, with its two rows

* No. IX. See also pp. 100, 133, 164, 196, 228, 260, 292, and 324.

of acanthus-leaves, surmounted at each corner by the stems forming small twirls, you will find many examples everywhere. In London I may mention the portico of the National Gallery and that of the Royal Exchange.

The Composite order consists of a mixture of the Corinthian and the Ionic, as you may see by Fig. 21. In the place of the smaller twirls of the plant in the Corinthian, an Ionic capital is set up on the acanthus leaves. The frieze is ornamented, and the whole order made richer.



Fig. 21.

It has been well said that what Roman architecture lost in simplicity it gained in magnificence: the mouldings were sculptured, the friezes adorned with scrolls.

I may remark that the climate of Rome led to the use of roofs more steep than in Greece, and this produced pediments of steeper pitch. The Romans, tasteless as they were in some respects, did not attempt, as men of modern times have done, to retain forms irrespective of the circumstances and wants which gave them birth.

Another peculiarity which you must have observed in the buildings of ancient Rome is the use of a *pedestal* beneath columns,—so called, probably, from *pes*, a foot, and the Greek for column, *stulos*. This I must always regard as a sacrifice of dignity and grandeur to expediency. One advantage that the pedestal gives, you will observe, is, that columns of smaller diameter, less obstructive, may be employed; and for internal arrangements it offers other conveniences. *Apropós* of the derivation: on one occasion Madame de Staël, who was not remarkable for pretty feet, personated a statue, with the face concealed, and an ill-natured joker, when asked if he could guess who it was, glanced at the block on which she stood and said, "Oui; oui: je vois le *pied-de-Staël*."

I will not speak of the use made of single columns by the Romans to commemorate individuals, further than to say that those which present the peculiarity of having three ships' beaks or prows protruding from each side are called, from that circumstance, "Rostrated columns" (*rostra* signifying beaks), and referred to naval actions. You probably saw the well-known example at Rome, formerly in the Forum, and now preserved in the Museum of the Capitol. You perhaps scarcely see any connection between the heads of ships and the auctioneer's *rostrum* of to-day; but the fact is, the elevated stage in the Forum whence the people were addressed (the Rostrum) got the name for it through being adorned with the beaks of ships taken in the Great Latin war. It is interesting, I think, to trace derivations, and to find connections in things now apparently remote.

I must not attempt to describe all the works of the Romans; this would be aside my purpose. Where are the majority of them? Of the circuses, the aqueducts, the amphitheatres, the baths, the villas, which they raised, how few remain! As Pope writes to Addison:—

"Some felt the silent stroke of mould'ring age,
Some hostile fury, some religious rage,
Barbarian blindness, Christian zeal conspire,
And Papal piety, and Gothic fire."

A word about their homes. The ordinary domestic architecture of the ancient Romans has scarcely the same claim on our attention as that exhibited in their public buildings, although, during the later times of the Republic, residences of enormous extent and cost were erected. The buried cities of Pompeii and Herculaneum afford us examples of street architecture exactly as they were left by their occupiers in the year 79, when one, namely Herculaneum, was, as you know, overwhelmed by the lava from Vesuvius, and the other by showers of cinders and stones, which, although they broke down or burnt the roofs and upper stories, embalmed, so to speak, the whole city (a fly in amber), as if purposely to preserve it for the study of modern nations. The existence of Pompeii, beneath fields of waving corn and plantations of the vine, was unthought of till the end of the seventeenth century, and it was not until the middle of the eighteenth that the excavations were begun. About a quarter of the city has now been investigated, comprising (besides numerous specimens of the arrangement of Roman houses) temples, two theatres, basilicæ, baths, and a forum. When you visited this now silent remnant of the past, did you notice the ruts which were formed in the narrow roads by the equipages of luxury, or the vehicles of commerce; the builders' materials as they were left by the workmen to go to their repast; the burlesque scrawlings on a wall made nearly 1800 years ago, by idle soldiers? Most of the shops, you must have observed, are very small and inconvenient, without chimneys and windows. The staircases, where they existed, were confined and rude. The walls of the houses, however, were adorned with paintings elegantly executed, and all the utensils which have been discovered display taste superior to that which is exhibited in the dwellings themselves.

The principal feature in the houses of the better classes was the *Atrium*, a large rectangular apartment, roofed over, with the exception of an opening in the ceiling, towards which the roof sloped so as to throw the rain water into a cistern in the floor, called *impluvium*. The Atrium was often adorned with columns, statues, and other works of art, and it served as a reception room. In early times it was the sitting room, and even the kitchen. Around it and beyond it were the various apartments, including often a picture gallery. The entrance-hall, which connected the Atrium with the street, was paved with mosaics, and there were often artificial gardens on the tops of the houses. The rooms were sometimes heated by hot air, conveyed through pipes from a furnace, but oftener by portable braziers. Architecture in Rome, after it had attained its perfection in the Augustan age, gradually declined. Simplicity was lost sight of, luxuriance became wildness, and wise liberality degenerated into unrestrained and ineffective extravagance. At the commencement of the fourth century of the Christian era, Rome, weakened by internal disunion, and attacked on all sides by barbaric tribes, tottered. The last blow to her prosperity was given when Constantine removed the seat of government to Byzantium, afterwards called from him Constantinople.

At this point terminates the history of classic architecture, and we enter upon that of a perfectly distinct style, which may be called Christian architecture; growing out of that which preceded it, and ultimately developing itself, after a variety of gradual improvements and changes, in the cathedrals of Cologne, Strasburgh, Salisbury, York, and Lincoln.

"Children that came to see these Saints in stone,
As day by day out of the blocks they rose,
Grew old and died, and still the work went on,
And on, and on, and is not yet completed.
The generation that succeeds our own
Perhaps may finish it. The architect
Built his great heart into these sculptured stones,
And with him toiled his children, and their lives
Were builded with his own into the walls,
As offerings unto God."

And so, having reached a convenient stopping-place, farewell for the present, and prepare for a journey over an entirely fresh road when we next meet.

Believe me, always yours,

Reggio.

Electric Telegraph in the Bank of England.—The electric telegraph operations which have for some time been in progress in this establishment are now completed, and a system of communication is effected between the various offices. The rooms of the governor and deputy-governor are by this means placed in direct communication with every important department where business is transacted, and secresy of communication is obtained by the use of Dering's patent apparatus for this purpose, so that a message intended for one particular office cannot be read at any of the others.

NOTES IN THE PROVINCES.

Newcastle.—The public baths and wash-houses erected here at the cost of the corporation, from a design by Mr. Lynam, of Stoke-upon-Trent, architect, have been opened. The building, which is situated in School-street, is of red bricks, chequered with blue patterns, and has stone plinth and dressings: the gables are also coped with stone, and terminate with finials. The stone was obtained from a quarry in the immediate vicinity, belonging to the Duke of Sutherland. The roof is covered with party-coloured tiles. The entrance to the division of either sex has a stone portico, with rusticated columns and antæ, and moulded entablature, surmounted by a carved shield. The façade is Elizabethan. Within are entrances leading to waiting rooms and attendants' room, and by corridors to the private baths, six in number, for either sex; also a vapour and shower bath to each division. Open vestibules lead from the corridors to two swimming baths, one being inclosed and lighted from the roof and side walls, but the other open. These baths are of uniform size, ten yards long by six wide, and with inclined bottoms, 3½ feet deep at the upper end, and 4½ at the lower. The private baths and inclosed swimming bath are supplied with hot and cold water. There are two rooms fitted up for washing and drying clothes, with four wash-tubs, and heated steam drying apparatus. The buildings were erected, under the superintendence of the architect, by Mr. Robert Chapman. Since the opening, according to our authority, the *Staffordshire Advertiser*, the baths have been extensively patronised, especially the plunge baths.

Lancashire.—We regret that an amicable settlement of the brickmakers' dispute has not yet been effected. The men, we understand, have offered to return to their work at the prices heretofore paid, on condition that they be not required to make bricks larger than 160 cubic inches in the mould. This proposition, however, has not been acceded to. Some of the master brickmakers have obtained a number of new hands from St. Helens, Liverpool, and the Fylde.—*Preston Guardian.*

New Radford.—The schools in connection with Christ Church, New Radford, were opened on Monday week, according to the *Nottinghamshire Guardian*. They consist of a master's residence, an infant school, and a class-room, as well as a large upper room, separated by a sliding partition, and capable of accommodating a large number of children. About 1,000*l.* appears to have been the cost of these schools.

Neithrop.—The Vicar of Banbury is about to erect a chapel here. The excavations for the foundation are in progress.

Plymouth.—The contractors for the works connected with the Great Western Docks at Millbay (Messrs. Hutcheson and Ritson) are about to recommence them.

Rodington.—The old parish church having been restored and enlarged was re-opened on 9th ult. The alterations mainly consist of the addition of a chancel, terminating in an apse in the Early English style, with a new north aisle containing about 100 additional sittings. The church is entered on the south side by an open-timbered porch, the west front being surmounted by a campanile of same character. The ancient font has been restored to use. The unsightly pews have been removed, and open sittings substituted. The churchyard has been levelled and surrounded by a brick wall.

Shenstone.—The foundation-stone of the new Church of St. John the Baptist, at Shenstone, near Lichfield, was laid on Thursday week, by Mr. J. S. Manley, and at same time the foundation-stone of a chapel intended to form part of the church, and dedicated in honour of St. Peter, was laid by the Hon. Mrs. Jervis. The edifice will consist of a nave eighty-six feet by twenty, north and south aisles seventy-four feet by twelve, tower, and organ chapel. It will be built in the style of the fourteenth century, and of stone, the gift of the Hon. F. Gough. It will be calculated to accommodate 600 persons, 150 free.

Ripon.—Mr. Wailes, of Newcastle, has received an order for a magnificent window for

Ripon cathedral, the expense of which is to be defrayed by a subscription among the inhabitants of the diocese, as a memorial of the establishment of the bishopric. The subject is the commission to the Apostles to preach the Gospel, and it will comprise thirteen figures. The cost is estimated at about 1,200*l*. —*Gateshead Observer*.

Warwick.—The new church in the parish of St. Nicholas is to be erected from the designs of Messrs. Barry and Murray. It will consist of a chancel, nave, south aisle, and porch, and north and south transepts, with tower and spire at south-east angle of chancel and transept. The style is Decorated. A parsonage and schools are to be erected at the same time.

Coventry.—The Committee of the Council on Education has approved the plans for the proposed National Schools and residences for teachers, in the parish of the Holy Trinity; they will contain 207 boys, 207 girls, and 180 infants, with a superior school for 333 boys on the first floor. Messrs. Barry and Murray, are the architects.——The new schools and teachers' house, at Ryton and Dunsmoor, by the same architects, are to be forthwith erected, on a site presented by Captain Dilke. The style is Decorated.

Uxbridge.—A monument has just been erected in Uxbridge Church as a testimonial to the memory of the late Mr. Daniel Macnamara, many years an esteemed surgeon in that town. A coped tomb and memorial have also been erected in Iver churchyard, the burial-place of his family. The cost of both has been defrayed by subscription; a committee with the Rev. C. P. Price, vicar of Uxbridge, chairman, having been formed to carry out the wishes of the subscribers. The monument is in the perpendicular style, consisting of Caen stone, carved jambs, cill, tracery head, cornice, and brattishing, inclosing a white marble tablet with the inscription cut in church-text letters, rubricated capitals, and the armorial bearings emblazoned. Both the monument and the tomb are from the designs of Mr. C. J. Shoppee, London, and have been executed by Mr. J. Tomlinson, of Uxbridge.

Hemel Hempstead.—The new Town-hall and Corn-market, recently erected in this town, was opened on Tuesday last. It is situate on the west side of the High-street, and has a frontage thereto of 83 feet. The hall is 50 feet long, 25 feet wide, and 25 feet high; and has a range of broken pilasters supporting the cornice, from which springs a coved ceiling, enriched with an ornamental soffit, and centre flowers from which the chandeliers are suspended. The hall is lighted by five mullioned windows placed on the eastern side of the room. Adjoining is a magistrate's room, and an anteroom, and the access to this, the principal floor, is from a spacious stone staircase placed at the northern extremity of the building. The whole of the edifice is carried upon a series of piers and arches and the lower portion, which is entirely open, is used as a corn-market. The style of architecture adopted is that which was prevalent during the reign of James I.; and the materials used are red brick, with Caen stone dressings, excepting to the piers in the corn-market, which are of Horsely Castle stone. The architect is Mr. George Low.

Maidstone.—The new baths and washhouses have been opened. The centre of the building comprises a residence for the superintendent, waiting-halls, and pay-office. The men's side has three first and fourteen second-class baths, and the large swimming-bath. The main floor is divided near the centre, to effect an entire separation of the sexes. There are three private baths. The baths are made of glazed porcelain, in one piece. The washhouse contains compartments for sixteen women. Two hydro-extracting wringing machines in a few seconds remove fifty per cent. of moisture from the linen. The tubs are heated by steam, the closet by a tubular system of boiling water under pressure, which gives a heat of 400 deg. of Fahr. and not only dries rapidly, but also, it is said, destroys animalculæ or their ova. The filtering is constructed on a self-cleansing principle; by which, at every change of tide, 40,000 gallons of water can be reversed through it, so as to cleanse it from any impurity. We are indebted to the *Maidstone Gazette* for these particulars.

Malling West.—The inhabitants have determined on establishing gas and water-works. Upwards of 1,000*l*. have been subscribed in shares, and Mr. Culyer, engineer, and others have engaged to supply any deficiency in amount, and to erect the works at a cost of about 2,500*l*. The price of gas is not to exceed 7*s*. 6*d*. to begin with, and to be reduced as consumption increases.

Exeter.—The workmen employed in the restoration of Pynes House, the seat of Sir Stafford Northcote, were feasted by Sir Stafford in a tent erected in front of the house on Thursday week. There were about eighty men at work on a substantial dinner, with payment besides for their half-day's work, also given them by Sir Stafford. Mr. A. Poynter is the architect of these restorations, and Mr. Knight the clerk of the works.

Chester.—A stained glass window has just been placed on the south side of the nave of Chester Cathedral: it consists of four compartments, the principal subjects of which are "Joseph sold by his Brethren," "Jacob in the Court of Pharaoh," "The Infant Moses found in the Nile," and "Pharaoh's Daughter adopting him."

Birmingham.—The public baths in Kent-street have had an addition made of a first-class public swimming-bath, three private plunging-baths, and six private warm baths. The swimming-bath is 86 feet long by 37 feet 6 inches wide, with a footpath 8 feet 6 inches wide, and fifty-six dressing-rooms around. The whole is roofed over, the greater portion with glass, and ventilated and warmed; and the sides and bottom lined with smooth stone. The plunging-baths are about 13 feet by 11 feet, lined with similar stone to the swimming-bath; and a dressing-room 6 feet by 4 feet 6 inches is provided to each bath.

Handsworth.—The new church about to be erected at Soho is to be in the Decorated style, and calculated to hold 1,000 persons, 540 free. Mr. W. Bourne, of Dudley, is the architect.

Manchester.—The tower of the Cathedral is in such a state of dilapidation, that the ringers were prevented from giving their usual peal in celebration of the Queen's birthday.

Preston.—The chief stone of a new fire-engine station has been laid in Tithebarn-street. Plans, prepared by Mr. Rampling, have been approved, and the execution of them intrusted to Mr. Thompson, builder, by whom the brickwork has been sublet to Mr. Oakley. The building, according to the local *Guardian*, will cost from 600*l*. to 700*l*. The style is Italian. The construction will be of brick, with stone dressing, and include a lofty campanile for an alarm-bell.

Hoddlesden.—At Hoddlesden, near Over Darwin, on the 19th ult. the foundation-stone of new buildings for national schools was laid. They will consist of a schoolhouse for 150 boys and girls, with a house for the master; mediæval in style, and constructed of the grey sandstone of this part of Lancashire. The schoolhouse, containing two schoolrooms, each 40 feet by 17 feet 6 inches, will be a single-storied building, with an open roof, supported by *stone* ribs, to take the thrust of which there are buttresses on the outside. The total cost will be about 1,000*l*. provided principally by the landowner, Mr. O. Hargreave, by whose lady the foundation-stone was laid. The architect is Mr. C. Fowler, jun.

Southport.—Tenders for the erection of a new Town-hall have been ordered to be advertised for. The plans, which also comprise a police-station, magistrates' office, &c. &c. have been designed by Mr. Thomas Withnell, of Southport.

Bradford.—From amongst the many proofs and illustrations afforded from time to time of the progress of Bradford, the evidence furnished in the surprising increase of its buildings ought not to be overlooked. From Jan. 1, 1851, to May 1, 1852, says the *Bradford Observer*, the building and improvement committee have sanctioned the erection of 1,703 buildings, of which 1,340 are dwelling-houses (some of them in connection with shops), 31 mills and warehouses, 84 shops, 11 churches, chapels, and schools, and 236 buildings of a miscellaneous character. No fewer than 94 new streets have been opened in the above space of time: there are but few demolitions.

Wakefield.—On consideration of the plans lodged for the proposed new church of St. Mary, that of Mr. C. Clapham, of Wakefield, C. E. has been adopted by the building committee. A premium of 10*l*. for the second best plan was awarded to Mr. Brodrick, of Hull, architect. The site selected is at the top of Primrose-hill, a short distance from the railway, and in the vicinity of the new Union workhouse now building. The church is to accommodate 400 adults and 220 children, and the cost is not to exceed 1,600*l*.

Dunstall.—The foundation-stone of the new church, bequeathed by the late Mr. Charles Arkwright to the parish of Dunstall, was laid by Mr. Peter Arkwright, on the 22nd ult. Mr. Henry Clutton, architect.

Derby.—An engraving of a design, by Mr. Duesbury, for a new race-stand, appears in the *Derbyshire Advertiser*. The front is principally occupied by a double balcony, communicating with an interior promenade, &c. At one end is a square turret, with curved roof, surmounted by two balls.

Hartlepool.—The opening of the new dock at West Hartlepool was to take place on the 1st inst. It embraces an area of 14 acres. The outer harbour, also, has been enlarged from 13 to 44 acres. The lock entrance to the new dock is 60 feet wide. The depth of water will be 23 feet. There is a graving dock 320 feet in length.

Windermere.—The Windermere baths, which were finished in November 1851, were opened to the public last month. They consist of plunge, douche, and shower-baths.

Stockton.—The new town-hall was opened on 15th ult. on which day also the Leeds Northern extension line of railway was opened to the port of Stockton. The new hall has been built behind a large mansion in High-street, which has been converted into council-chamber, justice room, offices, &c. in connection with the hall, which is unseen from the street. The yard or area in which the hall stands has been covered by a ridged roof of glass, and made suitable, according to our authority, the *Gateshead Observer*, for a conservatory, and in which flower-shows may be held. Its dimensions are 72 feet by 23 feet. A lobby, 27 feet long and 8 feet wide, connects it with the hall, which is 80 feet long, 36 feet wide, and 36 feet high. So far as the hall can be said to have a style, it is Tuscan. It is lighted by two large windows, one at each end, and in the centre are three gasiliers, suspended from the ceiling.

Glasgow.—The town council have agreed to purchase the lands of Kelvin Grove, Woodlands, and Claremount, for the purpose of forming a park in the west-end; the purchase-money for Kelvin Grove being 30,000*l*.; Woodlands, 21,000*l*.; and Claremount, 4,525*l*. Before long the town's people will again sing, "Let us haste to Kelvin Grove."

Edinburgh.—The city council have resolved to have a public inauguration of the statue of the Duke of Wellington, and to invite the Duke to a public banquet, to be given by the citizens on the occasion.

Aberdeen.—The commissioners under the "Aberdeen County Records and Public Offices Act" have entered into contracts for the erection of new offices in connection with the present Record Office in this city. The buildings are to be erected from the designs and under the superintendence of Messrs. J. and W. Smith, architects, and are to be constructed on Messrs. Fox and Barrett's patent fireproof principle.

Rhosllanerchruz, near Ruabon, Denbighshire.—On 29th May, the keystone of the arch of the South Porch of the new church was laid with great ceremony by Lady Williams Wynn, of Wynstay. The church is in the Norman style of architecture, cruciform in plan, and adapted to accommodate 425 persons in open free sittings, without galleries. The transept and chancel are divided from the

nave by stone arches. The cost of the whole, including the walls for inclosing the churchyard, and approaches, &c. will be about 1,950*l*. The architect is Mr. Thomas Penson, of Oswestry, and the contractor is Mr. Ebenezer Thomas, of Menai Bridge.

STEAM ENGINEERING.

AMERICA *v.* THE "BRITISHERS."

Being much struck by certain intimations of American progress in marine steam engineering, given in a letter by the present proprietor of the *New York Sun*, inserted in that paper on 3rd September last, and in which it was announced that the last fast and extra fast boats of the Cunard line were indebted to American improvements for their go-a-head superiority; being moreover, as we confess, a little jealous of our own acquisitions, even while proud of brother Jonathan's accomplishments; and desirous, therefore, that our engineers should look to their laurels; we quoted that portion of the *New York Sun's* letter in which such results of hardly ten years' American attention to ocean navigation were announced. A correspondent, "Britannicus," promptly responded to the announcement, contradicting it *in toto*, and telling us very plainly that—

"By giving currency, as you have done on this and other recent occasions, without comment, to the overweening estimates which the Americans form of their own superiority, you appear to me, Mr. Editor, to do much towards weakening the well-founded confidence which has hitherto been entertained in the perfection of British machinery, thereby injuring British interests, particularly with reference to the demands for engines from foreigners."

For "Britannicus's" statement of the facts of the case, as well as for the previous allegations of the *New York Sun* proprietor, we must refer our readers to The Builder itself. Our present purpose is to state, that the truth of our correspondent's facts is, in turn, denied, and a counter statement made, in a long article on the subject, in the *New York Sun*, of 18th ult. in which the whole matter is entered into *ad longam*, and in which, after repudiating the proprietor's first statement, the editor goes on to say—

"This portion of the letter attracted much attention in England, being copied into the journals, and commented upon by the editors or correspondents. In the London Builder only was its accuracy questioned, and there not by its editor, but by a very indiscreet correspondent—as the sequel will show. As the matter is one of more than ordinary importance, we republish the letter in The Builder, that its wilful falsities may be the more apparent when placed in contrast with the truth."

Then follows "Britannicus's" letter to ourselves.

"This letter," continues the editor, "was copied extensively into the English journals, as an anchor of hope; and for effect, throughout the continent of Europe. It can easily be seen how anxiously Englishmen desired the impression to prevail that the Americans were copyists; and that for the signal triumphs of their ocean steamers during the summer of 1851, they were indebted to English genius, skill, and generous favour. The letter of 'Britannicus' met the eye of James Brown, Esq. (President of the Collins line) in the columns of *Galignani's Messenger*, of Paris, and he brought it to the notice of Stillman, Allen, and Co. the builders of the engines for the Collins steamers.

Their reply, which we now subjoin, furnishes the most satisfactory confirmation of every word in our letter, and an overwhelming refutation of the sweeping misstatements of 'Britannicus.' In place of any agent or member of the firm of S. A. & Co. ever having visited 'the Clyde,' or the establishment of 'Napier, of Glasgow,' a son or brother of this same Napier, some time ago, came here and inspected every part of the Novelty Works, by invitation and permission of the proprietors. One other fact in favour of the Collins Steamers' machinery may here be given. While it only requires one man to work these engines, two or three are employed to set those of the Cunard steamers in motion. The only similarity between the machinery of the two lines is, that they are both 'side lever engines.'

But here is the letter, and it requires no comment at our hand. We trust The Builder, and other papers which inserted the statements of 'Britannicus,' will be candid and honourable enough to insert their refutation."

We cannot afford the space necessary for the insertion of this letter; but in justice we give the pith of it.

"Of our foremen, every man (with one exception) was born in the United States, learned his trade in this country, and whatever they have done, in connection with marine engines, has been at our works. The one exception referred to has been employed at our works for the last nineteen years, and never did any work for marine engines in any other place.

The draughtsmen who made the drawings are our pupils, and acquired all the knowledge and experience they have in connection with steam-engines in our drawing-room. The men who superintended the setting of the engines are also natives of the United States, were once our apprentices, and acquired at our works whatever skill and experience they have.

No man was ever imported from the manufactories of the Clyde, or from any other quarter, with reference to these engines; and neither in the preparation of the plans, nor in the construction of the work, did we ever receive any assistance, direct or indirect, from any engineer on the banks of the Clyde, or from any other part of Great Britain."

The Americans are, of course, surprised that we should give a place in our columns to "Britannicus's" statement. "Britannicus," on the other hand, is surprised that we should give a place in our columns to American statements. So here we are, taking both parties by "surprise," without intending it; but not in the least surprised ourselves to find that, in endeavouring to give a fair hearing to both America and England on an important question, so that the truth may be ultimately elicited between them, we, for our own part, obtain the approval of neither. That, however, is a matter of small moment to us, if we do elicit the truth, and stir both nations to exertions.

PIPE DRAINS *v.* BRICK SEWERS.

It is not correct to say that the Board of Health "*recommends*" main sewers of four inches in diameter in the streets of towns, or the sizes of drains to be so finely calculated by formulæ as to receive just the amount of drainage from the houses, and "not even a dew-drop more." Such a recommendation would bear upon the face of it the impress of absurdity, because of impossibility. In the evidence given by Mr. Medworth before the Committee on the supply of water to the metropolis, will be found much upon which the "recommendations" of the Board of Health are based. Amongst other things you will find, that the *smallest house drain from one water closet should not be less than four inches in diameter*, and that other drains should be of proportionate area. It is also recommended that all the rain water falling upon roofs of houses, court-yards, and private premises, should pass into the pipe drains, and that all other rain water should be excluded: with the formula which is also furnished for the flow of sewage through pipes (which formula Mr. Beardmore has adopted in his tables), the sizes of drains, and their rates of inclination may be calculated without any great labour. In all towns with which I am acquainted there is already some system of street drainage, which may be made available for carrying off rain and town waters. These, not being rendered offensive by the admixture of sewage matters, will exercise no deleterious influence upon the health of the neighbourhood. It is to be feared that no scheme for town drainage on the pipe system will be permanently efficient unless rain water falling upon streets and roads be excluded; because the *detritus* carried into the sewers *may* gradually indurate and choke them up. In any case, one great object of the pipe system would be lost in consequence of the immense expense which must necessarily result from making the sewers sufficiently capacious to carry off excessive rain falls.

That the pipe system for the drainage of towns *does work well* your correspondents, the "Ratepayer," and "B. B." and local boards of health throughout the kingdom may satisfy themselves. Croydon, Rugby, and Richmond works are in full operation; and they who assert that these works have not been sufficiently tested by time, should apply at the office of the Commissioners of Sewers for information of earlier date. If I am not wrongly informed there are nearly 200 miles of *pipe drains* now doing their work satisfactorily in the metropolis, considerable lengths of which have been laid down *upwards of five* years. But it does not need that years should pass away to test the efficiency of the system. The facts now published in connection with Mr. Cuthbert Johnson's edition of the Public Health Act, detailing the performances of the sewers at Croydon, and more than all *an inspection of the delivery at the outfall* in that town, will not fail to convince any unprejudiced person that a very extensive use of these pipes in drainage works will be both economical and efficient. C. E.

Information as to size, depth, construction, or mode of laying is not sought: the question is, whether the public money is properly expended in laying down tube sewers. The application of this form of drain for public streets is comparatively recent, and grave doubts are entertained by many whether they may not have to be taken up again, and the expense have to be incurred of laying down one made of bricks or other material.

In this district (Manchester), for the last five years the oval-shaped tubes have been laid down in all newly-paved streets, and the practice is continued as if it was a settled conviction and fixed rule.

To institute an inquiry by means of your pages appears to me to be a fair and legitimate mode, and no professional surveyor need be under any apprehension of injury to himself from the discussion which may arise from it.

Manchester has had the benefit of an early introduction of the tubes, and the saving in cost to the owners of property has been many thousands of pounds. Since they have been in use they have given invariable satisfaction.

Member of the Sewering Committee.

ARCHITECTURAL AND RAILWAY MATTERS IN IRELAND.

Additional museum accommodation is to be immediately erected at the Royal Dublin Society's house. Plans and estimates have been furnished. The society have contributed 1,000*l*. and the remaining 5,000*l*. of the intended expenditure to be incurred in executing the necessary works, are being raised by subscription.

A new school-house is to be erected in connection with St. Patrick's Cathedral: a piece of ground at the south close of the deanery has been purchased for the purpose, and the intended building will be erected by subscription.

The directors of the Killarney Junction Railway are progressing with the line after a lengthened suspension of the works. A total alteration in the original plan of the line from Mill-street to Mallow—a distance of 20 miles—has been made, thereby reducing the capital from 375,000*l*. to 225,000*l*. A loan of 100,000*l*. has been granted by the Public Works Loan Commissioners. The cost of constructing the entire line is expected not to exceed 225,000*l*. About 900 men are engaged on the works in the vicinity of Kerry, which are being constructed by Mr. Dargan. Mr. Wm. R. Le Faun, engineer.

An extensive building for the scholastic and other purposes of the Catholic brothers is to be erected at Adare, by the Earl of Dunraven. Mr. Hardwick, we believe, is the architect.

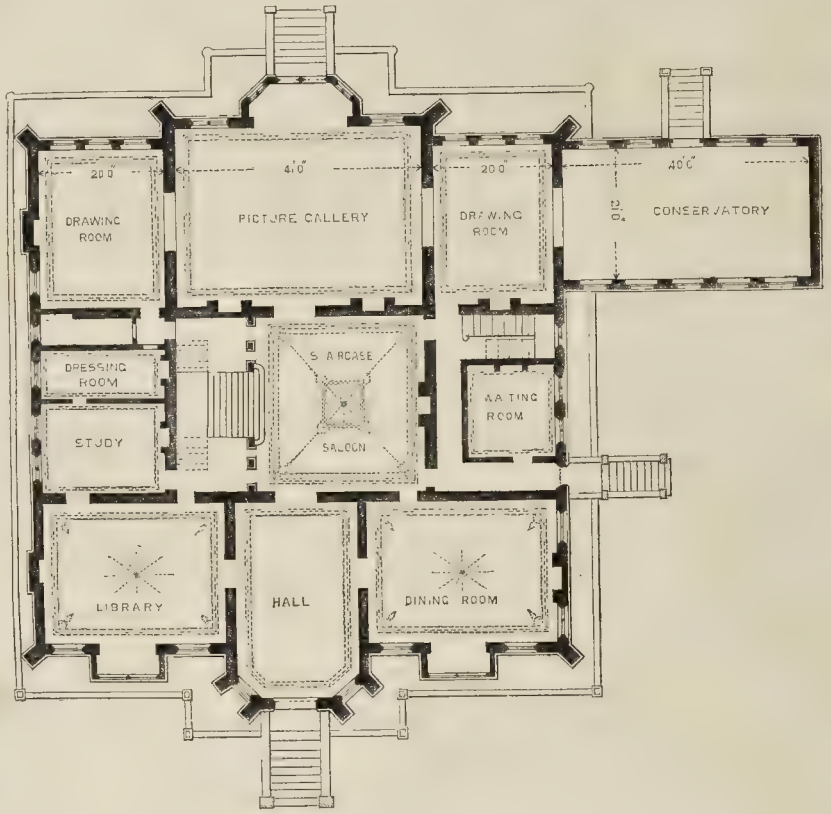
The churches of Derryoollen and Lisnaskea are to be rebuilt.

A new workhouse is to be erected at Ballyvaghan. Mr. Wilkinson, architect.

That portion of the Newry and Enniskillen Railway between Edward-street, in Newry, and the junction with the Dublin and Belfast Junction at Gorah, is to be constructed immediately, and the directors are inviting tenders.

New docks have been for some time in course of construction at Limerick. The large gates (of metal) were supplied by Messrs. Mallett, of Dublin. Mr. Barry D. Gibbons, engineer to the board of public works, furnished the plans.

GROUND PLAN OF THE EARL OF HARRINGTON'S MANSION.



THE EARL OF HARRINGTON'S MANSION, KENSINGTON PALACE GARDENS.

THE new road known as Kensington Palace Gardens, and leading from the High-street of Kensington to the Bayswater-road, contains a number of important and costly residences, each standing in its own grounds. A similar assemblage of mansions, indeed, cannot be found elsewhere. The road is of noble width, and the situation singularly fine. For a time, nevertheless, the speculation languished, and some who built early there must have suffered. Its advantages, however, have at last forced their way, and the value of the property is increasing every day.

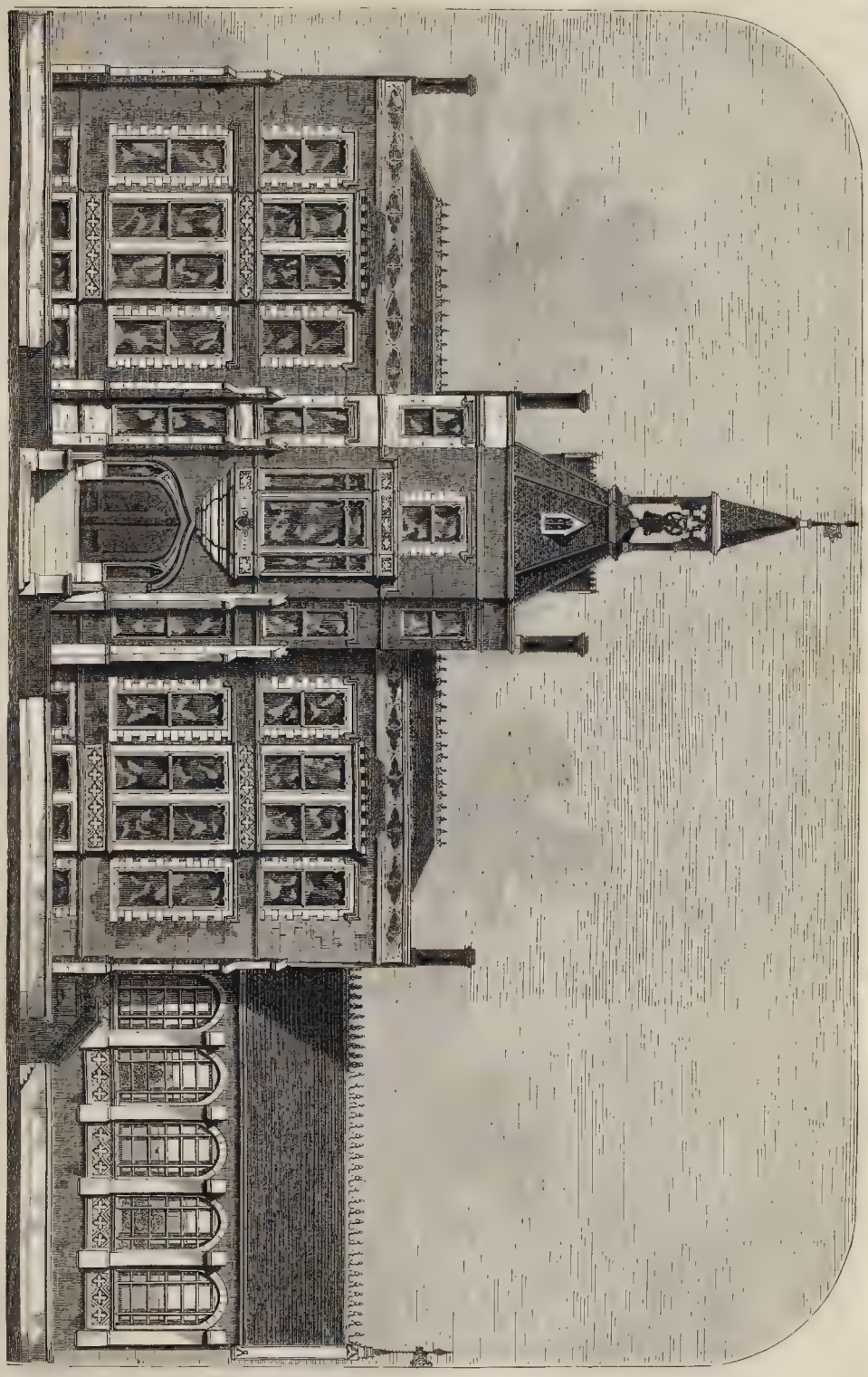
The accompanying engravings show the front elevation, and the ground plan of a mansion which is now being erected there, on the east side of the road, for the Earl of Harrington. The ground-floor contains a spacious entrance-hall, 30 by 20 feet; library, drawing-room, waiting and dressing room; a grand staircase saloon, lighted from the roof, with a spacious picture gallery, 41 by 31 feet; two drawing-rooms, and a large conservatory. This suite of apartments, when thrown into one, will embrace an extent of 121 feet in length, and will be well adapted for entertainments. The basement contains the domestic offices, with coach-house and stabling.

The style adopted for the building is Gothic, somewhat German in character: the design of the windows is more eccentric than beautiful. The materials used are white bricks with Bath stone for the dressings. The original design for the exterior was made by Mr. Burton, to suit plans sketched by the Earl, but the works are being carried out under the superintendence of Mr. C. J. Richardson. The builder is Mr. Baker, of the Edgeware-road, and the estimated cost 10,000*l.*

Kensington Gardens just now, by the way, are looking perfectly beautiful: the fineness of the trees, the variety of the tints in the foliage, and the scent of the may-bushes, are worth a journey.

RAILWAY JOTTINGS.

THE works at the central station in New-street, Birmingham, are now in active progress. It is intended to erect a stone building, of the Doric order, broken up into a projecting centre, five stories high, with a wing on either side. The wings and second floor of centre will be a hotel. The whole frontage length of the building will be 314 feet, and the height 88 feet from Stephenson-place, and 109 feet above the level of the rails. These arrangements are independent of the plans for the business department of the station, which provide for a refreshment saloon 70 feet long, and more than 33 feet wide; various waiting-rooms, officers' apartments, &c. on the ground-floor; and on the second floor, approached through the colonnade in Stephenson-place, the booking-offices of the six different companies whose passenger traffic will concentrate at the station. ——The final operation of raising the great tube of the Chepstow Bridge over the Wye to its permanent position has now been completed. It is expected that the bridge will be opened in six weeks or two months.——Mr. Butler, of this town, says the *Doncaster Gazette*, has invented a railway gate, to be opened by a person at a distance, by merely forcing a spring, on which the gate immediately unlatches and unlocks itself, and swings wide open, when it is in a moment latched and locked in the contrary direction. Mr. Butler intends to attach a contrivance, by which each train may open the gate without the assistance of a gatekeeper. The description of just such a gate was given some years since in THE BUILDER, and since then it has been repeatedly "invented." —— A Brighton correspondent, "T. M. F." suggests that a danger-signal between the guard and driver of a train might readily be arranged by keeping a coil of gutta percha tubing in a box on the engine, with a cord running through it, and attached to the whistle of the locomotive, while the tubing could readily be run along the tops of the carriages when made up in train, and hooked on to the guard's van, whence, in cases of danger, the whistle could be sounded. By openings in the tubing, our correspondent also suggests attached cords could enable the whistle to be sounded from other points along the train if necessary or desirable.——It is said a new line of railway is to be laid between Edinburgh and Peebles by a company of landowners, at a cost of only 3,400*l.* a mile,—land included. The length of line will be 63 miles. The West Cornwall line, too, with probably less favourable gradients, will be carried out, it seems, for 6,000*l.* a mile.——The railway station at Stourbridge is pretty far advanced in its construction. A high and long viaduct of timber is in progress of formation over the Stour.——The first sod of the line of railway from Santander to Alar del Rey, in Spain, has been laid by the Spanish King Consort.



VIEW OF THE EARL OF HARRINGTON'S MANSION, KENSINGTON PALACE GARDENS.

THE METROPOLIS BUILDINGS ADMINISTRATION BILL.

A BILL "to amend the Act for regulating the Construction and the Use of Buildings in the Metropolis and its Neighbourhood, and to improve the Administration thereof," has been brought in by Lord John Manners. It consists of 26 pages and 79 clauses. It confirms the present Buildings Act (7 & 8 Vict. cap. 84), excepting where inconsistent with this, and repeals the Act 9 & 10 Vict. cap. 5, passed to amend the latter. It provides for the creation of a Law Court similar to that in Lord Seymour's Bill, the objections to which we have already expressed; with an architectural referee, *in case* he should be needed. Public buildings are to be subject to the architectural referee only, and other buildings to the district surveyor only. The judgments are to be given in a summary way in open court, but, upon application, the judge may order a trial by a jury of five. The judge may, also, with consent of the parties, refer questions to arbitration. Questions as to right of way, lights, &c. may be tried by the Court. Appeal may be made to one of the superior courts upon a special case. Costs to be paid by the party appealing if decision be adverse to him, but not otherwise. Provision is made for diminishing the number of District Surveyors as opportunity may arise. Commissioners of Works may make modifications on receiving representation from the Court. District Surveyor is to ascertain whether new houses are provided with apparatus for constant supply of water, and report to Water Company.

The Bill comes before us too late for us to do more than give this brief account of its contents. The present "schedules," with all their difficulties, are left untouched, so that it cannot be regarded as final legislation on the subject, even should it be passed. Should it be proposed to revise these under the power of modification given to the Commissioners of Works, it will produce, with the *two* Acts, and the various existing modifications, such a lengthened and complicated body of laws, that builders will not know what they may do, and what they may not.

ARCHITECTURAL SOCIETIES.

Oxford Society.—At a meeting on the 26th ult. the secretary read the report of the committee announcing the usual number of applications for advice, and detailing the particulars of an excursion which it was proposed to make on Whit-Tuesday to Didcot, Faringdon, Uffington, Sparsholt, &c. for the purpose of examining the churches. Mr. Eld read a paper on the ancient guilds of this country, tracing their origin in Saxon times and the rules by which they were then governed. He afterwards gave an account of the same kind of brotherhoods which became so very numerous in the reigns of Edward III. and Richard II. adding instances of their internal regulations in London, York, Leeds, Birmingham, Stratford-on-Avon, Warwick, Coventry, and other places, and concluded by contrasting them with the benefit societies of the present day.

Yorkshire Society.—Last week this society examined St. John's Church and St. Thomas's Church, in Leeds, both of which have been lately erected, and examined the architectural designs of both edifices. At a meeting afterwards, the Rev. Dr. Hook, on taking the chair, remarked that if, at any time, an architectural society were a valuable institution, it is especially so in an age like our own, which has, to its disgrace, no style of its own. The future historian will have to record that there exists, so far as the church is concerned, no architectural style of the nineteenth century. We have been building churches for the last half-century, but instead of considering our requirements, and building churches adapted to the liturgy of the nineteenth century, we have been servile imitators of the churches of the fourteenth century. Our successors will hold us in derision when they record that to meet the wants of the reformed liturgy we built churches on the model of those erected to meet the wants of the unreformed liturgy. It is time that we begin to act on sounder principles. The examination of the ancient churches is important, for all new principles to be correct must be based on old principles: modern civilization is closely connected with ancient civilization, and historical investigation and antiquarian research are necessary as well as independence of thought. Still the time he had hoped was come, or was coming, when architects would refuse to become mere imitators, and would give full play to their genius and their powers of invention in adapting buildings to our existing wants.—A paper by Archdeacon Churton was then read; also, papers by Mr. Dykes, "On the History of Church Arrangements;" and by Mr. Spark, "On the Position of Choirs and Organs in Churches."

Bedfordshire Society.—A meeting of this Society was held on the 25th ult. when a paper, by Captain Smythe, on "Tradesmen's Tokens," was read. A paper, by Mr. Griffith, was afterwards read, containing "Suggestions for a more perfect Period of Gothic Architecture." His view was that a new style might be formed upon geometrical principles—by a combination of regular figures; and that all decoration should be taken from forms in nature, chiefly from flowers and foliage of plants. A paper, by Mr. J. Tacey Wing, on Elstow Church, concluded the proceedings.

COMPETITION AMONG BUILDERS.

STATE OF THE TRADE.

IT is admitted on all sides, and I believe by nearly all connected with the building trade, that competition has reduced it to a degrading and miserable condition,—a condition in which no doubt all trades in their present bearing are more or less affected. To such a state has it come, that the stability of trade seems to be undermined altogether, and unless some vigorous and decisive steps are taken to endeavour, if possible, at least, to check its procedure, a state of depression almost without a parallel must be the result. It is nothing less than gambling, and of so bad a nature that the dice-box or the thimble-rig cannot surpass it. It is a monopoly raging without a bound—an act of a most desperate suicidal kind. Could it but be seen and felt in its true light, and its baneful effects unveiled, every honest and benevolent man—every man of a philanthropic nature—would turn from it with disgust and contempt. No man who had at heart the well-being of his fellows and a love for his children, and a desire for their future prosperity and happiness, but would at once use all his powers of body and mind to exterminate so fatal a disease. The present age is assuredly one of monopoly; a struggle of might against right,—a struggle of the rich and overbearing against the weak and the lowly,—a struggle of oppression against freedom, which, if continued in, will in the course of time produce, I firmly believe, the most disastrous results. We know for facts, that in our trading firms the rich and the noble, though kept in the back ground, are in reality partners. We say this without fear of contradiction: against such is it possible to compete? Can a man of small trading be satisfied, or can he obtain a livelihood upon 2½, 3, or 5 per cent. with which his more powerful opponents are? (*for a time*). Can he contend against such? It is impossible. His amount of business may be confined within a few hundreds, while theirs exceed tens of thousands. When we hear of one man keeping his six, ten, or perhaps twenty shops; when we hear of another not satisfied with dealing in his own particular branch, but combining a multitude of branches under one roof; common sense tells us the little tradesman must sink. What happiness would there be were trades confined within reasonable limits—what better pay for services rendered—what honesty then that does not now exist! But to the building trade: regarding it I would suggest two or three ideas, and which I know will be approved by many who read your journal should you think them worthy of your pages.

I object to the present system of furnishing quantities when taken out by one surveyor. It gives an opportunity to unlimited competition when tenders are advertised for, which seems to be getting a prevailing fashion, and one against which I think builders should set their faces. Were each person tendering called upon to take out his own, instead of ten, twenty, and thirty competitors we should find but four, five, or six. Can we wonder when we see building works advertised, and quantities supplied indiscriminately to all who may enter the lists (no matter who they be),—can we wonder when we read of one man offering to perform certain works at 1,000*l.* the value of which is really 2,000*l.* and finding some other wiseacre asking 3,000*l.*; can we wonder, I say, at such things under the present system?

This is one of our great evils of contracting. There are many that time will not permit me to dwell upon were I inclined, but I will slightly touch upon another. It is the abominable system of "cubing." Was ever anything more preposterous than to find a man cubing the dimensions of a certain building, perhaps a workhouse, or hospital, at a certain price per foot, and cubing another building filled with ornamental work, or fittings, of a somewhat expensive description; and allowing, at guess, an extra farthing or halfpenny per foot, regardless of rhyme or reason, and upon this alone supplying an estimate? I repeat, it is not to be wondered at, under such circumstances, that discrepancies occur; but there are a multitude of other things that I cannot mention here, things contrary to arithmetic, common sense, or argument. It is a matter of surprise, it is the continual talk, that a body of good, substantial men in the trade do not form a society, and form rules for regulating the trade. It wants but a spirited beginning, and, before many months, I feel satisfied, great results would be arrived at. I believe that, if but fifty were publicly to give out their determination to adopt some plan for the improvement of the trade generally, before one month the members would be increased to 500. WALTER.

ON THE ADMISSION OF DAYLIGHT INTO BUILDINGS, PARTICULARLY IN THE NARROW AND CONFINED LOCALITIES OF TOWNS.*

LIGHT has been reckoned by philosphers as by no means amongst the least necessary of the substances or influences which nature has provided for the proper development of the functions of animals, especially of those endued with rational faculties. Every rudimentary treatise on chemistry, physiology, or other branch of natural philosophy which touches upon the subjects of light or of organic matter, whether in the animal or the vegetable kingdom, connects the perfect development of the one with the full influence of the other.

Lavoisier writing in the last century states—"Thus much is certain; that plants which grow in darkness are altogether white, languid, and unhealthy, and that to make them acquire vigour, and recover their natural colours, the direct influence of light is absolutely necessary. Something similar takes place even in animals. Mankind degenerate to a certain degree when employed in sedentary manufactures, or living in crowded houses, or in the narrow lanes of large cities; whereas they improve in their nature and constitution in most of the country labours which are carried on in the open air." It is remarkable that this philosopher has placed light as an agent of health even before pure air, and the other sanitary requirements which are receiving most attention at the present day. But upon rational and moral beings there is doubtless a beneficial influence on the mind, *greater* and *more direct* than that upon the body; so that it may be safely alleged, that habitual existence with deficiency of light, whilst it cannot improve the intellectual faculties, is unfavourable to cheerfulness of mind, high standard of morals, and health of body.

This preface, short as it is, I almost feel to be unnecessary, before offering to your attention some remarks and suggestions as to some of the means by which architects may carry into practice in their buildings, especially in narrow and confined parts of towns, where most difficulties on this subject occur, a sure system of obtaining a sufficiency of daylight.

The objects to which this paper is limited are—firstly, to demonstrate the methods by which light, admitted through openings, may be estimated *proportionably* as to quantity and effect; secondly, by reference to existing buildings to endeavour to settle the numerical proportions obtained by such estimate into *definite* effects; and, thirdly, to suggest means where the definite effect so ascertained is too little, of increasing that effect, and of ascertaining the increase.

Scarcely any rules on this important subject have been laid down by writers on architecture. Such as they are, they will be in most

* Read at the Ordinary General Meeting of the Royal Institute of British Architects, May 17th.

instances deceptive, and it will even be safer to trust to one's general ideas of sufficiency than to such rules. Palladio, for instance, has said that the openings of windows should not exceed a fourth, nor be less than a fifth, of the length of a side of a room, and should be in height two and one-sixth times the width. Mr. Gwilt has given the nearest approach to a definite rule that I have met with, which is to allow 1 foot of glass to 100 cubic feet of room. The subject, evidently, requires a more exact system of computation; and I trust, that whatever may be your opinion of the system now proposed, you will, at least, pardon the attempt. Some matters which come into a full consideration of the subject (it will be seen) are not ascertained with that precision which will result, I think, from experiment, conducted, except in one instance, on the basis of the system now to be defined. They do not, however, prevent a practical use being at once made of the system. One of these is of importance and requires careful investigation—viz. the proportion of light which is absorbed in its passage through different kinds of glass at different angles of incidence. Crown, sheet, and polished plate-glass, allow almost all the light to pass. Rough plate and ground glass, including rough plate ground either on the rough side, or that which is fire-glazed, are as transparent in their substance as the others, and the only additional absorption of light which takes place is owing to irregularity in the refraction of rays at the surfaces, many of them being so refracted into the substance of the glass as to be partially or wholly absorbed. If, therefore, the respective action of the three surfaces, viz. rough, fire-glazed, and ground, on rays of light at different angles of incidence, were determined, a very approximate proportion might be found, showing the relative obstruction by all these different kinds of glass. Fluted and embossed glass of various kinds may be added to the list, though, if the flutings and embossments are flat, probably they do not intercept the light more than the glass first above mentioned.

In forming any estimate of the light to be derived in any place, variableness in the sources of light must not be taken into account, but provision must be made, especially in our climate, for sufficiency under ordinarily unfavourable circumstances. For this reason, a southern* aspect must be treated as a northern, and the zenith as the horizon; though in towns the former is often by far the purer source. The hemisphere of sky will, therefore, be considered as an equable source of light.

Methods of estimating the proportions of Light passing through one or more openings.

When a plane is exposed to a hemisphere of light, the incident light is equal in every part of it, and, therefore, every figure on that plane receives light in proportion to its area. We shall consider the case of rectangles, and from them (including squares) we shall obtain the proportion on the inscribed circles, ellipses, and other figures by direct proportion.

As we must examine the subject with reference to the obstructions to the incident light which ordinarily occur, we must therefore find a measure which will give us the quantity derived from every portion of that hemisphere. Now, *to* every point in a rectangle (so exposed to a hemisphere of light) a ray falls *from* every point in the hemisphere. Systematising these rays according to their parallel directions—they would form an infinite number of prisms of which the rectangle is the common base. The light, however, falling on the rectangle may be measured *proportionably* by estimating the proportion of rays falling on the vertical planes, passing through the middle of its length and width respectively.

The next class of obstructions to day-light consists of external objects. These are so various in their forms and characters, and often practically so difficult to measure, that no very precise rules can be laid down. In towns they are chiefly buildings which may be generally classed as either parallel or perpendicular to the wall of the window, or nearly so. If the buildings are opposite to a window, and nearly parallel to the wall of the window, the angular height of the buildings, taken from the middle of the window, would give the proportion of obstructed light, and then the sums of the sines must be taken only to the angle made with the perpendicular by the line from the middle of the window to the top of the opposite buildings. This will give the direct light. The reflected light from the buildings would be found by applying the formula to the remaining angular height of the buildings, multiplied into such a fraction as would represent the ratio of the reflected light to that of the sky.

But in all cases of objects which are distant, it will be easy to form a judgment of the upper line of that which may be considered as the intercepted *lune* of light, two-thirds of the side obstructions, measured spherically, being allowed to one-third of the opposite ones in forming the average. In practice, I think this method will be found very easy of application. When the buildings are near, and come within the scope of the architect's measurements, then the light will be accurately ascertained by reckoning the lines which form the outline of the unobscured portion of sky as the *outside* of the opening which admits light.* Where there is a roof, as of a portico or verandah over the window, the outside lines of the soffite must be considered to be the outside of the opening. Generally it may be remarked on this head, that accessible obstructions may be estimated by supposing them as parts of the sides of the openings—inaccessible ones being more distant, it is of less importance to estimate accurately.

Method of estimating effective light passing into a Room.

We have as yet considered the proportions of light passing through openings: it remains to inquire into the effect of the light in a room.† The distance to which light passes into a room after admission, though it makes no difference as to *quantity* (because exactly as the intensity of light diminishes, so the area of surface lighted increases, viz. as the square of the distances from the opening to the parts where it falls); yet, in practice, a room is found to be much better lighted when the light passes far into a room than when only to a short distance. This effect is caused, perhaps, first, by the eyes adapting themselves to particular lights by a slight alteration in their form, and thus, if a room be partially lighted, they adapt themselves to the stronger partial light, and the other parts appear more gloomy. The converse of this is shewn by the effect of sunlight produced at dioramas, &c. by the direct light from the sky contrasted with the darkness of the remainder of the room. The second cause is, perhaps, the better adaptation of the whole room to use when all is sufficiently lighted, than when part is lighter than necessary, and part too dark for comfort. There are probably no means of forming an exact estimate of the value of the distance traversed by light after admission before it falls on the surfaces of the room. The value certainly varies where the distance varies, but it also does not vary so rapidly as the distance. From this (and consideration of facts), I think the effect (though not the quantity) of light may be deemed to vary as the square root of the average distance through which it traverses a room. For ascertaining, then, the *effective* light, the numerical value of the proportionate *quantity* should be multiplied by the square root of the distance.

Little has been yet said with regard to the light reflected from external objects. These vary exceedingly, not only in the light or dark colours of the surfaces, but also in the quantity of light falling on the surfaces, both which circumstances greatly affect the quantity of light reflected from them. Where opposite buildings are very near to one another, they will be shadowed *by* one another; and, therefore, much less reflected light will result in such cases. Much may doubtless be done by having white or light-coloured surfaces, but perhaps no surface obtainable for a wall exposed to the open air can permanently reflect more than one-tenth of the light received upon it.

Method of ascertaining definite effects of Light.

A surer mode of lighting rooms in such places will be proposed below, and I will now pass to my second object, of endeavouring to settle the *numerical proportions* obtained by the above-mentioned processes into *definite effects*. Now the only means of coming to a result on this head is to show the numerical proportions which, on the basis of the forms of estimate before given, are found in different existing buildings. From our knowledge of the effect which we can perceive in such buildings, we may determine the number which should be assigned to rooms of different kinds for, say every 100 cubic feet in the room. At a future time, I hope to collect more examples than I have as yet been able to do; and till then I shall not attempt to settle those numbers for fear of misleading, but will only give the results in a few buildings where the estimates have been made, viz.:—

Pantheon at Rome.

Cubic contents (without side chapels)	1,889,873 ft.
Numerical value of light	9,003,507
Numerical value per 100 cubic feet.	476

Rotunda, Bank of England.

Cubic contents	126,477 ft.
Numerical value of light	1,933,023
Numerical value per 100 cubic feet.	1,500

New Drawing Office, Bank of England.

Cubic contents	201,240 ft.
Numerical value	5,879,250
Numerical value per 100 cubic feet.	2,922

Freemason's Hall, Great Queen-street.

Cubic contents	98,192 ft.
Numerical value	2,136,922
Numerical value per 100 cubic feet.	2,170

Great Hall, Euston Terminus.

Cubic contents	483,730 ft.
Numerical value	5,275,452
Numerical value per 100 cubic feet.	1,090

Means of obtaining additional light where definite effect is too little, and of estimating the additional effect.

This object, the third proposed, may be obtained by the use of reflectors. Very little use has hitherto been made of this expedient, and this is probably owing to the difficulty (often the impossibility) of placing a reflector so that it will be, at the same time, in a proper position for reflecting the light to particular parts, and yet neither obstructive nor unsightly; and to the difficulty of regulating any such reflector, and of obtaining reflectors which will not be injured by the sun, the weather, and the atmosphere of towns.

A single reflector may generally be placed on either the outside or inside of a window or skylight, so as to throw the light from the (perhaps small) portion of sky which remains unobscured over head, to any part in which more light is required. But besides the objections already mentioned to a single reflector, there is also a considerable loss of side light, either by the reflector, if within the window, being partly obscured by the window-jambs, or if without, by its reflecting part of the side light against the outside of the wall, and not into the room. All these difficulties may be overcome, in almost every case, by, as it were, cutting up the single reflector into strips, and arranging them one above the other, either in the reveal of the window, or in some other part where it will not interfere with ventilation or the action of the sashes. These combinations may be arranged horizontally, vertically, or obliquely, according to the positions of the centre of the unobscured portion of sky, and of the part into which the light is to be thrown, and according to the shape of the opening in which the combination is to be placed.

ROBERT HESKETH.

* A southerly aspect should be considered as desirable, not so much in respect of light as of warmth, and of the enjoyment we, in our dull latitudes, derive from an occasional gleam of brightness. The regulation of such light is more fitly effected by blinds and curtains than by structural provisions.

* This was illustrated by reference to a diagram.

† The difference occasioned by the manner in which a room is to be coloured or furnished cannot form the subject of any rule, but must be taken into account by estimating the effect of light in existing examples of various classes of rooms.

TERMS OF SPECIFICATIONS AND CONTRACTS.

Chalk v. Brown.

This action, brought in the Brompton County Court, to recover 12*l.* is one of some importance to parties contracting.

The plaintiff is a plumber and glazier, and defendant is a builder, of Turnham Green, but was sued in his capacity of churchwarden of St. Paul's Church, Hammersmith, for extra work done over the contract entered into.

The plaintiff said, he with others sent in estimates for work required to be done at St. Paul's Church. That his estimate was accepted. The specification, amongst other items, required the contractor to paint *outside* the church.

After performing his part of the contract, the defendant gave him orders to paint the churchyard railings, but was not to give more than two coats of paint, as there was such a small rate for repairs.

The contract and specification were here put in as evidence. The specification drawn out by Mr. Brown, mentioned the iron railings, whilst the contract written from it, and signed by the parties, bound the contractor to paint outside the church. A long argument took place upon the point, plaintiff's solicitor (Mr. Roberts), contending that the precise words of the contract should be binding, whilst defendant's solicitor (Mr. Bird), argued that the specification was as much a legal instrument as the contract; and that although the contract omitted the churchyard railings, the tenor of the specification could alone be construed.

For the defence, Mr. Brown said, when Chalk's estimate was accepted, he told him that the iron rails were to be part of the contract. He considered Chalk's claim outrageous, as all the other estimates sent in included these rails. Considered the matter so simple, and that Chalk fully understood what he was to do, that it was needless to embody the iron railings in the contract. Has never said plaintiff ought to be paid for it.

Mr. Saunders said his tender in competition was 16*l.* 10*s.* which included the iron railings.

Mr. Bean, a surveyor, said, with respect to the words painting outside the church, and painting the churchyard railings, he, in drawing a specification out, would have been more particular with the items. He should consider that a specification to paint outside the church, would include the church railings.

The Judge said, he thought it was a very nice question. The specification written by defendant, mentioned these very rails, whilst the contract signed alluded vaguely to them by merely agreeing to paint the outside of the church. The Surveyor, who was called, gave it as his impression, that outside the church included the churchyard railing. He thought in the absence of any other professional demur to this view, that the defendant was entitled to a verdict.

Verdict for defendant and costs.

RATING RAILWAY STATIONS.

North-Western Railway Company v. the Poor-Rate of St. Pancras.

On the 7th ult. an appeal was heard before the assistant judge, Mr. Serjt. Adams, against a rate of 34,331*l.* on the stations, line, and buildings in St. Pancras parish. Under an arbitration, the amount had been fixed at 16,351*l.*

Mr. Hammack, when examined, said, he estimated the rateable value of the company's property in St. Pancras at 12,594*l.*

Cross-examined.—He had valued the buildings with regard to their public utility as a great railway establishment, and had fixed such a rent to each building as, if the company were disposed to let them to a tenant, they would realise by the year. He did not consider profit an element to be taken in estimating rateable value, as one person might earn a very large profit on a set of buildings, whilst another person might fail. He had looked at these buildings, as to what they were worth, as between tenant and owner, and he had taken a view most favourable to the parish. He had not in any way taken into consideration the earnings of the railway. He had not estimated, with reference to the considerations which would influence a tenant in taking a lease of the whole concern. He had merely taken them at a rental value, and had not considered the cost of construction. He had not given any consideration as to what principle a mile of the railway out of the parish should be rated on, with reference to the buildings in Euston-square.

Mr. George Smith, surveyor to the Mercers' Company, Mr. J. Allanson Picton, of Liverpool, and Mr. Philip Hardwick, gave similar estimates, formed on the same data. They agreed that the principle was a just and proper one.

It was admitted that the average annual earnings of that portion of the line in St. Pancras was 10,229*l.*

Mr. G. P. Bidder, C.E. was examined with reference to the expenses chargeable to the 10,229*l.* earned by the railway in St. Pancras. He showed that when these expenses were deducted, 1,097*l.* were left as the rateable value.

Mr. Penfold, Mr. C. Lee, and Mr. Gregory, were examined in support of the assessment for the parish. It was made on an estimate of the original cost of the works, and on an average of the earnings of the whole line.

The Assistant Judge said they found that the annual rateable value of the stations at Euston-square and Camden-town, taken upon the principle of what they were worth per annum, to be occupied for the purposes of a railway, was 12,718*l.* and that the annual rateable value of the portion of the line in the respondent parish, as the net proportion of its earnings to the earnings of the whole line, was 4,199*l.* and the Court fixed the assessment of the company at 16,917*l.* The principle set up for the respondent parish was one that could not be maintained. The stations must be assessed at what they would let for, but the portions of the line must be assessed on their proportion of the profits. If the parish were not satisfied with this decision, the Court would grant them a case for the Court of Queen's Bench.

Notices of Books.

Ancient Gothic Churches, their Proportions and Chromatics. Part III. By W. Petit Griffith, Architect, F.S.A. London, 9, St. John's-square. 1852.

Mr. Griffith, in this part of his work, has given a chapter containing documentary evidence and opinions in favour of the theory, that geometry regulated architectural design in the ancient and mediæval times. These are collected from a variety of sources with great industry, and serve to show the prevalence of the impression, to call it nothing else. Of themselves, however, they are more curious than conclusive: we can look to the buildings remaining, and there the proof is clear. There can be no question whatever that the mediæval churches at all events were constructed by the multiplication of a given *unit*, and that geometrical principles regulated all their details. M. Remée has pointed out a curious relation between the number of bays into which the nave of Gothic churches is longitudinally divided, and the exterior and interior divisions of which the *apsis* consisted; so much so indeed, that from the number of sides of the apsis in the German churches, the number of bays in the nave may be always predicated.

In the Appendix to the second edition of "The Encyclopædia of Architecture," recently mentioned by us, the writer says:—

"In respect of nonagonal termination, the most extraordinary instance of a coincidence with the rules laid down by the governing lodges, occurs in the Duomo of Milan, commenced at the end of the fourteenth century, and completed (the western front excepted) towards the end of the fifteenth century. However impure its details may appear to the rigid, it is nevertheless a monument of stupendous effect, and was doubtless the result of high refinement in the lodge which superintended its execution. Its apsis is formed by three sides of a nonagon, and the bays in the nave are nine in number. One-third of the arc contained under the side of an equilateral triangle, seems to be the governing dimension. The number three, submultiple of nine, pervades the structure. There are three bays in the choir, and the like number in the transepts. The vault of the nave is subtended by an equilateral triangle. The lower principal windows are each designed in three divisions, and in a transverse section of the nave, the voids are just one-third of the solids."

To return, however, to the book before us:—

Let us take some of the examples ingeniously worked out by Mr. Griffith. In King's College Chapel, Cambridge, the apex of the first triangle gives the height of the cill of the window, the second triangle the position of the transom, the third the height of the columns, and the fourth the exact height of the compartment at the summit of the groining. The length of the building is limited to twelve bases of the same equilateral triangle: the entire width is four times the altitude of the triangle.

Westminster Abbey, Lincoln Cathedral, Hereford Cathedral, Salisbury Cathedral, all offer illustrations of this mode of proportioning. In Sefton Church, near Liverpool, an equilateral triangle, the base of which extends from centre to centre of the side walls, regulates the whole in a remarkable manner.

Mr. Griffith adds an interesting chapter "On Architectural Botany; setting forth the geometrical Distribution of Foliage, Flowers, Fruit, &c." and this he has published also in a separate form.

A Concise Treatise on Eccentric Turning: to which are added Practical Observations on the Uses of the Eccentric Cutting Frame, the Drilling Frame, and the Universal Cutting Frame: illustrated by Figures and Eccentric Patterns, with full Instructions, &c. By an Amateur. Pelham Richardson, Cornhill, London. 1852.

The object of this volume is to give a few practical instructions to beginners who know something of the use of the less complicated lathes for eccentric turning. Although it would not be very consistent with our general ideas to recommend a serious devotion to the production of geometrical and fancy patterns in ornamental art by turning, still as an occasional amusement, turning is one likely to induce a love of art in general, and itself requires some taste and tact in execution, while it may also exercise the inventive faculty. The book is nicely got up.

Miscellanea.

Gas in Rome.—We mentioned a long time since, that arrangements had been made by an English company with the municipal council of Rome, for lighting the Eternal City with gas. Numerous obstacles have interposed to prevent the consummation of the scheme up to this time, but, through the perseverance and energy of Mr. Shepherd, the engineer, these have all been overcome, and the works will, we believe, be forthwith commenced under his directions. An account of the difficulties which have beset the attempt from first to last would be interesting and instructive. Mr. Shepherd has already successfully effected the lighting of several continental towns, and we cordially wish him success in his present undertaking.

Railway Accidents.—I am not so sanguine as G. M. seems to be of the "conviction" that lateral oscillation is to be overcome, at least during the existence of the present system of locomotion. If G. M. or any other man can devise a means of counteracting this hitherto uncontrollable accompaniment of a railway train at high speed, I would congratulate him upon his valuable discovery. I can fully agree with G. M. that the breaking of the tyre in the instance quoted, is not to be attributed to atmospheric influence. It is known that the intermittent concussion that railway-work subjects them to, has a tendency to crystalize and so deteriorate the quality of either steel or iron. My object in intruding on your space is, to suggest a means of mitigating the melancholy consequences that almost invariably attend the least mishap to a locomotive at high velocities. What I would propose is, that to the tender of every locomotive there should be attached a self-acting contrivance, which would, by virtue of its construction, detach itself at a given angle, and not drag the carriages with it down an embankment or other equally objectionable place.—W. M.

The Crystal Palace at Sydenham.—We understand that the various styles of architecture, instructively serialized, are to be used in the ornamentation of the grounds. Fountains of considerable importance are contemplated, and a collection of full-sized figures, representing the 120 divisions and subdivisions of the human race, prepared according to the classification of eminent ethnologists, and each placed in an attitude and situation suggestive of the habit of his race.

WATERWORKS AT AMSTERDAM.—The report presented by the directors to the shareholders of the Duin-Water-Maatschappy, on the 19th ult. says, "Owing to the very mild winter the works at the 'Orange' reservoir, or gathering basin, in the hills at Leiduin, beyond Haarlem, have been vigorously and uninterruptedly proceeded with since the first sod was turned by the Prince of Orange on the 11th November; and at the present time 80,000 cubic ells have been excavated from this basin, which is to be capable of containing 35,500,000 gallons. The canal into the hills, which is to connect this with the other basins to be formed in the Zwartefeld and Rozewater valleys, has also been commenced. The excavations for the engine-house foundations are in progress, and will shortly be ready for the masonry. The laying of the main pipe towards Amsterdam is proceeding with great rapidity, 2,583 yards being already in the ground; and the directors have the assurance of the contractors that the main will be completed, and the water, consequently, delivered to Amsterdam in the course of the ensuing winter. The great drought which has prevailed of late has served to prove the supply of water to be derived from the springs in the Haarlem hills to be inexhaustible.

THE IRISH EXHIBITION BUILDING AT CORK.—The principal, or fine arts court, is 177 feet long, and the dome is 53 feet span and 50 feet in height. The arch of the dome will have a moulded cornice, decorated with shields and banners, supported on retiring columns backed with crimson drapery. The roof is supported by 16 semicircular laminated ribs, resting on cast-iron pillars. The end of the hall is semicircular. The organ is now in course of erection there, and in the centre a pyramidal fountain is being constructed. Six purlins run the full length of the building. Between the main ribs, and abutting on the purlins, are intermediate smaller ribs, which carry the sheeting. An unbroken line of roof-light, 14 feet wide, glazed with 21-ounce glass, running the entire length, surmounts the whole. On either side of the hall are two galleries, each 150 feet long by 30 feet wide. It will be approached from the northern hall by a vaulted arch 40 feet high and 18 feet wide, supported on ornamental pilasters, with figures on pedestals at either side. There are also two squares of sheds, now being covered in and floored, each 110 feet by 85. These are for the reception of raw materials, machinery, carriages, and heavy goods. A steam-engine to keep the machinery in motion will adjoin this building. The whole available space of the exhibition buildings presents a superficial area of 42,525 feet. The banquet-hall will be 90 feet long by 53 feet wide, and 40 feet high, supported by columns decorated with banners and festoons in the French style, and lighted by 10 chandeliers. Attached will be the drawing-room, 150 feet long by 30 feet wide, with a vestibule or entrance-hall fitted up in the style of a Turkish tent. They will be lit with gas; and immediately adjoining will be a kitchen, with cooking range, pipe water, servants' rooms, and retiring-rooms. They will be entirely apart from the exhibition buildings, and will be approached by a separate carriage-way from the main entrance. The executive committee are likely, according to our authority, the *Cork Constitution*, to open the exhibition with money in hand.

BELFAST SCHOOL OF DESIGN AND EXHIBITION.—The report of the annual meeting on 26th March has been published, with Lord Dufferin's eloquent speech, to which we referred at the time, in full. The financial condition of the school seems satisfactory. Testimony is borne in the report to the exertions of Mr. Nursey, the first master.——At the exhibition of works of art, pictures to the amount of 517*l.* have been sold.

IMPROVEMENT OF PARIS.—The Municipal Council of Paris, at its sitting on Friday last, voted a sum of 12,000,000f. to complete the purchase of the buildings necessary for the construction of the Rue de Rivoli. This sum, with a further sum of 11,755,408f. will be paid out of the late loan of 50,000,000f. negotiated by the city of Paris.

TRINITY CHURCH, NEAR VAUXHALL-BRIDGE, was consecrated on 25th ult. It has been erected at the expense of Archdeacon Bentinck, cost about 12,000*l.* and is cruciform in plan, with nave, aisles, north and south porches, transepts, side-chapels, chancels, vestry, with choristers' robing-room over, and central tower and spire, the height of which is near 200 feet. There is a parapet to the tower, with crocketed pinnacles at the angles, and angels bearing trumpets for the finials; and at the point in the spire where the broaches terminate, are niches containing figures of the Evangelists. According to the newspapers, the walls are built of Bargate stone, with Bath stone for the windows, arches, doorways, &c. The roofs are open-timbered: the principal rafters of the nave rest on foliated corbels, and at the intersection of the labels to the nave arches, are statuettes of angels standing on foliated corbels. The entire length of the church is 125 feet; width of nave and aisles, 38 feet; height of nave, 50 feet; width across the transept, 71 feet; the chancel, 42 feet by 29 feet 9 inches wide. The pews are open, and will accommodate about 800. The chancel is paved with encaustic tiles. There is a sedilia with three seats, and a credence-table on the opposite side. The pulpit is of Caen stone, with columns of Devonshire marble. The style of architecture is the Early Decorated.

BISHOP OF LONDON'S HOUSE.—A writer in *Notes and Queries*, in reply to an inquiry says—In the Wards of London, by H. Thomas, 1828, we are told that—"The great fire of London having destroyed the palace of the Bishop of London, which was near St. Paul's Cathedral, this house (Peter House, which stood on the west side, about the middle of Aldersgate-street) was purchased for the city mansion of the prelates of the diocese, one of whom only resided there,—Bishop Henchman, who died there, and was buried at Fulham, A.D. 1675. It was then called London House, and, being subsequently deserted, was let out into private tenements until 1768; when it was entirely destroyed by fire while in the occupation of Mr. Seddon, an upholsterer and cabinet-maker." A large brick building now covers the site, and retains the name of London House. It is occupied by Mr. H. Burton, builder. In the work above quoted I find no mention of a residence of the Bishops of London in Bishopsgate. I therefore conclude that the one I have alluded to is that respecting which your correspondent wishes to learn.

DEPARTMENT OF PRACTICAL ART.—Classes for the study of specialties are now being formed at Marlborough House, and the arrangements are already completed for the class of artistic anatomy, to which Mr. Townsend has been appointed professor, he having had the superintendence of the same class at Somerset House. The means of study are much more commodious than at Somerset House, there being separate rooms for the drawing, painting, and modelling classes. The classes opened on Tuesday last, and there were a considerable number of applications by students. Those who have passed through the classes at Somerset House, and are reported as competent, are privileged to attend at less than half the fees paid by strangers. We understand that the next classes which will be ready for opening, are those for the drawing of practical construction and architecture. At present there is hardly any school where the carpenter or mason who has to make a moulding, can acquire the art of drawing a section of it. Mr. C. J. Richardson will have the superintendence of these classes.

UPTON BRIDGE COMPETITION.—The nineteen designs sent in for this bridge were submitted to Mr. James Walker, C.E. who has recommended the premium (25*l.*) to be given to the author of the plan signed "Tubular." The committee have adopted this recommendation, and we understand have appointed the author, Mr. Alfred Giles, to carry out his design.

DECORATION OF HEARSES.—Mr. Rogers has recently executed four carvings in wood of the *via crucis*, for the decoration of a hearse, to be used in Manchester.

ETIQUETTE AMONG BUILDERS.—Will you be kind enough to print the following letter from a builder to my employer, *on being asked by the latter for a tender?*—May. — A. B. begs to know the time that Mr. C. will see him, and by giving notice to that effect, Mr. B. will be happy to attend to inform him that there is more difficulty in the work according to the plan proposed. It can be done cheaper than by working by the surveyor's plan: the pavement would be better laid in concrete than the wood plan. To have an interview and propose an additional plan for the purpose of giving more satisfaction, and the work likewise to correspond with the house, Mr. B. will be most happy to be Mr. C.'s obedient servant at any time he may think proper to appoint." What is the proper course to pursue, if my employer allows himself to be persuaded?—THE SURVEYOR, who happens also to be an Architect and Engineer.

ELECTRO-TELEGRAPHIC PROGRESS.—The Irish sub-marine line of telegraph, by Portpatrick, is in progress of formation. Betwixt Dumfries and Carlisle the line will run along the turnpike road.——The Magnetic Telegraph Company, it appears, have completed their communication to Wigan, Bolton, and Manchester, on the Lancashire and Yorkshire Railway. Arrangements are making to connect by it Bury and Preston; and, ere long, London will be reached by it, probably on the Great Northern line.

ACCIDENT AT LIVERPOOL CORN EXCHANGE.—A serious accident, attended with fatal results, occurred on the 1st inst. by the failure of some arches on which the new Corn Exchange, at Liverpool, is constructed. We defer notice of it until we have particulars that may be relied on.

ST. ALPHAGE PARISH CHURCH, LONDON WALL, is now undergoing repair, together with the vestibule, tower, approach, &c. The fittings for communion, pulpit, and desk are to be new; and the church is to be lighted with gas, under the direction of Mr. J. B. Watson, the surveyor to the parish.

CITY IMPROVEMENTS.—It is under consideration to run a new street, sixty feet wide at least, parallel with Old Change, down to the river side, and in a direct line with the east side of St. Paul's churchyard, and to throw a new bridge across the Thames, to be communicated with by the proposed street. The cleansing of the streets on the "continuous cleansing system," at an extra expense of 7,000*l.* a year is also spoken of.

CAST-IRON CARRIAGE-WAYS.—We have had various suggestions on the subject of cast-iron carriage-ways since our notice of last week. Amongst others a Southsea correspondent, Mr. H. Laurence, suggests the formation of cast-iron plates, or gratings in the form of a honeycomb, the interstices filled nearly to the surface with cement, asphalte, or some material that could be reduced as the iron wore away, or replaced if necessary. The plan of each plate, he adds, might be a triangle, supported on three points upon good timber sleepers, the joints running diagonally to the line of street, or stone bearings, sufficient metal being left on the underside to insure strength and retain the filling-in material.

TENDERS

For rebuilding a house in St. Marylebone. Mr. Wm. Hudson, Architect.

Clemence	£1,375	0	0
Locke and Nesham	1,285	0	0
Lindsay	1,279	0	0
Pritchard and Sons	1,097	0	0
W. Lawrence and Sons	1,082	0	0

TO CORRESPONDENTS.

"E. L." "Mr. H." "Mr. G." "Mr. L." "G. W. S." "W. C. J." "W. S." "B. & M." "C. L. N." "T. S." "C. S. A." (we cannot comply), "E. H. M." "A. C." (declined with thanks. Left at Office.) "A Magistrate" (ditto), "E. T." "S. and T." (under our mark), "A." "W. R. G." (thanks), "G. W." (thanks), "W. B." "J. L." "S. M." "A. R." "H. W. R." "W. S." "G. W. R." (thanks), "J. M." "J. W." "J. J."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

SCHOOL of ART for ARTIST-ARTISANS, and MUSEUM of MEDIÆVAL ART, Canon-row, Westminster.

PATRON.
The Right Rev. The Lord BISHOP of LONDON.
VISITING COMMITTEE.

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Benjamin Ferrey, esq.	R. Henry Wyatt, esq.

Francis C. Penrose, esq. Hon. Sec.
G. Gilbert Scott, esq. Treasurer.

This School opened on Monday, the 31st of May. Those wishing to join either of the Three Classes, are requested to visit the School, where prospectuses and all particulars may be obtained. The Architectural Professor is also invited to inspect the Museum. C. BRUCE ALLEN, Architect, Director.
June 3, 1852.

TO ARCHITECTS & WRITERS ON ARCHITECTURE.
THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publications of Works of the above description.
Office of "The Builder," 1, York-street, Covent Garden.

AN ARCHITECT and SURVEYOR in one of the principal towns in Lancashire, who has been in the profession nearly twenty years, is desirous of meeting with a clever business PARTNER.—Address M. A. B. Office of "The Builder," 1, York-street, Covent-garden.

TO SURVEYORS AND LAND AGENTS.
PARTNERSHIP.—A Gentleman of twelve years' practical experience desires to enter into Partnership with the above. He is willing to take the entire acting part; or, to any one wishing to retire from business, a premium would be given for a really good and increasing practice. The country preferred. —Address, F. H. A. 33, Newington-crescent, Kennington-road.

PARTNERSHIP WANTED.—A young ARCHITECT and SURVEYOR, of energetic business habits is desirous of uniting in PARTNERSHIP with a Gentleman having a well-established and increasing practice. Principles only will be treated with.—Address X. A. Office of "The Builder," 1, York-street, Covent-garden.

PARTNERSHIP.—WANTED, a PARTNER, either active or sleeping, having the command of Capital to carry on an old-established PAINTING and HOUSE DECORATING BUSINESS, of which the Advertiser has had the management for many years. The original Premises can be obtained, and a portion of the excellent connection is now possible to be retained by the Advertiser, who for some years superintended the internal decorations of two of the Royal Palaces; and he is in every way qualified to conduct a large Business. References will be given and required. Address, by letter (in the first instance), to ALPHA, 364, Oxford street.

TO TIMBER MERCHANTS AND BUILDERS.
PARTNER WANTED, in an old-established business in the trade of TIMBER MERCHANT and BUILDER.—A gentleman, having from £1,000 to £2000 to invest, either immediately or in a few months, will be admitted to all the advantages of an excellent connection, with the experience and local knowledge possessed by the advertiser, who has, in conjunction with his late partner, successfully carried on the business for the last sixty years upon premises peculiarly well adapted for the purpose, being immediately contiguous to two railways, a branch from one of which running into the works. The above affords a favourable opportunity for the investment of capital, with every prospect of a large return.—For further particulars, address (with real name) by letter, prepaid, to A. B. at George Bowers's, esq. solicitor, 6, Tokenhouse-yard.

WANTED, a BUILDER'S FOREMAN, capable of taking the superintendence of the Erection of Farm and Building.—Apply at 14, Osnaburgh-street, New-road, between nine and ten.

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WANTED immediately, TWO WORKMEN, accustomed to Painting in the Ancient Style.—Apply, post-paid, to W. HOLLAND, Stained Glass Works, St. John's, Warwick.

TO PARENTS AND GUARDIANS.
WANTED, in an Architect's Office, in an important provincial Town, a YOUTH as APPRENTICE. The business being of an extensive and varied character, this forms an excellent opportunity for any one desirous of becoming conversant with the Profession. A premium required.—Address H. T. B. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, by an ARCHITECT in the Country, a TURNOVER PUPIL, or other Young Gentleman, whose opportunities of improving himself would be considered equivalent, or nearly equivalent, to his services.—Address, M. T. B. A. Messrs. Brown and King's, Wholesale Stationers, 330, Upper Thames-street, London.

A PUPIL WANTED by an ARCHITECT in the Country; he must be a well educated, intelligent youth and possess a taste for drawing.—Apply by letter, to T. G. B. Post-office, Market Harboro'.

PUBLIC BATHS and WASHHOUSES.—All Saints, Poplar.—The Commissioners for Public Baths and Washhouses in this Parish will meet at the Town Hall, Poplar, on WEDNESDAY, the 9th June next, at five o'clock in the Evening precisely, to receive APPLICATIONS from parties, in their own hand-writing, accompanied by testimonials, to FILL the FOLLOWING OFFICES (in the above Establishment, viz.: a Superintendent; a Matron, being the wife of the above, and both between the ages of 30 and 45; an Engineer; a Male and Female Money-taker. The Salaries and Duties required may be known on application at the Town Hall aforesaid, between the hours of ten o'clock in the forenoon and two o'clock in the afternoon. CHARLES C. CEELY,
Town Hall, Poplar, May 28, 1852. Clerk to the Commissioners.

ST. LEONARD, SHOREDITCH, Middlesex.—TO SURVEYORS.—The Trustees for Paving, Cleansing, and Lighting the parish of St. Leonard, Shoreditch, in the county of Middlesex, will meet in the Vestry Room of the Parish Church on Thursday, the 17th day of June, 1852, at Six o'clock in the evening, to APPOINT a competent person, being a householder within the parish, and whose residents are not less, but there has not been any suitable supply of sites suitable for building purposes until the present time. The proprietors of the Branksome Estate, which comprises both sides of the Bourne Valley to the extent of more than two miles in length, are now prepared to OFFER to the public most eligible SITES for BUILDING, either immediately contiguous to the very spot selected for the Sanatorium, or in its neighbourhood, or at a greater distance from it, as may be preferred. Roads have been formed, and various other important improvements have been made, and one now in progress, for bringing into notice the capabilities of this lovely locality, which for all purposes of health or enjoyment is not to be surpassed in England. For further information apply to Messrs. WINTER, WILLIAMS, and Co. Solicitors, 18, Bedford-row, London; or 1, Richmond-terrace, Bournemouth, near Poole

SEVERAL good JOINERS WANTED.—Apply to Messrs. MARGETTS and EYLES, Oxford.

TO CARPENTERS AND JOINERS.
EXPERIENCED WORKMEN may meet with CONSTANT EMPLOYMENT on the above branches. Also a STAIRCASE-HAND, CABINET-MAKER, and UPHOLSTERER WANTED. None but first rate sober workmen need apply.—Address (stating particulars) B. DALES, Jun. Builder, &c. Eastgate, Louth.

TO PLUMBERS, PAINTERS, AND GLAZIERS.
WANTED, in the Country, a Three-Branch Hand, who must be a good Plumber. To a civil, obliging, and active Man, who is of sober and good habits, the Situation is hoped to be permanent.—Apply in own writing, stating age, references, and wages, to T. 95, Snow-hill, Birmingham.

WANTED, a SITUATION as CLERK of WORKS, or BUILDER'S FOREMAN, by an experienced person. Good references can be given.—Apply to A. B. No. 7, Queen-street, Grosvenor-square.

TO BUILDERS AND CARPENTERS.
WANTED, by a Young Man, aged 17, a Situation as an APPRENTICE with a BUILDER, who will receive him into his house. A moderate premium will be paid.—Apply to Messrs. CROSS and SON, Wisbench.

TO ARCHITECTS, BUILDERS, &c.
WANTED, by a Practical Man, a SITUATION as FOREMAN of CARPENTERS, or to take charge of a Building in Town or Country. Good references can be given.—Address Y. J. at Mr. Barnes's, 49, Upper Marsh, Lambeth.

TO PLUMBERS AND BUILDERS.
WANTED, by a Young Man, for a Permanency, a SITUATION as Three-Branch Hand in the above line. He well understands the ornamental church glazing; can have a three-years' character from his late employer. Address G. M. 24, Priory-street, Camden New Town.

TO PAPERHANGERS AND DECORATORS.
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TO BUILDERS AND OTHERS.
WANTED, a SITUATION (in town or country), for the whole or part of his time, by a thorough BUILDER'S ACCOUNTANT and BOOKKEEPER of experience in preparing and pricing the trade's charges; is also producing prime coat of works, however extensive. (And if progressive, weekly, if required.) —Address, A. C. 54, Westminster-bridge-road, Lambeth.

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A BRICKLAYER of great experience, who understands Gauge-work, Grooving, Tuck Pointing, and the setting out of Brickwork, wishes for CONSTANT EMPLOYMENT. No objection to the country. Unexceptionable references.—C. D. 4, Somerset-place, Lansthorne-street, Stratford, Essex.

THE Friends of a highly respectable Youth wish to bind him as an IN-DOOR APPRENTICE to a CARPENTER and BUILDER. References given and required.—Address, p.p. stating premium required, to Mr. J. S. FURBER, 4, Ludgate-street, City.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEALS to imitate OAK, MAHOGANY, or SATINWOOD colours. For specimens of the effects of these Dyes, the public are referred to the WOODWORK of the GREAT EXHIBITION, and particularly the ENTRANCE DOORS, which were coloured with the stains invented and manufactured by HENRY STEPHENS, of 54, Stamford-street, Blackfriars-road, who supplied to the workmen both stain and varnish, and who was the first person to introduce and call the attention of the public to this means of colouring wood, so as to bring forth the ornamental effect of the natural grain and thus save the expense of artificial imitation.—Prepared and sold by HENRY STEPHENS, 54, Stamford-street, Blackfriars-road.

TO BE SOLD.—A MAHOGANY SHOP FRONT SASH, 8 ft. 6 in. by 6 ft. with return end glazed with best plate glass in squares 30 by 24 inches.—Apply to PRITCHARD & SONS, Builders, 15, Warwick-lane, Newgate-street.

SAW MACHINERY.—TO BE SOLD, a new PATENT TIMBER FRAME; will take in 5 feet 6 in. in the gate for ordinary sawing, and in an ellipse will cut compass beams for ship building in any curved line; is ready for use, with saws and gear complete, of the best description, and can be seen at work. —Apply, by letter, to C. M. BARKER, Engineer, 23, Portsmouth-place, Kennington-lane, London.

TO CAPITALISTS AND BUILDERS.
BOURNEMOUTH, near Christchurch and Poole.—After much deliberation, it has been determined to erect a Sanatorium at Bournemouth, in connection with the Hospital for Consumption and Diseases of the Chest, established at Brompton. The extraordinary salubrity of Bournemouth has been long acknowledged by Sir James Clarke, Dr. Granville, and other eminent Physicians, and most abundantly proved by the successful results which have attended a sojourn in that most healthful vale. There has long been a demand for houses, as well

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JOHN PRESCOTT KNIGHT, R.A. Sec.

ROYAL COLOSSEUM (every MONDAY at HALF PRICE).—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. Open daily from half-past Ten till Five o'clock. In the Evening, from Seven till Ten, "Paris by Night," and the whole establishment brilliantly illuminated.—Admission, Day or Evening, 2s. Children and Schools half-price.

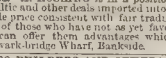
CRYSTAL PALACE (Admission 1s.), MONDAYS, 6d. each.—At the CYCLORAMA, Albany-street, daily at Three, Evening at Eight o'clock. Seven stupendous Tableaux of the Great Exhibition and its contents painted by Mr. Mac Nevin from original studies, and on a scale nearly equal to the original. Reserved seats, 2s.

PATRON—H. R. H. PRINCE ALBERT.
ROYAL POLYTECHNIC INSTITUTION.—Madame Bragazzi will give Vocal Illustrations of the Melodies of different Nations in their respective Languages daily at Four o'clock. Bachhoffner and Defries's New Patent Polytechnic Gas Fire exhibited and lectured on, on Monday, Wednesday, and Friday, at Half-past Three, and on Tuesday and Thursday Evenings at Nine.—Lecture on Popular Music, with Vocal Illustrations, by George Buckland, esq; assisted by Miss Blanche Young, R.A. of Music, every evening, except Saturday, at Eight o'clock.—A Lecture by J. H. Pepper, esq. on Glynn and Appell's Patent Paper for the Prevention of Piracy and Forgery by the Anastatic Process. —Lecture by Mr. Crisp on the Britannia Tubular Bridge. —Lecture on Voltaic Electricity.—A splendid new Series of Dissolving Views. Exhibition of the Microscope, &c. &c.—Admission, 1s.; Schools and Children under ten years of age, half-price.

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A, and J. have also on sale
FLOORING PREPARED and PLANED
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Per square.	£	s.	d.		Per square.	£	s.	d.
1-inch Yellow	18	0		1-inch White		16	6	
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140 feet run of 9-inch boards to the square, and 180 feet run of 7-inch battens to ditto.
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Glazed goods securely packed for the country. Steam-struck mouldings in any quantity.
N.B. This Establishment is worth the notice of all engaged in building.

NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade,





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BAGNIGGE WELLS-ROAD,
where they have convenience for carrying on a larger business.

N.B. By inclosing a postage-stamp, a full list of prices may be had by return of post.

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BANKERS.—Messrs. Swann, Clough, and Co. York.

ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for Insuring 100l.

Age next birthday.	A MALE.	A FEMALE	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	46	3 11 6	3 3 9
13	1 9 3	1 7 0	50	4 4 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 3	1 13 8	60	6 6 0	5 12 6
27	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 9 6	2 3 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 9	11 2 6
40	2 19 9	2 13 0	76		13 1 9
43	3 6 3	2 17 2	80		15 12 10

* Example.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 25l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to

Mr. RICH. WOOD, Solicitor, 19, John-street, Bedford-row, Agent for London.

PELICAN LIFE INSURANCE COMPANY,

Established in 1797, 70, Lombard-street, City, and 57, Charing-cross, Westminster.

DIRECTORS.

Robert Gurney Barclay, esq. — Kirkman D. Hodgson, esq.
William Cotton, esq. — Thomas Hodgson, esq.
William Davis, esq. — Henry L. Holland, esq.
Richard Fuller, esq. — J. Petty Muspratt, esq.
Jas. A. Gordon, M.D., F.R.S. — C. Hampden Turner, esq. F.R.S.
Henry Grace, esq. — Matthew Whiting, esq.

AUDITORS

Emanuel Goodhart, esq. — John Davis, esq.
John Haggard, D.C.L.

BONUS.

At a division of Profits declared up to 3rd July, 1847, the Bonus added to Policies effected in the seven preceding years on the "Return System" averaged Thirty-three per Cent. on the premiums paid. Forty-fifth per Cent. of the Profits are divided amongst the Policy holders.

LOANS in connection with Life Assurance on approved security.

Annual Premium required for the Assurance of £100 for the whole term of life:—

Age.	Without Profits.	With Profits.	Age.	Without Profits.	With Profits.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
15	1 13 0	1 15 0	40	2 18 10	3 6 5
20	1 15 10	1 19 3	50	4 0 0	5 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION,

7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON.
Established May, 1844

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes a Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE:—

Assurances may be effected from 50l. to 10,000l. on a Single Life. Entire profits belong to the Assured, and divided annually. Credit for half the amount of the first five annual Premiums. Medical men remunerated for their Reports. Liberty to Travel, and Foreign residence, greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a child, either an Annuity, payable from the age of 17 to 23, or an equivalent sum of money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director

Applications for Agencies may be made to the Managing Director.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 3, Chatham-place, Blackfriars, London.

JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office.

GEORGE THOMSON, Manager.
THOS MUSGRAVE, Secretary.

IMPERIAL LIFE INSURANCE COMPANY,

1, Old Broad-street, London.

Thomas Newman Hunt, esq. Chairman.
John Henley Palmer, esq. Deputy-Chairman.

A NEW SCALE OF PREMIUMS on Insurances for the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 70 years.

FOUR FIFTHS, or 80 per cent. of the Profits, are assigned to Policies every fifth year, and may be applied to increase the sum insured, to an immediate payment in Cash, or to the reduction and ultimate extinction of future premiums.

ONE-THIRD of the Premium on Insurances of 500l. and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at convenience, by which means 1,500l. may be insured for the present outlay otherwise required for 1,000l.

LOANS.—The Directors will lend sums of 50l. and upwards on the security of Policies effected with this Company for the whole term of life, when they have acquired an adequate value.

SECURITY.—Those who effect Insurances with this Company are protected by its large Subscribed Capital from the risk incurred by Members of Mutual Societies.

INSURANCES without participation in Profits may be effected at reduced rates.

SAMUEL INGALL, Actuary

PROVIDENT LIFE OFFICE, 50, REGENT-STREET; CITY BRANCH: 2, ROYAL EXCHANGE BUILDINGS. Established 1806

Invested Capital, £1,311,761.
Annual Income, £135,000. Bonus Declared, £743,000.
Claims paid since the establishment of the Office, £2,087,738.

PRESIDENT.

The Right Honourable Earl GREY.

DIRECTORS.

William Henry Stone, esq. Chairman.
Henry B. Alexander, esq. Deputy-Chairman.

Henry Blencoe Churchill, esq. — Benjamin Oliviera, esq. F.R.S.
George Dacre, esq. — William Ostler, esq.
William Judd, esq. — Apsley Pellatt, esq.
Sir Richard D. King, bart. — George Round, esq.
The Hon. Arthur Kinnaird — The Rev James Sherman.
Thomas Maudsley, esq. — Frederick Squire, esq.
J. A. Beaumont, esq. Managing Director.

PHYSICIAN—John Maclean, M.D. F.R.S 29, Upper Montague-street, Montague square.

Nineteen-twentieths of the profits are divided among the assured.

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£ s. d.	£ s. d.
1806	2,500	79 10 10 extinguished.	1,223 2 0
1811	1,000	33 19 2 ditto	231 17 8
1818	1,000	34 18 10 ditto	114 18 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
891	1807	900	932 12 1	1,832 12 1
1174	1810	1,000	1160 5 0	2,260 5 0
3392	1830	5,000	3,358 17 8	8,358 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

PLATE GLASS INSURANCE COMPANY.—

Incorporated by Act of Parliament; Capital, 10,000l.; Offices, 83, Lime-street, Leadenhall-street, City.

Architects, Surveyors, Builders, and all others interested in the trade, are solicited to make known the facilities offered by the Plate Glass Insurance Company to consumers of plate glass, to guard themselves against all the numerous risks to which shop-fronts and private windows are continually exposed. Since the establishment of this Company plate glass has in numerous instances superseded common glass; and there cannot be a doubt that the trade would generally benefit themselves by making known to their friends that a plate-glass front of a fair average size can be insured in this Company for 8s. per annum, or a fraction over 1d. per week.

Prospectuses, and every information, can be obtained on application to the Secretary, at the Company's Offices; or to ELGER STEPHENSON, Resident Director.

THE LONDON and PROVINCIAL BUILDING SOCIETY, being a National Deposit Fund.

Empowered by Act of Parliament, under which shareholders incur no liability.
Capital Stock, £1,250,000.

TRUSTEES.

H. Brown, esq. M.P. — Wm. Dermer, esq. M.D.

BANKERS.

Sir Samuel Scott and Co. the Commercial Bank of London.

The Directors are prepared to negotiate loans for five, seven, ten, or fourteen years, upon every description of real property in the United Kingdom, or for the erection of houses, or improvement of estates.

Also to issue deposit shares, securing to members a minimum interest of 5 per cent. with an accumulative bonus.

For prospectuses and rules of the metropolitan and branch societies, with forms of application for shares, apply at the Office, 36, Great George-street, Westminster.

THOMAS BILLINGS, Solicitor.

TWO THOUSAND POUNDS will be submitted to COMPETITION, amongst the Members of the LOMBARDIAN BUILDING SOCIETY, No. 4, at the first Subscription Meeting, which will be held at the Adelaide Hotel, Londonbridge, on TUESDAY evening, June 15, 1852, from half-past Six till Eight o'clock. Persons taking shares at or before the meeting, will be entitled to bid for any portion of the money. For list of trustees &c see Prospectus, which may be had on application to the Manager, Mr. WILLIAM LAWLEY, 17, South-street, Manchester-square; to the Secretary, Mr. WILLIAM NATHAN, Limehouse-terrace; or will be sent free on receipt of a postage stamp. Shares may be taken of the Manager or Secretary, as above, or of Mr. WILLIAM PURVIS, 199, Blackfriars road. The rules are now ready, price 6d.; by post 8d. Persons will also be given at the Adelaide Hotel, London-bridge, every Tuesday evening until further notice] from half-past Six to Eight o'clock, to register shares and answer inquiries.

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Brick-layers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of its PRICES for SEASONED FLOORING MATCHED BOARD Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 400 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A continues to offer all the advantages as stated in his previous advertisements.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description, and manufactories, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late FOX and BARRETT),
12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

TO BRICKMAKERS.

WANTED, delivered, or within easy access of any of the South-Eastern Railway stations from Reigate down, about 500,000 BRICKS.—Estimates, Plans, &c.—State the quality and lowest price for cash, to Mr. CLEARY, Builder, &c. Tottenham-square, De Beauvoir Town, London.

TO BRICKMAKERS AND TIMBER MERCHANTS.

WANTED, about 1,000,000 of STOCK and PLACE BRICKS, delivered alongside in the Thames; also about 100 LOADS of TIMBER, deals and battens in proportion.—Tenders and terms to be addressed to B. K. Office of "The Builder," 1, York-street, Covent-garden.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Copings for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 2, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

MAW'S ENCAUSTIC TILES. — Prices and Samples (Plain or Glazed) of this beautiful and durable production of mediæval art, and Patterns appropriate for the floors or walls of public and private edifices, in every style of design forwarded on application to MAW and CO. at their Works, Worcester. N.B.— Plans of spaces to be paved covered with arrangements of Tile Patterns, without charge.

ORNAMENTAL TILING for ROOFS.—The Society of Arts awarded Mr. ROBERT BROWN a Medal for his improved Italian Tiles, and in the Great Exhibition of 1851 they were awarded a Prize Medal, and were the only Italian tiles specifically named by the jury. These tiles have been used by Sir CHARLES BARRY, and other architects, and have met their marked approval; they have also received the approval of eminent men in most parts of Europe. The slight curve enables the lower tiles to be fitted closely together without mortar or cement. The horizontal indentation forms a perfect security against the driving rain; when on a building, they have the exact appearance of the most admired form of Italian tiling. The surface or green colour is burnt in, and is permanent. They are supplied at a stated price per square.

ORNAMENTAL PLAIN TILES, in great variety, made from the Surbiton clay, and also from the Staffordshire terro-metallic clays, at per square.

PLAIN GOTHIC RIDGE TILES, HIP and VALLEY TILES, and COVING BRICKS.

The GROOVED RIDGE TILE, for the reception of any varied outline of vertical ornament, was invented by Mr. Robert Brown, and for which invention he also received from the Society of Arts a medal. He now makes these tiles, of any desired colour, from the Surbiton clay, as well as from Staffordshire terro-metallic clay. He has lately devoted great attention to the varied conditions of form, so as to adapt them to the different periods of Gothic Architecture. The attention of architects is particularly invited to those ridge tiles of a green colour. They are supplied at a stated price per foot run. Mr. Robert Brown trusts that architects who consider the Grooved Ridge Tile worthy of introduction, will think it but fair and honourable that the inventor should supply them, provided he does so as cheaply and well as any other party. But should even this hope not be realized, he will still have the satisfaction of having been the inventor of an article which has become of universal adoption.

TILE WORKS, SURBITON-HILL, SURREY.

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.

COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutters, Pavlors, Shippers, &c. &c.

KENTISH RAG STONE of the first quality, and of the blue tince so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.

Apply to Mr. BENJAMIN GOUGH, 37, Newington-cresent, Newington Butts.

PAN TILES, 48s. per 1000; PLAIN ditto, 32s. 6d. per 1000; FIRE BRICKS, 65s. per 1000.—WARD and CO. Honduras Wharf, Bankside, are now offering their Fire Goods (being about to make a considerable alteration in their Premises, at very reduced prices. Dutch Clinkers, Windsor Loam, Tiles, and Bricks; Fire-clay, superior, 12 inches and 9 inches; Paving Tiles, of a rich colour, at a very low price. Gas Retorts and shaped Tiles.

HOOPER'S WHITE BRICKS, moulded for Plinths, Jambs, Chimney-shafts, Wall-copings at from 4d. to 8d. per foot run); Paving Tiles of different patterns, in white, red, and blue; Fancy Roofing and Ridge Tiles, coloured brown, or for slate, White Glazing Bricks for fitting buildings, &c. sent to all parts of the country direct from the kilns.—Office, 2, Portland-street, Southampton, where samples and illustrated price-lists may be had on application, post paid.

BRICKS.—H. DODD is enabled to offer his BRICKS, which are of good quality, at the following low prices; and as his fields are only a quarter of an hour's walk from the City, H. D. earnestly requests purchasers will favour him with a visit, in order to inspect his stock and to judge for themselves:—

Marle cutters	84s. Per Thousand.
Yellow seconds	70s. "
Pale seconds	50s. "
Pavlors	45s. "
Paviours	38s. "

Delivered within two miles of the fields.

Marle place, half-washed stocks and place bricks, at equally low prices. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing.—Apply to HENRY DODD and CO. at the Counting-house, Hoxton Brickfields, Grange-walk, near the Rosemary Branch, Hoxton N.E.—Red pit sand of approved quality constantly on sale, upon reasonable terms; this sand, from its not containing any saline matter, is acknowledged to be preferable to river sand.

ARCHITECTS and BUILDERS are respectfully invited to try JOHN ROBERTS'S HOLLOW BRICKS, made of suitable size and shape to work with ordinary bricks; they are capable of bearing a pressure of six tons each, having been tried by an eminent Builder in London; they can be delivered in London at prices below good stock bricks, and possess many advantages, too numerous to state in an advertisement.—Apply to JOHN ROBERTS, Upnor Tile Works, near Rochester, Kent.

The Builder.

No. CCCCLXXXVIII.

SATURDAY, JUNE 12, 1852.

DRAWING is as easy an acquirement as writing, and should form part of the commonest education: a knowledge of it is of the utmost value, and it should be taught in every educational institution throughout the kingdom, not excepting our "National Schools." This we have repeated for years past in various shapes and various places, and when it was not everywhere admitted to be true. It is unnecessary for us to say, therefore, that we cordially welcome the first steps taken by the new governmental "Department of Practical Art," which are founded upon this belief, and have for their object to give effect to the recommendation. Our Schools of Design, which have now been in operation fourteen years, have failed to do all that was expected from them, not simply because of their mismanagement, but because almost necessarily they have been mere drawing schools, and have been used for teaching the means instead of the end. Those who entered, instead of going there to study the principles and practice of decorative art, and to *apply* their knowledge of drawing, went there to learn *how to draw*, and mostly left even before they had acquired that. The mismanagement to which we have alluded as affecting the school at different periods, we never shrank from exposing and combatting, and in consequence our journal enjoyed at one time the distinction of being tabooed at Somerset House!

We have called for elementary schools throughout the country to prepare the eye and hand not merely of those who proposed, when so prepared, to commence the study of design with the view of practising it as a profession, but of the general public, who must be their employers and judges, and elementary schools we are about to have. Our readers are already aware that the Department of Practical Art have offered to aid the establishment of elementary classes, or schools for drawing and modelling, in the advantages of which all classes of the community may share, by appointing a competent master, and guaranteeing the payment to him of a certain income for a fixed period, in case the fees to be derived from the instruction of the scholars should not suffice to pay the master's salary; and lending suitable ornamental drawing copies, models, coloured examples, and books, under certain easy conditions.

The Westminster Mechanics' Institute have the credit of being the first to avail themselves of the privileges offered, and on Friday, the 4th inst. the Right Hon. J. W. Henley, President of the Board of Trade, presided over a meeting there to inaugurate an elementary drawing school, in connection with the Metropolitan School at Somerset House. Sir W. Page Wood, in stating the objects for which the meeting had assembled, congratulated those interested in the subject on the presence of one of the members of the Cabinet, of which they would not have had to boast had it not been for their steady attachment to good order and government. It should be remembered that by the pursuit of such studies as those now pointed to, they were enabled to apply them to the benefit of their fellow creatures, and to the glory of God.

The chairman spoke briefly, but earnestly. He said he believed it would be felt by all, that to young persons who had a taste for drawing, and who wished to succeed in the higher departments of the schools of design, it would be a great advantage that first elementary schools should be raised on sound and good principles, because it would be apparent to all that when persons began to think on wrong principle, there was as much difficulty to unlearn what they had been taught as to acquire a sound knowledge at the outset. It would not be necessary for him to go at any length into the matter immediately before the meeting, as Mr. Cole, the superintendent of the department, was present, and would lay before them some of the principles on which these schools proceeded. He believed that such institutions as these were calculated to do a great deal of good, as they would afford opportunities, for those who sought to elevate their minds, to accomplish that laudable end.

Mr. Henry Cole then read an address, in the course of which he expressed his conviction that if it were necessary to choose between two courses for fostering the production of improved design in manufactures, the education of the public at large or a special class of artizans, the end would be more readily secured by teaching the public aright and convincing it of its ignorance, than by educating the artizan only. If you leave the public ignorant the educated artizan will not be employed; but if you lead the public to feel the want of beauty and propriety,—to be sensible of their presence and impatient at their absence,—to distinguish between symmetry of form and disproportion,—to demand from art at least the aspiration after the perfection of Nature and the recognition of Nature's eternal fitness and simplicity,—he was sure the public would soon demand good designs in manufactures and be willing to pay for them; and that the instincts of traders for their own interests would teach them to find the means of supplying such demands.

"A power of drawing," said the reader, "is too commonly regarded as a luxury and superfluity in education; permissible to girls, who ultimately become women better educated and more refined than men, but unnecessary for boys, who become men intensely skilled in the anatomical points of a horse, but unable to draw straight lines. Drawing is regarded as 'an extra' in school bills, which parents rather avoid than encourage. The same sort of mistake used once to be made with writing.

It should be felt to be a disgrace to every one who affects to be well educated, if he cannot draw straight lines, and make at least simple geometrical forms. Those who cannot do so have no right to expect you to believe that they can even see correctly; yet such is the anomalous state of matters on this point that persons who are unable to use a pencil will affect raptures at paintings, and will criticise art and announce canons of taste with absolute dogmatism. A modern writer observes, "Ask a connoisseur who has scampered over all Europe the shape of the leaf of an elm, and the chances are ninety to one that he cannot tell you; and yet he will be voluble of criticism on every painted landscape from Dresden to Madrid, and pretend to tell you whether they are like nature or not. Ask an enthusiastic chatterer in the Sistine Chapel how many ribs he has, and you get no answer; but it is odds that you do not get out of the door without his informing you that he considers such and such a figure badly drawn.' * * * At the present time we all admit that writing is necessary to be taught to every one, and is serviceable in all relations of life; but it may be easily shown that the power of representing forms by drawing is frequently quite, if not more, needful. And it is equally useful to all classes of the community,—to him who orders a house to be built and pays for it, to him who superintends its building, and to him who actually saws and joins the timber or lays the masonry. All would perform their respective parts with greater power and wisdom, and with greater saving of labour, if they all knew what straight lines were, and possessed the power of making them. But how rare is the possession of this simple power. How many landlords in the country are able to draw a plan of the ground which their houses occupy, or to draw the shape of a cupboard they wish to order from the village carpenter? How many manufacturers are there who direct the labour of thousands of persons in producing ornamental works, and realize thousands of pounds from them, but are unable to draw correctly the form of one of their simplest patterns?"

Mr. Redgrave, R.A. afterwards read a paper, wherein he entered at some length into the general question, as to the advantages derivable from an education in this branch of the arts, by the establishment of schools for the instruction of those who, with small means, are desirous of attaining proficiency.

A resolution, pledging the meeting to co-operate in facilitating the study of the arts as applied to practical purposes, was moved by Mr. Godwin, seconded by Sir De Lacy Evans, M.P. and supported by the Rev. Mr. Cureton, the rector of St. Margaret's. The mover alluded to the hopeful spread of a love of art amongst the community, the value to mechanics, even in a pecuniary point of view, of a knowledge of drawing, and the want, on the part of architects, of artistic artisans.

The Dean of St. Paul's (the Rev. H. Milman), in moving a vote of thanks to the Chairman, dwelt most eloquently on the connection between the *beautiful*, as we recognise it by our senses, and the *good*, which we acknowledge by our reason.

In the evening there was a meeting of mechanics, artisans, and students, fully attended, at which Mr. Burchett, the head master of the school at Somerset House, delivered an able lecture, describing the course of study illustrated by examples on the walls. The classes are to be held at present only in the evening, and the payment is to be at the rate of 1¼d. per lesson of two hours; so that it may be hoped that they will be attended by the numerous artisans of the neighbourhood,—"that every carpenter who has to cut straight lines, every smith who has to forge them, every bricklayer who has to lay them, will attend this school at their leisure hours in the evening, to acquire a power of seeing accurately by means of drawing accurately, and will send their children, both boys and girls; for, to see correctly and to draw correctly is quite as useful to one sex as to the other." In the morning, hereafter, we hope that the upper and middle classes in Westminster will attend; that the professional men and the tradesmen will send their children.

On the following day, the 5th inst. Mr. Owen Jones gave his first lecture on the articles in the museum of the department, at Marlborough House, to an audience rather less numerous than we expected to find it. We must content ourselves on the present

occasion with giving the propositions which were discussed by the lecturer.

"1. The Decorative Arts arise from, and should properly be attendant upon, Architecture.

2. Architecture is the material expression of the wants, the faculties, and the sentiments of the age in which it is created.

Style in Architecture is the peculiar form that expression takes under the influence of climate and materials at command.

3. As Architecture, so all works of the Decorative Arts, should possess fitness, proportion, harmony, the result of all which is repose.

4. Construction should be decorated. Decoration should never be purposely constructed.

That which is beautiful is true: that which is true must be beautiful.

5. Beauty of form is produced by lines growing out one from the other in gradual undulations: there are no excrescences: nothing could be removed and leave the design equally good or better.

6. The general forms being first cared for, these should be subdivided and ornamented by general lines: the interstices may then be filled in with ornament, which may again be subdivided and enriched for closer inspection.

7. As in every perfect work of Architecture a true proportion will be found to reign between all the members which compose it, so throughout the Decorative Arts every assemblage of forms should be arranged on certain definite proportions: the whole and each particular member should be a multiple of some simple unit.

Those proportions will be the most beautiful which it will be most difficult for the eye to detect.

Thus the proportion of a double square, or 4 to 8, will be less beautiful than the more subtle ratio of 5 to 8—3 to 7, than 3 to 6—3 to 8, than 3 to 9—3 to 5, than 3 to 4.

8. Harmony of form consists in the proper balancing, and contrast, of the straight, the angular, and the curved.

9. In surface decoration all lines should flow out of a parent stem. Every ornament, however distant, should be traced to its branch and root. *Oriental practice.*

10. All junctions of curved lines with curved or of curved with straight should be tangential to each other. *Natural law. Oriental practice in accordance with it.*

11. Flowers or other natural objects should not be used as ornament, but conventional representations founded upon them sufficiently suggestive to convey the intended image to the mind, without destroying the unity of the object they are employed to decorate. *Universally obeyed in the best periods of art, equally violated when art declines.*

12. The principles discoverable in the works of the past belong to us; not so the results. It is taking the end for the means.

13. No improvement can take place in the art of the present generation until all classes—artists, manufacturers, and the public—are better educated in art, and the existence of general principles is more fully recognised."

The walls were hung with carpets, papers, &c. illustrating the lecturer's "False principles" and "True principles," and he said sufficient to damage pretty considerably the present *stock* of nine-tenths of the manufacturers of the United Kingdom: nor would we have it implied that he said a bit too much. Without pledging ourselves to all the propositions, to the extremity claimed for them by Mr. Owen Jones, we can affirm that we have seldom listened to a more elegant discourse, or one fuller of more useful teaching. We can safely congratulate the department, then, on all their first steps, and we shall be sincerely glad if we have never cause to speak in any other strain.

As intimately connected with the subject, indeed a part of it, we may here speak of the Suburban Artizan School at Camden Town, which is pursuing satisfactorily a course of usefulness. A meeting was held there on the 7th, for the distribution of the prizes. The comparative merits of the prize drawings had been adjudicated by Sir C. L. Eastlake in the Art classes, by Mr. G. G. Scott in the geometrical and perspective class, and by Messrs. Foley and T. Thornycroft in the modelling class. The president of the committee, the Rev. D. Laing, M.A. F.R.S. distributed the prize books to the successful competitors, with a short address to each;* and on that occasion the master, Mr. Cave Thomas, read an address to the students, wherein he pointed out to the successful students that their drawings and models stood well only relatively to this elementary school; that they had yet much to accomplish before they could arrive at the excellence attained in older and more advanced establishments; and he urged them not to allow success to relax their efforts. His remarks on what he considered "the moral and chief good to be derived from the study of drawing" we give in full:—

"If, in the pride of an acquired power, of increased means, or of a greater demand for English manufactures," said the speaker, "we think ourselves greater as men or as a nation, we are mistaken; but if, on the contrary, we contemplate art-education in its humiliating tendency, we can scarcely fail to be morally and socially improved, and every one thus raised will raise his country also in the scale of nations. Many of you have, doubtless, felt a pride in your increased power of delineating objects. 'My drawing is better than his,' may also have been a conclusion silently formed in your own minds; but how stands it in comparison with the original? Have you never felt how limited your powers—how imperfect your attempts to represent the object before you? If not, the study of drawing has as yet failed to improve you as men. It is in this consciousness of the difficulty of rendering the truth and the limitations of your powers that I would lead you to perceive the highest humanising tendency of this branch of education. Let us reflect still further.

If the exact apprehension and representation of the substantive realities of nature and art, which lie so clearly defined before you, be so difficult, how much more so must be those immutable truths of religion, morals, and science which we believe exist independent of the oscillations of opinion, but which are only dimly discerned through the obscuring mists of ignorance.

As these misgivings of our powers and opinions steal over us, our self-knowledge increases. The consciousness of our own imperfections induces a charitable feeling towards those of others. If, with an earnest wish to be truthful, we still fail in arriving at truth, so may others no less earnest. Let us encourage these reflections, therefore, till a calm charity reign over us: men will then whisper one to another—'Let us penetrate the mists which surround us,' that we may be of one mind.

This, then, is the moral with which I would point the study of art,—a moral which, if vitally received, will confer a patent of nobility on every man, as well as add a dignity to the country which neither time nor arms will have power to cancel."

It appears from a statement made by the secretary that there have been in the course of the year (that is, from May, 1851, to May, 1852) 330 men and lads studying in the school. During the current session, the largest number on the books was during March and April, when there were 122 in the men's school, and 28 in the female school.

The geometrical class has been well attended since its commencement, in September last.

* *Men's School.*—Finished drawing of the figure.—1. Wm. Matthews; *M. Scott; 2. A. Inman. Shaded drawings of ornament.—*G. Jessup; 1. E. Mullett; 2. G. H. Mills. Outline drawings of ornament.—1. W. H. Horwood; 2. W. Fewing. President's prize for the best unspecified subject.—Evans, for an elaborate drawing of ornament. Modelling.—Bas relief from the sound.—1. Gray; 2. W. Taylor. Geometry and perspective.—1. W. Taylor; 2. A. Sheldrick; 3. G. B. Schwarts. *Female School.*—Finished drawing of the figure.—*H. Essex; *F. Harrison; *J. Scott (equal). Finished drawing of ornament.—1. E. Palmer; 2. M. Neal. Geometry and perspective.—E. Sheldrick. President's prize for unspecified subject.—J. Scott, for finished drawing of a head. (Those marked thus (*) having received the first prize last year, were precluded from receiving it again.)

The course of instruction has been arranged so as to give the students a practical insight into the various styles of architecture. Each style has been successively taken up, beginning with the Classic, and passing through, in their chronological order, the various periods of Mediæval architecture. Wisely, the details and practical construction of each style, the knowledge of which is so important to the workman, have been dwelt upon more than general forms.

From the agencies now at work, we may fairly anticipate a material assistance to the progress of the artistic industry of the country.

A FEW REMARKS ON ST. PAUL'S AND ITS APPROPRIATE DECORATIONS.*

ST. PAUL'S CATHEDRAL at present, and for the last twenty years or so, has suffered some depreciation; but it must always maintain its dignity as it deserves; and whatever styles or forms of architecture may be in vogue, I feel satisfied that it will maintain its magnificent supremacy above all the buildings of its own age, and I believe of any later one. There are many things in St. Paul's which we cannot altogether admire, and which deserve even blame; but taking it on the main idea, I think we must admit that there is no building to be compared with it, excepting the magnificent Vatican. It has, however, always retained many admirers; and here, at any rate, where we meet to give an impartial consideration to matters of art, it must always have admirers, even among those who study Gothic architecture chiefly. I feel certain there is not one here who denies the magnificence of St. Paul's. It may be a fashion with some who do not take the trouble to investigate the whole subject, to turn away their eyes from its beauties; but all who do properly study architecture, must be satisfied of its magnificence. The pleasure given by the contemplation of such a building is the surest test of its great excellence; and there can be no doubt that the combination of such magnificent science, both theoretical and constructive, in its architect, and his very great love of the beautiful, and (considering the time) his very great freedom from the errors which were then fashionable, are most remarkable; because, if we compare his vagaries with those of Borromini, who was almost his contemporary, we shall find that he is perfect purity itself. He was, indeed, most lovely in his life; during which, as in his death, he was scarcely divided from his building. He lived to the age of 91 years, for fifty of which he was the surveyor-general, not being dismissed from that office till very late in life, in the beginning of George's I.'s reign.

We must all admit that it was a fortunate circumstance which led Wren to the study of architecture. He was Savilian professor at Oxford, had professorships at Gresham College, and was indeed thoroughly grounded in science. From fourteen years of age he had been grappling with difficult physical problems. It is really astonishing what he did at so early an age; and he never flagged: even when his limbs refused to carry him, his mind did not yield. Possibly, abstract science lost a great assistant when Wren took to architecture, as he was called upon to do by the circumstances of the times: but science, in fact, lost nothing. There was one just behind him, and almost immediately following him up,—Sir Isaac Newton, who was well able to carry the cudgels for science. Wren, though a great proficient in astronomy, in chemistry, and even in medicine, was quite justified in leaving these studies for that of architecture; and he had even done so before the great event of that time, the Fire of London, which required him almost to rebuild the city. About the year 1660, Wren seems to have bestowed very great attention on architecture. He built several buildings at Oxford and Cambridge, and appears, in fact, to have spent altogether upwards of sixty years in the practice of architecture,

* Read at the ordinary general meeting of the Royal Institute of British Architects, May 31st, 1852.

and with such energy and activity as probably has never been paralleled. We should look with affection at the memorials that such a man has left,—and what could be a more delightful object than to see completed, according to his ideas, the magnificent building which gives the greatest lustre to his name!

The exterior of St. Paul's is tolerably well completed. There are some points which he intended, and it would be well if they had been completed; but it is not attention to the exterior that is so much wanted,—it is to the interior, which is in a lamentably deficient state, not only from the greater part of the decorations that were intended by him having been left undone, but because there has never been, since the building was concluded, a proper feeling of public spirit to maintain it in the state in which it should be kept. The Dean and Chapter have done a great deal: they have kept the building, in all essentials, in a sound and firm condition: the estates belonging to such a building are not large,—indeed, they are only sufficient just to keep the fabric in ordinary repair. That has been done; and the question now is one of decoration, which does not properly fall to them to manage, nor can they be expected to do so. It is a work, indeed, which might be done by an appeal to public liberality. We know that when the church was building, a tax on coals, to a great amount, was applied to the fabric, but that was stopped when the building was concluded in its main features, but not in its decoration. We now see, in the middle of the choir, an inscription to the memory of Wren, which is known to everybody, — "Lector, si monumentum requiris, circumspice." The modesty of Wren would at any time have made him shrink from such a motto; but it is almost an insult when the building in which it is put up is left in so unsatisfactory a state.

There has never, for the last 140 years, been so hopeful a time for bringing this subject forward as the present. What is brought forward here is for the purpose of inviting consideration as to the best means of proceeding,—firstly, to understand what is the fit and proper decoration of the building, and secondly, to carry in our minds the possibility of urging the subject on, and getting, if possible, the public interest excited in the matter. There is one very fortunate circumstance at the present time, more so, perhaps, than at any other. The authorities generally, of St. Paul's, have hitherto discouraged any attempt at moving in the matter (as many such bodies have); but now they are very desirous—most, if not all of them—that something should be done to put the building in a more satisfactory state as regards decoration. The Dean, especially, appears to have the well-being of the church more at heart than any of his predecessors since the time of Sancroft, who was dean in Wren's time, and afterwards Archbishop of Canterbury.* The present Dean of St. Paul's has kindly encouraged this attempt to bring the present subject before your notice. The main object to consider is what decorations are suitable to the building; and, in determining this, the views of Wren, so far as they are known, should be considered first, and should carry more weight than any others. I will therefore read several extracts which I have made from the Parentalia, and I shall be obliged to appeal to your indulgence if they are longer than they should be in an original paper; but the Parentalia is a work composed mainly by Wren's son, from his own documents, and finally published by his grandson; and therefore, though it is written of Wren, it is almost always Wren's own words that are used. In page 262, Wren writes a letter from France, which shows how much he felt concerned in the interests of art and manufactures:—"I shall bring you almost all France on paper, which I found, by some or other, ready designed to my hand, in which I have spent both labour and some money. Berrini's design of the Louvre I would have given my skin for, but the old reserved Italian gave me but a few minutes' view: it was five little designs on paper, for which he hath received as many thousand pistoles. I had only time to copy it in my fancy and memory. I shall be able, by discourse and a crayon, to give you a tolerable account of it. I have purchased a great deal of taille-douce, that I might give our countrymen examples of ornaments and grotesks, in which the Italians themselves confess the French to excel. I hope I shall give you a very good account of all the best artists of France. My business now is to pry into trades and arts. I put myself into all shapes to humour them: 'tis a comedy to me, and though sometimes expenseful, I am loth yet to leave it." This was in 1665, before the Great Fire of London. As soon as he returned, the subject of repairing Old St. Paul's, which had been long in an unsatisfactory state, was mooted. Inigo Jones had made some repairs to the building, which (excepting the portico) were not very good, it seems, even so far as construction was concerned; and they had come to ruin in Wren's time, that is, in 1665.

Wren proposed, in his repairs of Old St. Paul's, to build a cupola round the old tower, using the latter for fixing the scaffolding, so that he might first finish his dome and then take away the tower. Then he says, with a good deal of knowledge of what people would like, and what would encourage them to proceed:—"As the portico, built by Inigo Jones, being an entire and excellent piece, gave great reputation to the work in the first repairs, and occasioned fair contributions, so to begin with the *dome* may probably prove the best advice, being an absolute piece of itself, and what will most likely be finished in our time will make by far the most splendid appearance—may be of present use for the auditory—will make up all the outward repairs perfect, and become an ornament to his Majesty's most excellent reign, to the Church of England, and to this great city, which it is a pity, in the opinion of our neighbours, should longer continue the most unadorned of her bigness in the world." With regard to his wishing so much for a dome, it is plain that he had that in his mind for a very long time. Ely must have given him the most complete hints for the result which he arrived at in the present St. Paul's. The main feature at Ely is the extraordinary and happy arrangement of the vistas through the aisles, and through the great arches of the cupola, uninterruptedly. That he did not hint at in the model first proposed, but that is one of the great beauties of St. Paul's. Wren's uncle was Bishop of Ely, and it is very likely that Wren was called there very often, and picked up many hints from that cathedral. He seems to have thought that a cupola was a great feature in a Protestant Church, and he always had in view the advantage of it to an auditory; and, unless I am mistaken, some attempt will be made to make his ideas useful in the present day.

After the fire, it became necessary to proceed to some real and thorough repair, if not re-edification of St. Paul's. The Dean and Chapter had endeavoured to patch up the old building, but had met with nothing but mishaps, and it was falling into a state of utter ruin. Wren had advised them from the beginning that it must be pulled down, but they thought they could avoid that alternative. At last, however, Dean Sancroft was desired to write to Wren, and invite him to help them in making a new design. He had offered to make a design just suitable for a temporary purpose, but the Dean very happily thought something more might be done, and, in fact, he helped Wren in every way to forward the complete work as it is.

Most present must have seen the original model by Wren, now preserved in St. Paul's; but to any one who has gone into the model (for it is quite large enough to walk bodily into it, and look about it), it is evident that the general perspectives would have been unrivalled.

This design was to have consisted of "one order of Corinthian only," and there can be no doubt of its magnificence. Its effect among the high houses which now surround the church might not have been so good as that of the present building; but in Wren's time the houses were not so lofty. "Sir Christopher Wren endeavoured to gratify the commissioners and critics with something colossal and beautiful, with a design antique and well studied, conformable to the best style of the Greek and Roman architecture. Some persons of distinction wished to see the design in a model. The surveyor complied with their desires as well as his own, and made a very curious large model in wood, accurately wrought, and carved with all its proper ornaments, consisting of one order, the Corinthian only. This model, after the finishing of the new fabric, was deposited over the Morning Prayer Chapel on the north side; where it is hoped, such public care will be taken that it may be preserved, and if damaged repaired, as an eminent and costly performance, and a monument among the many others of the skill of the greatest geometrician and architect of his time. Thus much is specified upon recollection, that the surveyor in private conversation always seemed to set a higher value on the design than any he had made before or since, as what was laboured with more study and success; and (had he not been overruled by those whom it was his duty to obey), what he would have put in execution with more cheerfulness and satisfaction to himself than the latter."

No doubt, this model has been much neglected, but it is also to be hoped it will not be neglected any longer. Wren set, as is well known, a very high value upon this design, and it is even said that when he gave it up he shed tears. The king, however, gave his warrant for building the church we now see, and from that time Wren very wisely resolved to make no more models for public inspection, nor to expose his drawings in public.

The Cathedral was begun in 1675. A little further on in the Parentalia, we find a kind of apology for the use of coupled columns. The magnificent effect of coupled columns in the Louvre and their equally fine effect in the entrance to St. Paul's, renders such an apology unnecessary; but Wren's words are always worth hearing:—"As the ancients shifted the columns of the portico for the better approach to one door, so at St. Paul's for the same reason, where there are three doors, the two side doors for daily use, the middle for solemnities, the columns are widened to make a more open and commodious access to each. Those who duly examine by measure the best remains of the Greek or Roman structures, whether temples, pillars, arches, or theatres, will soon discern that even among these there is no certain general agreement, for it is manifest the ancient architects took great liberties in their capitals and members of cornices to show their own inventions, even when the design did not oblige them; but when it did oblige them to a rational variation—still keeping a good symmetry—they are surely to be commended, and in like cases to be followed." He proceeded zealously to make the present structure as magnificent as the design permitted. And he makes the following observations upon it:—"The surveyor followed the Templum Pacis, as nearly as our measures would admit, having but three arcades in each of the bodies west and east, as there; but where there are no arcades, and next the dome, he has continued the whole entablature.

"Again, this temple, being an example of a three aisled fabric, is certainly the best and most authentic pattern of a Cathedral Church, which must have three aisles, according to our custom, and be vaulted, though it may not be always necessary to vaults with diagonal cross vaults, as the Templum Pacis and halls of the Roman baths are. The Romans used half-spherical vaultings also in some places: the surveyor chose these as being demonstrably much lighter (viz. two-thirds) than the other. So the vault of St. Paul's consists of twenty-four cupolas cut off half-circular with segments, to join the great arches one way, and which are cut across the other way with elliptical cylinders, to let in the upper lights of the nave. But in the aisles the lesser cupolas are both ways cut in semicircular sections, and altogether make a graceful geometrical form, distinguished by circular wreaths, which is the horizontal section of the cupola, for the hemisphere may be cut all manner of ways into circular sections; and the arches and wreaths being of stone carved, the spandrels between are of sound brick invested with stucco of cockle-shell-lime, which becomes as hard as Portland stone, and which having large planes between the stone ribs, are capable of further ornaments of painting if required. Besides these twenty-four cupolas, there

* He was one of the nonconforming bishops, and no longer archbishop after the Revolution.

is a half cupola at the east, and a great cupola of 112 feet diameter in the middle of the crossing of the great aisles. In this the surveyor has imitated the Pantheon or Rotonda in Rome. . . . The Pantheon is no higher within than its diameter: St. Peter's is two diameters. This shows too high, the other too low. The surveyor at St. Paul's took a mean proportion, *i.e.* 1·414 : 1, which shows its concave every way, and is very lightsome by the windows of the upper order, which strike down the light through the great colonnade that encircles the dome without, and serves for the butment of the dome, which is brick, of two bricks thick, but as it rises every 5 feet, has a course of very excellent brick of 18 inches long, banded through the whole thickness. The concave was turned upon a centre, which was judged necessary to keep the work even and true, though a cupola might be built without a centre; but this is observable, that the centre was laid without any standards from below to support it, and as it was both centering and scaffolding it remained for the use of the painter. Every story of this scaffolding being circular, and the ends of all the ledgers meeting as so many rings, and truly wrought, it supported itself. This machine was an original of the kind, and will be a useful project for the like work hereafter. . . . . It was necessary to give a greater height than the cupola would gracefully allow within, though it is considerably above the roof of the church. Yet the old church having had before a very lofty spire of timber and lead, the world expected that the new should not in this respect fall short of the old (though that was but a *spit* and this a *mountain*); he was therefore obliged to comply with the humour of the age, and to raise another structure over the first cupola, and this was a cone of brick—so built as to support a stone lantern of an elegant figure, and ending in ornaments of copper gilt; the cone being covered and hid out of sight with another cupola of oak timber and lead, and between this and the cone are easy stairs that ascend to the lantern.

"He took no care to make little luthern windows in the leaden cupola, as are done out of St. Peter's, because he had otherwise provided for light enough for the stairs from the lantern above and round the pedestal of the same, which are not seen below. So he only ribbed the outward cupola, which he thought less Gothic than to stick it full of such little lights in three stories one above the other (as is executed in the cupola of St. Peter's at Rome), which could not without difficulty be mended, and, if neglected, would damage the timbers. The inside of the whole cupola is painted and richly decorated by an eminent English artist, Sir James Thornhill, containing, in eight compartments, the Histories of St. Paul. In the crown of the vault, as in the Pantheon, is a circular opening, by which not only the lantern transmits light, but the inside ornaments of the painted and gilded cone display a new and agreeable scene."* We have here engravings of these pictures,—St. Paul at Athens, at Ephesus, before Felix, and at Malta; the conversion of St. Paul; St. Paul and Elymas the soothsayer, and St. Paul at Lystra and Phillippi; all of which are admirably executed.

"The first stone was laid in the year 1675. The walls of the choir and side aisles were finished 1685. The highest stone on the top lantern was laid in 1710, by the hands of Christopher Wren, the son of the surveyor, by him deputed to it, Sir Christopher being in his 78th year."—So much for the extracts from the Parentalia.

It is well known that Wren was averse to a balustrade above the main cornice, and in Elmes' "Life of Wren" there is an amusing letter from him, deprecating the introduction: it is dated October, 1717, just before his dismissal, which occurred in 1718. In certain points of view, as from some of the narrow streets adjoining, the pierced work of the balustrade has a happy effect; but Wren always looked at St. Paul's as a work that might be seen from suitable points of view, and the cornice with the magnificent line of trusses which he provided for its support required no balustrade.

The church was carried on with every attempt to make it as rich and perfect as the funds would possibly allow, in the time of the Stuarts. At the accession of William III. both he and Queen Mary were well disposed to carry on the building; but they seemed to have wished to get over it quickly: they did not, like the Stuarts, treat it as a work of love, but as a piece of business. Still they were great friends to Wren; and the queen, herself a Stuart, was his great patron after the deposition of James II. After her death, in 1695, his enemies began to get the better of him; and in 1696, in an Act of the 9th William III. "for completing and adorning the Cathedral Church of St. Paul, London," a clause was inserted to suspend a moiety of the surveyor's salary till the church should be finished, "thereby the better to encourage him to finish it." When we consider that his salary was only 200*l.* a year, and that he received no other advantage besides that, we see that he was rather in bad case towards the end of William's reign. The king was not inimical to Wren, and seems to have been pleased with what he did at Hampton Court, but he was immersed in politics to an extent beyond that which other kings have been before or since. In Queen Anne's reign the church was still carried on, but more or less with the same wish to get it over, and to that fact we may ascribe what is said in the Parentalia as to the mosaics. These Wren certainly intended, and they were no doubt practicable. In Queen Anne's reign, however, Sir James Thornhill obtained the commission to decorate the church, and there can be little doubt, from these prints (and from the model), that Wren intended a coffered ceiling, and generally, a thoroughly architectural design. There is still a good deal of architectural device in the present cupola, and we cannot much blame that. So that, for the first years of Sir James Thornhill's commission (till about the year 1712), they must have worked pretty well together; but afterwards (if any faith be placed in the print by Wales and Gwyn) the paintings were sprawled about over the architecture, much as they are in the late Borrominesque churches. Therefore, it must be supposed that as Wren's hold relaxed, Thornhill's became firmer, and the painter got the start of the architect; so that it is in some degree fortunate that these lower parts of Thornhill's design were not executed. They would have interfered with the architectural character of the building; but if we can eliminate from them the ideas of Wren, we may do much to form a consistent scheme of decoration. In a print, engraved by Wren's permission and authority, figures are shown in the spandrels of the dome, somewhat as in the pendentives of St. Peter's, but much smaller: in the small cupolas of the nave there are coffers, with figures in the spandrels, in due subordination to the architecture.

Worse days came for Wren:—

"Old times were changed, old manners gone:
A stranger filled the Stuart's throne:
The bigots of the iron time
Had held his harmless art a crime."

And by the accession of George I. all the old intention of carrying on the building as it should be was entirely lost sight of.

Here is a passage, in which Wren complains of the painting being taken out of his hands. He had applied for the moiety of his salary, but was told the building was not done. He replies:—"Nothing can be said to be unperfected but the iron fence round the church, and painting the cupola, the directing of which has been taken out of my hands; and therefore I hope I am neither answerable for them, nor that the said suspending clause can, or ought to, affect me any further on that account." This was undoubtedly very different treatment to that which such a man deserved. Moreover, as we have said, the surveyor's salary was only 200*l.* per annum!

The puritanic zeal of the time seems to have entirely put a stop to the decoration of the church; and the same feeling was strongly developed in the case of the window of St. Margaret's Church, which was objected to as superstitious, although it is simply a very beautiful picture of the Crucifixion. That discussion led to the production of an exceedingly able publication, by Dr. Wilson, which was published in 1761. I will read a few extracts from that work, which I think furnish an excellent apology for the introduction of historical figures into St. Paul's, or any other church; of course, always observing that nothing should be introduced which could in any way offend persons who might conscientiously take offence. Dr. Wilson says:—

"It is impossible for any one who has made the least observation on mankind not to have discovered the vast influence which grandeur and magnificence have on our minds. The splendour of the palace begets the most respectful ideas of the prince who inhabits it; and the courts of justice would lose a great share of their dignity were the judges divested of their robes.

It may perhaps be said that objects of this nature affect only the vulgar, whilst men of sense look farther, and bestow their reverence on those real and internal qualities which alone deserve it. If this be true, it is, I believe, certain that all mankind are the vulgar in this respect, since there does not, probably, a human creature exist who is not in some degree influenced by appearances. . . And contempt is the concomitant of meanness—and reverence of splendour.

I have sometimes thought that men may have considered this as a kind of mechanical method of exciting devotion, and have, perhaps, objected to it as if it derogated from the dignity of true religion. It would, in my opinion, be equally reasonable to object to the use of a lever, because the application of it was a reproach to our natural strength.

It was undoubtedly with the religious hope of doing something acceptable to God that men were led to adorn his temples, and not from any reflections, *à priori*, that ornaments were capable of raising devotion. But since experience convinces us that this is true, we have now an additional motive for embellishing the structure in which we pay our adoration to the God of all."

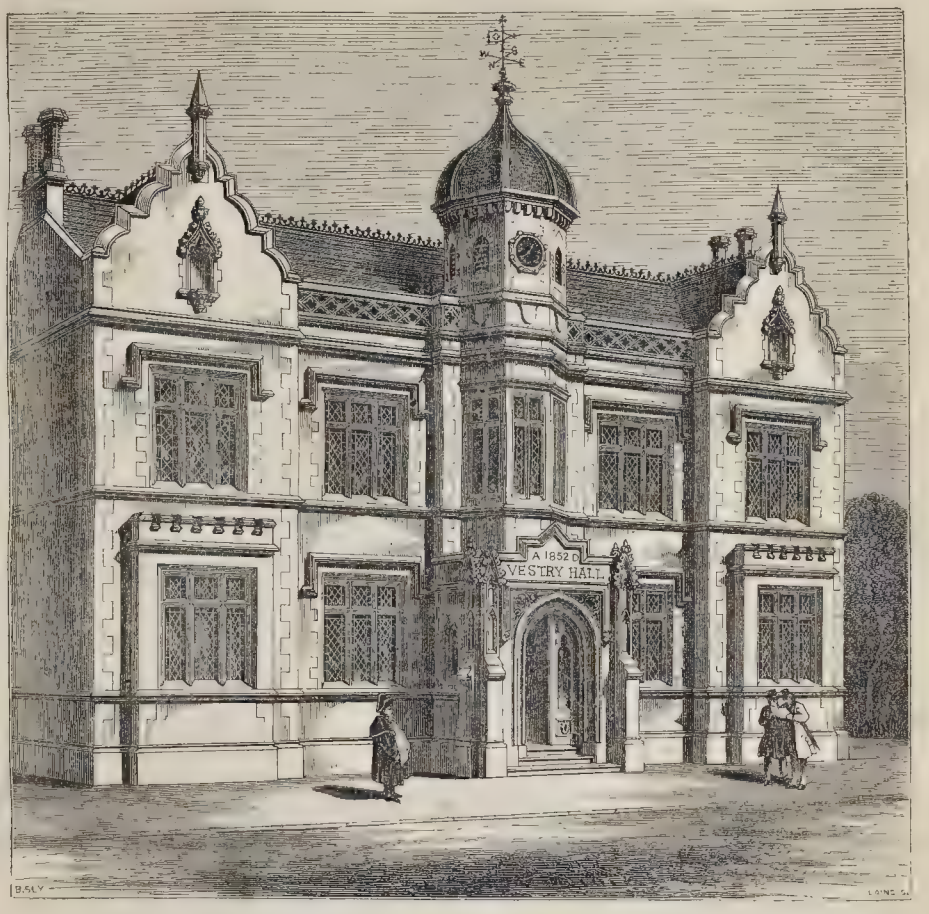
With regard to the subjects that may be proposed for decorations of churches, he cites the following highly important passage from Archbishop Wake (then reputed of the Low Church party), in his "Exposition of the Doctrine of the Church of England:"—"When the pictures of God the Father and of the Holy Ghost,—so directly contrary to the Second Commandment, and to St. Paul's doctrine,—shall be taken away, and those of our Saviour and the blessed saints be by all necessary cautions rendered truly the books, and not the snares, of the ignorant, then will we respect the images of our Saviour and of the blessed Virgin. And as some of us now bow down towards the altar, and all of us are enjoined to do so at the name of our Lord Jesus, so will we not fail to testify all due respect to his representation."

Further on the author says:—"As ornament and instruction are all we contend for, I should prefer large historical paintings to single figures; and this the more readily, because adoration has at no time nor in any place been paid to them. Indeed, it is scarcely possible to conceive, when a number of objects are placed before the eye in one picture, that a particular one can be selected for this purpose; and yet it must be done, unless we can suppose men be ridiculous enough to adore the thieves that were crucified with our Saviour and the guards who attended." He then considers whether the rules of the Church of England were contrary to painting, and shows that they are not so.

Now, we find in St. Paul's some magnificent spaces adapted for paintings. The various cupolas of the nave and aisles, the spandrels of the roof, and part of the drum of the dome, are all open to the painter; and if so decorated, of course under due restrictions, and in accordance with the Protestant authorities of those times, I think the church of St. Paul's might be made worthy of its position, as the head church of this country. But before that is

* "The judgment of the surveyor was originally, instead of painting in the manner it is now performed, to have beautified the inside of the cupola with the more durable ornament of mosaic work, as is nobly executed in the cupola of St. Peter's at Rome. For this purpose he had projected to have procured from Italy four of the most eminent artists in that profession; but as this art was a great novelty in England, and not generally apprehended, did not receive the encouragement it deserved. It was imagined, also, the expense would prove too great, and the time very long in the execution; but though these, and all objections, were fully answered, yet this excellent design was no longer pursued. The painting and gilding of the architecture of the east end of the church, over the communion table, was intended only to serve the present occasion, till such time as material could have been procured for a magnificent design of an altar, consisting of four pillars wreathed of the richest Greek marbles, supporting a canopy, half-spherical, with proper decorations of architecture and sculpture, for which the respective drawings and a model were prepared. Information and particular descriptions of certain blocks of marble were once sent to the Right Rev. Dr. Compton, Bishop of London, from a Levantine merchant in Holland, and communicated to the surveyor; but unluckily the colours and scantlings did not answer his purpose. So it rested in expectance of a fitter opportunity, else probably this curious and stately design had been finished at the same time with the main fabric."

NEW VESTRY HALL, KENSINGTON.—Mr. Broadbridge, Architect.



done, there is one very important consideration. The paintings by Thornhill, in the cupola, are in a very deplorable state. They are painted in oil, and are now about 130 or 140 years old; and, owing in all probability to the settlement of damp in the church, a great part of them has perished. Means have been taken which will render the settlement of damp much less likely in future, so that if there were any chance of restoring these paintings, they would be more permanent than they have been. Such opportunities and chances have been brought before us, especially that by Mr. Parris, whose most able and courageous plan for restoring these works has before been mentioned.

I am happy to say that one of the points which the Dean of St. Paul's has very much at heart is the restoration of these paintings; and I think, with his energy and determination on the subject, it will be done; more especially as I believe I am justified in announcing that Mr. Parris is now as willing as he was thirty years ago to undertake the restoration of the cupola. The Dean and Chapter would no doubt think that if, by the means within their disposal, they should restore the cupola, all the other restorations could be readily followed out by a public subscription, provided proper interest were taken in the work; and I cannot but think, with the energy now displayed on the subject, it only wants a commencement.

Francis C. Penrose.

NEW VESTRY HALL, KENSINGTON.

The parishioners of Kensington have recently built a new vestry-hall, the inconvenience of the room adjoining the parish church having been long felt. Above we give a view of it. Mr. Broadbridge was the architect, and Mr. Thomas Corby the builder. It is constructed of red bricks, with stone dressings, and stands in the High-street, on the west side of the National Schools.

BELFAST: ITS BUILDINGS AND SANITARY ARRANGEMENTS.

The bricks manufactured in Belfast and the neighbourhood are of a light red colour, soft and friable: they are always slop-moulded, and no breeze or other combustible matter is incorporated with the clay, so that the bricks are merely baked, and not ignited. They are rather thicker than the ordinary English brick,—three courses, with half-inch beds, rising twelve inches. They are fired in clamps with coal as fuel, and, probably from the manner of stacking them when burned, the ends are of a paler colour than the sides. This gives a chequered appearance to the fronts of houses, which, when not plastered over, are built in Flemish bond. For ordinary walling they lay 3 feet, or five courses of stretchers and one course of headers, though it is possible that many of the headers are only bats and half bricks. The price is about 20s. per 1,000.

Very little scaffolding is used in building here, the men working from within, and the joists of the floors supplying the place of scaffolds. Chimney stacks, of great height, are always built from within.

In consequence of the County Down Railway having run a branch line in to the Freestone quarries at Newtownards, *Scrab stone* (as it is called, from the mountain in which it is quarried) is coming very much into use. It is a sand stone, soft and laminated, varying in colour from a dull reddish brown through every tint of drab and gray: it is not able to withstand the atmospheric influence, especially in so damp a climate, and is very frequently painted over—a barbarity for which they deserve a touch of criticism. The price is about 1s. per foot. Fence walls, and other rubble work, are constructed of basalt, which abounds in the surrounding hills. The union-house and fever hospital are, however, built of basalt, with brick and freestone dressings, in a kind of pseudo-Gothic style, which seems universally allotted to these edifices throughout Ireland.

Excellent limestone is got from Cave-hill, where it crops out below the basaltic strata: it is a kind of indurated chalk, very hard, and with a conchoidal fracture. It would probably do very well for lithographic writing, were any one to take the trouble to select clean blocks and saw them into slabs. A railway carries it down from the hill to the shore, whence it is largely exported. The price of lime in Belfast is 1s. per bushel. Pit sand is dug out in

Malone, just without the borough, and Lough Neagh and sea sand are also used.

The principal streets of Belfast are well paved with broad flagged "trottoirs." The roadway is generally macadamised, but in some few cases paved with wood. The road pavement is constructed of short cylindrical blocks, cut from pine spars; and as these leave triangular interstices, which are filled with gravel, the pavement is seldom slippery, and seems to stand the moderate traffic over it very well. In some of the smaller streets the footways are laid with black (basalt) and white (limestone) pebbles from the shore of the Lough. These are usually disposed in regular geometric patterns, and form a rude tesselated pavement. The street-posts throughout the town have the cardinal points cast on the top, with the "fleur-de-lys" always pointing north, so that a stranger can at any time tell, at least, his bearing when abroad. This plan might furnish a hint to the Metropolitan Paving Commissioners, and would be of real use in London, where even natives lose themselves occasionally.

In various parts of the town there are cast-iron water-troughs erected for horses and cattle: these are put up and maintained at the expense of the British Society for the Prevention of Cruelty to Animals, and supplied with water gratuitously by the water commissioners. They are served by a ball-cock, so arranged as to allow the water always to stand up to the brim. They are covered and locked at night. There are no watering-places for dogs, but the police regulations of the borough compel owners of dogs to attach to their collars a block of wood of a certain weight, during the summer months. This may have some occult influence on the animal's disposition, but would rather, one would suppose, increase than diminish any tendency to insanity.

Belfast is supplied with abundance of tolerably soft water from the Cave-hill Waterworks, which are situated at a sufficient height on the side of the mountain to serve the tops of the highest houses. It is optional with owners of houses whether they will use the water or not, but the tenant must pay the rate if the main pipe runs within a reasonable distance of his door.

Gas is manufactured by an English company, and there is a very great consumption, not only in the mills, but in private residences—the latter almost universally being fitted in all the rooms with burners. I am told that a considerable quantity of common air is mixed with the gas, which both increases the brilliancy of the light by insuring more perfect combustion, and renders the manufacture more profitable. The price is 5s. per 1,000 feet; coals varying from 10s. to 13s. 6d. per ton. A discount is allowed to large consumers.

The town lying on a flat, very little above high water mark, and the rise of the tide being but about 10 feet, the drainage is not first-rate. However, some large sewers have been lately constructed, and public feeling seems awakened to the expediency of good draining in a sanitary view. A great part of the sewerage is poured into the Blackstaff river, which runs through the southern quarter of the town, rendering a pure mountain stream the most horrid mass of filth and putrescence imaginable. It has been proposed to culvert this river, and power to raise money was obtained last session; but the Blackstaff is like all mountain streams, subject to floods, and no culvert could carry off the great body of water brought down after heavy rain, which occasionally (as in last October) lays the whole town under water. A better plan would be, I think, to construct a sewer for the sewerage, and leave the river for river-water and rain. The street railings are always made of wrought iron. They are rendered ornamental by hollow iron castings being threaded on each rail, forming a base, centre, and cap, under the horizontal bar, and having generally a floriated termination to each rail.

Intramural burial has never been known in Belfast. All the cemeteries are beyond the borough boundary. These are, however, much overcrowded, especially the Roman Catholic burying-ground at Friar's Bush, near Queen's College, and this is rapidly becoming intramural by the increase of buildings in this quarter. There are no exact means of ascertaining the rate of mortality in Ireland, the Act of Registration, &c. not extending to this country; but to judge from the number of funerals constantly taking place, it must be very high. This is denied, however, by some, who argue, that from the health of the troops quartered in the town, that of the whole population should be judged; but the barracks are built on high ground, open, and airy; and military discipline enforces a degree of *cleanliness* which is by no means practised by the people generally.

On my first arrival here, two years ago, I supposed, from the absence of cowls, pufflers, windguards, &c. that the Belfast architects had solved the problem of constructing a chimney in which the smoke would ascend. Experience, however, teaches me that chimneys do smoke in Belfast, and that the absence of remedial contrivances arises from the patient and enduring character of the natives.

Houses here are occupied as soon as finished, often even before the plasterers are out: the walls (which are never papered till after some lapse of time) stream with water for months. The wood-work is merely primed; and when the walls are dry, the painting and papering are completed. Every house is fitted with a shower-bath adjoining the water-closet, and the same cistern, and usually the same closet, serves for both: the better class houses have a regular bath-room.

Sea-bathing is found at Holywood, five miles from Belfast, and at various other places in the neighbourhood. Machines are unknown, and the sexes bathe promiscuously in a way which at first astonishes an Englishman. But after a time the feelings become "more Irish, and less nice." And nowhere have I seen any approach to indecorum or impropriety.

"HONI SOIT QUI MAL Y PENSE."

A BIT OF CRITICISM.

LORD HARRINGTON'S MANSION.

IT surely happened not a little curiously that the very same number of your journal which contains what I said relative to the important qualities of breadth and repose, under the heading of "Window Architraves," also exhibits an elevation that serves to make manifest the value of these qualities, by showing the unfortunate consequences of the total disregard of them. As Mr. Rippingille says (in his pamphlet, "Obsoletism in Art: a Reply to the author of Modern Painters, in his Defence of Pre-Raphaelitism"), "There are two ways of learning; the one, by going wrong, and the other by going right." Of the former highly undesirable mode of instruction, a notable instance is furnished by the design alluded to: let us then hope that it will prove an efficacious one also. Were I to express my opinion of it without reserve, I should be compelled to make use of language and epithets which, however justly merited, would be deemed as illiberal as they would be disagreeable. All, then, that I will say is, that it makes us sigh for even Strawberry-hill Gothic, and that the "Clarendon" looks superlatively aristocratic in comparison with it. Instead of "repose" we have actual torture—the very thumbscrew of design. You yourself admit that the design of the windows is more eccentric than beautiful. Eccentric, forsooth! I do not object to the *ex*, but the other letters of the word should have been *ecrable*.

With regard to the plan of the mansion in question, I think it exceedingly poor at the best, and in many respects not a little defective; but I reserve my remarks upon it for the present, and until I am encouraged to offer them by the insertion of those which I now send.

Q. E. D.

THE PRESTON PEEL STATUE was inaugurated on Whit Monday. If we may judge correctly by an engraving of it given in the *Preston Guardian* of 5th inst. the pedestal is much too high.

NOTES IN THE PROVINCES.

Halsted.—The church of St. Andrew, Halsted having been restored, was re-opened on Tuesday in last week. The edifice has the appearance of a new building within and without. The external walls, which were of a calcareous cement, are now of flint, with Caen stone dressings. All the stonework has been executed by Mr. White, of Pimlico. The body of the church and the tower were restored under Mr. Clarke, the diocesan architect. The old tower has been taken down and a new one, 110 feet in height, erected, 25 feet into the yard, so as to secure 50 feet additional, with sittings under the belfry. The walls which cut off the side aisles from the nave have been removed and the space thrown into the church. The roof of the nave is of oak and open to the rafters. The chancel has been restored under the superintendence of Mr. H. W. Hayward, of Colchester, who has adopted the decorated style. The east wall, and part of the north, next the church, have been taken down and re-built, and a new stone doorway, with carved oak door, has been erected for the vestry. The low plastered roof is down, and the whole raised to a corresponding height with the rest of the building, with oaken roof. The floor is laid with encaustic tiles, the gift of Mr. Minton. The carvings have been carried out by Mr. Rayner, of Halsted, builder, the contractor for the whole of the work. The great east window is of stained glass, the subjects being—the taking down from the Cross, the Annunciation, and Ascension, executed by Clutterbuck, and is a memorial to the late Dr. Adams. The nave and aisles are fitted up with low open oak benches, and will altogether accommodate 970 persons. The sum expended upon the work amounts to between 5,000*l.* and 6,000*l.* and a debt of 900*l.* still remains. More than 30,000*l.* raised by voluntary contributions, have been expended in this parish for churches and schools in the last ten years, according to the *Chelmsford Chronicle*.

Swindon.—The new market-house committee have accepted the tender of Mr. George Major for building the market-house at the sum of 1,185*l.* The works are to be commenced forthwith, and to be completed by December next. The structure is of the Doric order, having a frontage of 75 feet, to be built with Bath stone. Above the market there will be an assembly room, 47 feet by 27 feet, for magisterial and other public purposes, with anterooms, library, reading-room, &c. intended for the use of the "Swindon Library and Literary Institute." The basement also contains store-rooms for corn, cheese, &c. Mr. S. Sage, of Swindon, is the architect, whose estimate for the building was 1,170*l.* The following is a list of the tenders sent in:—Mr. Frampton, 1,240*l.*; Mr. Barrett, 1,212*l.*; Mr. Phillips, 1,195*l.*; Mr. George Major, 1,185*l.* (accepted).

Rugby.—The foundation stone of Holy Trinity Church, Rugby, was laid on Thursday in last week.

Worcester.—A curious affair has taken place here in regard to the proposed enlargement and restoration of St. Nicholas's church. Notes of hand, &c. to the amount of 2,500*l.* were presented to the rector about two years and a half since, by Mr. W. Laslett, member of Parliament for Worcester, to enable him to carry out the proposed enlargement, and which he presented along with a note, in which he says:—"I hereby assign and make over the notes of hand and moneys to you absolutely, for the purpose aforesaid, or for any charitable foundation." An architect, Mr. Day, was accordingly consulted, and tenders called for, when some difficulty was found in making the amount of the fund cover the cost of the proposed enlargement, and thus various delays arose till the autumn of last year, when Mr. Laslett obtained from the rector, Mr. Havergal, a loan of one of the notes of hand for 1,000*l.* "as the party to the note wished to pay it off." In March last, Mr. Laslett, after a long illness, wrote to the rector, stating that "the parishioners having *rejected* the gift," he "had determined to erect twelve almshouses," and demanded back the documents, &c. in Mr. Havergal's hands. Lawyers have been since

consulted and employed in the cause, and there was a vestry meeting about it on Thursday week, at which it was resolved to return the fund if Mr. Laslett would pay all expenses. Mr. Laslett had previously offered to pay the architect.

Gloucester.—Operations have been commenced for the construction of a new graving dock at this port. Mr. Guest is the contractor. The probable cost of the work under his contract will be about 5,000*l.*

Wotton-under-Edge.—The new Tabernacle in this town was opened on the 26th ult. It is in the early English style, and will seat 800 persons. The internal dimensions are—length, 71 feet; width, 41 feet; height to ridge of roof, 52 feet. The roof is of pine, open timber stained, also plastered between the rafters, and of one span. There are galleries at the sides and end. The pews are open. Direct access from the chapel to the tabernacle-house is provided. The front elevation comprises deeply recessed doorway, mullioned triplet window, and two campaniles to the height of 70 feet, set back from the front to admit of egress door. The side elevation comprises four double lancet windows, with canopied and sloped buttresses between, also at angles, above which is a corbel plate. The roof is covered with slate, finished with ornamental crest. The stone is from Cromhall, near Wotton, and given by Earl Ducie; the dressings from Bath. The woodwork is stained and varnished. The old school was intended to be rebuilt, but this at present stands over for want of funds. The entire cost, including excavating, building, warming by hot water, lighting, ventilating, entrance to chapel-house, kitchen, cellars, architect's and clerk of works' expenses, is 2,200*l.* The architect was Mr. Henry Masters, who was the architect of the Whitfield Tabernacle, Kingswood-hill, opened in June last.

Devonport.—The foundation-stone of a new church was laid on Wednesday week in the district of St. Stephen's. The architect is Mr. J. Piers St. Aubyn, and Messrs. W. and T. May are the builders; Mr. Galbraith, clerk of works. St. Stephen's is designed in the Middle Pointed style, and intended to be a cross church. When completed it will have a nave and two aisles, but at present it is proposed to build only the nave and one aisle, the site of a house requisite being on lease. There is to be a tower and spire 150 feet in height, rising from the chancel. The length of the nave is 67½ feet, and the total width of the church including both aisles, 47 feet 9 in. The building, if completed according to the design, will accommodate 738 persons.

Lozells.—The chief stone of the new church of St. Silas, according to a Birmingham paper, was laid on Wednesday week by Lord Calthorpe. The building will contain 1,000 sittings, 340 free; and, including 1,000*l.* endowment, and a repair fund of 250*l.* is estimated to cost 3,600*l.*; the site having been given by the Rev. W. Burbury, M.A. Mr. F. W. Fiddian is the architect. The style is Early English. The erection will be cruciform, consisting of nave, chancel, and transepts, with bell-turret at north-west end of nave. The roof is to be of high pitch, and the rafters exposed. The windows are lancets, grouped in couplets on the sides of the nave, and in triplets at each gable end. The material of the walls is principally brick; stone to be sparingly applied to a few details. The seats are to be all low backed, and open. The chancel and transept communicate with the nave by double chamfered arches, the inner order of which rests on moulded corbels. The contract has been taken by Mr. Wilson, of Handsworth, for 2,250*l.*

Bilston.—The district church of St. Luke, at Bilston, Staffordshire, was consecrated on Wednesday week by the Bishop of Lichfield. It consists of nave, with clerestory, and north and south aisles (75 ft. by 50 ft.), chancel and chancel aisle, porch, tower at east end of south aisle, and low brooch spire; entire height, 97 ft. The lower part of the tower is occupied as the vestry, and the organ is placed in the chancel aisle. The church is built in the first Pointed style, with Alvechurch stone, and lined with bricks, and the roof covered with Staffordshire ornamental blue tiles. The accommodation is for 800 persons. The timbers of the roof and the seats are of deal, stained and varnished. The floor of aisles is laid with the Staffordshire blue and red tile, and the chancel with Minton tiles; those within the altar rail encaustic. The east window, which is a triplet, is filled in with stained glass by Wailes, of Newcastle, the centre light having the figure of St. Luke, and angels in the lights on either side. A two-light lancet window in the north aisle is also filled in with stained glass, representing Saints Timothy and Paul, the gift of the working-men of Bilston, and of the teachers of the Sunday-school. The cost, exclusive of fence walls, will be about 2,800*l.* Architects, Messrs. Johnson and Son, Lichfield. Builder, Mr. Jno. Robinson, Redditch. A vicarage-house and schools on the adjoining land have also just been completed by the same architects and builder.

Nottingham.—The Duke of Newcastle intends, it is said, to appropriate the whole of Nottingham Park and adjoining grounds to building purposes; and the local surveyor is about to expend a considerable sum in the formation of main road and culverts preparatory to the intended appropriation.

Leicester.—The chief stone of a new temperance hall was laid here on Wednesday week. The intended building is from a design by Mr. J. Medland, of Gloucester, architect, selected from twenty-nine competing designs. The external dimensions will be 105 feet by 58 feet; height of walls 57 feet, and the pediment will rise to an elevation of 73 feet. It will consist of two stories. The ground floor will be entered by a corridor in the centre, leading to a reading-room, 35 feet by 20 feet; a library, 20 feet by 13 feet; a club-room or public sale-room, 27 feet by 20 feet; a committee-room, 20 feet by 14 feet; and a lecture-hall, 45 feet by 33 feet, arranged as an amphitheatre. This hall will accommodate from 300 to 400 persons, and the elevation at the highest part will be 20 feet. The height of the reading-room, club-room, &c. will be 14 feet. The large hall will be galleried in front and on two sides. The orchestra will accommodate 200 performers, with a platform for public meetings, lectures, &c. in front, and an organ recess at the back. The hall will seat upwards of 1,600 persons, and accommodate from 2,500 to 3,000 standing. The ceiling will be carved and decorated with polychromy. The whole building will be warmed and ventilated. The cost of the edifice, including site, fittings, decorations, iron palisade, and other incidentals, is expected to be upwards of 7,500*l.*

Morecambe Bay.—The reclaiming of this bay is at length, says a contemporary, about to be carried into effect. The right has been purchased from the Admiralty by Messrs. Brogden and Co. and the undertaking will be carried out conjointly with the Ulverstone and Lancaster Railway. The rivers Crake and Leven will be confined to a fixed channel, and the bay will no doubt be left in a great measure to silt up. The vast tract, which extends from Tridley Point (near to the Ulverstone Canal Foot) to Greenodd, comprises an area of about 145,000 acres.

Liverpool.—The ceremony of laying the foundation-stone of the Holy Cross National Schools took place on Monday week. The site chosen is in Fontenoy-street, in the midst of a numerous Roman Catholic population. The building will be 72 feet long, and 40 feet wide, within the walls, and is intended to contain school-rooms for boys and girls, and a guild-room.—*Liverpool Times.*

Kersal Moor.—The new church of St. Paul, recently erected on Kersal Moor (the scene of the old Manchester races), was consecrated on Saturday week. The amount raised at present for the erection and endowment of the church and the building of the parsonage-house, is about 8,759*l.* The church is calculated to accommodate 1,200 persons, one-third free. The style is Perpendicular. The tower is a composition from Magdalene, Oxford, and Carisbrook, Isle of Wight, with the addition of a lofty spire. The material is stone for the whole of the walls and spire, fine stone for the dressings. The inside is lined with brickwork. The extreme length is 135 feet, the width (exclusive of the transepts) 67 feet. The tower and spire rise to an altitude of 150 feet. The church was erected by Mr. James Holmes, builder, Lancaster. The architect is Mr. Andrew Trimen, of London. The cost is about 5,000*l.*

Burnley.—The new Wesleyan schools at Burnley have been opened. They stand in the centre of the town, and form an extensive pile of buildings, consisting of a porch, entrance-hall, two school-rooms, four class-rooms, and two residences. The large room is 28 yards long, 16 yards wide, and 9 yards high; and the other is 24 yards long, 10 yards wide, and 9 yards high. The buildings are warmed by means of a hot-air apparatus, erected by Mr. Thomas Atkinson, of Burnley, and ventilated by a perforated hollow wooden beam which runs through the buildings immediately under the ridge of the slate into flues at the ends of the rooms. The school-rooms will accommodate upwards of 800 children. The walls are wholly built of stone, with ornamental portions at the corners, porch, &c. It is principally of the Elizabethan style of architecture, from designs by Mr. Simpson, of Leeds, architect. The cost is about 3,600*l.* of which 2,000*l.* were raised by subscriptions, and 807*l.* from the Committee of Council on Education. The contractors were—Mr. Robert Smith, mason; Mr. Thomas Hird, joiner and builder; Mr. Clarke, painter and plasterer; and Mr. Thomas Atkinson, whitesmith.

Leeds.—The town council have resolved, on the report of the new town-hall committee, to allow a sum not to exceed 35,000*l.* to be expended in the erection of the proposed new town-hall. Plans are to be advertised for.

Glasgow.—The cathedral of this city is about to be improved by the removal of a mound in front of the infirmary.

Kirriemuir.—A Presbyterian church is about to be rebuilt in this town. Other new buildings are going on in this place.

Comrie.—This town has been lighted by White's hydro-carbon gas.

WINDOW ARCHITRAVES.

LEST the silence of Mr. Bailey, who is *en route* for Constantinople, and therefore unable to reply to the remarks of your correspondent, "Q. E. D." upon his paper, should be construed into an admission of the weakness of his arguments, I would endeavour to express my conviction of their general truth, and would myself reiterate his caution, to "shun architraves around windows." Of such, even if desirable, one might think there had been a surfeit at length, since now for some centuries every palace, clubhouse, prison, and workhouse, and all the myriads of modern houses, have had alike their every "hole" thus garnished with what are at best but "tame and feeble" decorations; and though, when more effect is sought, they are made more "*prononcé*" by clapping up a miniature imitation of a façade, with mock pediment and useless columns, looking as if glued to the wall as a frame round the opening, it is then but a sham, unworthy of architecture. That a simple architrave, executed in stone, and being really what it pretends to be, the properly constructed lintel and jambs, with perhaps a cornice to protect the window from rain, is to be tolerated, I am willing to allow, but still agree with Mr. Bailey, that it is a tame and feeble decoration; but such is rarely the case: it is usually a useless plaster excrescence, destroying the breadth of the wall, without giving any equivalent quality.

Your correspondent fears, that if debarred from his favourite architrave, "all finishing round the aperture" is dispensed with: this need not be the case: the angle may be splayed or moulded with excellent effect, and the window thereby incorporated with the wall, instead of being ingeniously disconnected from it by a series of ugly ruled lines. But the misfortune is, that these expedients require a slight amount of thought and originality; whereas

the adoption of the eternal, monotonous, uninteresting architrave saves both: that the slight thickness of our modern walls prevents the attainment of effect without architraves, is at once disproved by a reference to the admirable old domestic architecture at Bruges and other cities in Belgium, where the depth of reveal of the windows is often not more than 4½ inches. As to the definition of "breadth," I am inclined rather to take the explanation suggested by the scope of the paper than that given by Q. E. D.; namely, "the comparative infrequency and smallness of the apertures in a façade," since I imagine that that desirable quality may even be secured by their very frequency and size, or by means of their connection with the wall surface by similar ornament, as in most of the later Gothic structures.

J. P. S.

THE THEORY OF THE TIDES.

OBSERVING in your last number but one some observations on the tides, signed "W. Adolph," pointing out certain anomalies of the present theory of the tides, and arguing therefrom that that theory is not true, I beg leave to offer the following remarks, which will show your correspondent that the objections which he has stated do not exist in fact, and that, however inadequate our present means may be to predicate the actual time and rise of high water in any locality, there does not admit of the shadow of a doubt as to the truth of the present explanation of the tides.

Your correspondent, on the authority of Mr. Kerigan, states that calculations founded on the principles of universal gravitation, show that the moon would not be retained in her orbit by the mere force of terrestrial attraction; and as it is desirable to correct this fundamental error before proceeding further, I shall give briefly the calculations by which it is demonstrated that the moon is retained in her orbit by the earth's attractive force alone.

Let g = the space in feet fallen through by a body under the influence of gravity in one second, at the earth's surface; s = the space in feet similarly fallen through at the distance of the moon; r_1 = 3,957 miles = the mean radius of the earth; r_2 = 237,894 miles = the mean radius of the moon's orbit; t = 2,360,592 seconds = the time of a sidereal revolution of the moon; p = 3·14159; then by the laws of gravitation the space fallen through varies as the attractive force, and both inversely as the square of the distance. Therefore,

$$s : g :: r_1^2 : r_2^2$$

and

$$g = \frac{s r_2^2}{r_1^2}.$$

Again, the circumference of the moon's orbit equals $2r_2 p$; therefore, the space moved over in a second equals $\frac{2pr_2}{t}$; and since, in a very small arc, the diameter of the circle is to the length of the arc, as the arc is to its versed sine, or by the space fallen through by the moon in a second, we have

$$2r_2 : \frac{2pr_2}{t} :: \frac{2pr_2}{t} : s$$

and

$$s = \frac{2p^2 r_2}{t^2};$$

and substituting this value of s in the former equation, we have

$$g = \frac{2p^2 r_2^3}{t^2 r_1^2}.$$

Substituting the values of the various quantities, and performing the calculation—

Logarithm of 2 =	....	·3010300
Log. p^2 =	.....	·9942997
Log. r_2^3 =	.....	16·1291505
		17·4244802
Log. t^2 =	12·7460420	
Log. r_1^2 =	7·1947322	19·9407742
		3·4837060
Log. 5280 (no. of ft. in a mile) =		3·7226339
Log. of 16·082 =		1·2063399

We thus see that the calculation gives 16·082 feet, the same, within an extremely small fraction, as the value derived by direct experiment, which gives 16·0954 feet.

Your correspondent further appears to be under the misapprehension that the attraction of the earth and moon is not mutual, whereas it may be shown that, whatever may be the cause of the phenomena of attraction between the two bodies, the effect must always, and under all circumstances, be mutual and reciprocal.

And again, he appears to suppose that the atmosphere influences the phenomena of the tides; that the pressure of the atmosphere tends to prevent the rise of the tide, and has to be overcome when it actually does rise; and further, "that, according to the theory of the tides, the moon would draw up the entire sea, if the air was not between." Now, the fact is, that the atmosphere no more opposes the rise of the tide than it does the rise of one of the scales of a balance; and for the same reason, namely, that the atmosphere presses equally over the whole surface of the ocean, as it does on *both* of the scales of the balance; and that one part of the ocean can no more rise without some other part sinking, than one scale can rise without the other falling; and, therefore, that the work performed by the ocean in rising against the atmospheric pressure, is precisely equal to the force imparted by that pressure on the portion which is sinking.

Your correspondent inquires, how is it that the time of the moon's passing the meridian precedes the time of high water? and, further, what is the reason why such small tides are observed in the Mediterranean and some smaller inland lakes? Now it must be remembered that the phenomena of the tides are the result of water thrown into *motion* by an external force ever varying both in direction and amount, not of water in a *quiescent* state, under the permanent influence of a uniform and constant force; and they must therefore be investigated by the laws of dynamics, and not those of statics. This fact is sufficient to explain at once the whole of the anomalies to which your correspondent refers: the tidal wave does not arrive at any given spot so soon as the moon because of the obstacles which have to be overcome in its passage, and it rises to a greater height in some localities than others, because of the greater or less, the more sudden or gradual, resistance which the shores of the ocean offer. Again, in the case of the Mediterranean and other inland seas, the water does not rise under the attractive influence of the moon, because there is no means of supply, whence the enormous body of water requisite to produce any appreciable rise in the sea, could be derived in so short a space of time as the duration of the flow of the tide; and the sea itself is so small that the moon acts with nearly equal force over its whole surface, any small rise of the tide which is actually observable being due to such inequality in the moon's attractive force upon different portions of the inland sea itself.

I will not trespass longer upon your valuable space, but at some future period may, with your kind permission, offer a few remarks in explanation of some of the tidal phenomena, the study of which is so important a branch of hydraulic engineering, and therefore worthy of a place in your journal, which I believe to be as extensively consulted by the engineer as by the architect.

LEX.

ROYAL PRINCESS'S THEATRE.—The scene of Mr. Lovell's new play, "The Trial of Love," is laid in Newark, during the siege by the Parliamentary troops in 1644, and admits of several architectural views, of which the artists have taken very satisfactory advantage. An Elizabethan room, with a carved chimney-piece, and the closing scene—a Gothic hall, with screen and canopy-work—may be particularly mentioned. We do not rank the play quite so highly as some of our contemporaries, but it is, nevertheless, an excellent production, and will afford legitimate enjoyment to all play-goers. It is admirably played by Mr. and Mrs. Charles Kean, Mr. Meadows, and Miss Marshall.

THE CONSTRUCTION OF PORTLAND BREAKWATER.

THERE is no doubt but that this great work is one displaying in high degree the perfection which scientific and practical engineering has now attained, and one which reflects credit on those employed upon it. But in these times, when everything has to be brought to the test of £. s. d. we must take another view of the subject; and since the nation has to pay for it, we must see if the same result could not be obtained by a few hundred thousands less expenditure.

The creation of harbours of refuge is a praiseworthy object in every respect, and we could scarcely have too many; but unfortunately, owing to the costliness of the mode of construction adopted, they must inevitably be few and far between. In opposing a barrier to the fury of the ocean, we cannot do better than take Nature's own works for our model: that is to say, when we wish to construct such a barrier, it will be quite sufficient to throw down a line of rocks in the required direction, each rock so thrown down being alone of sufficient weight and magnitude to resist the utmost force of the waves. It is evident that if we entirely leave out the filling up with small stone or rubble work, which is of no use whatever, except perhaps for injury, in offering a solid mass for the sea to break against, we shall have a breakwater containing less than half the cubic contents of solid stone, consequently costing less than half, and, under the peculiar circumstances of an unlimited supply of waste stone or roach, as it is locally called, close at hand, and of any dimensions, not much more than one-fourth of the ultimate cost of the breakwater now constructing at Portland.

It will be said, however, that such an open-work breakwater, though producing smooth water inside, cannot be made available as a landing pier, and certainly we ought to combine these two objects together for the sake of economy. No; that is the fundamental error. It will be far cheaper to construct an independent landing pier within and under the lee of the outer breakwater, if such convenience should be required: besides, it will be quite sufficient to lay down the breakwater at the national expense: private enterprise will do all the rest.

This is no new idea I am throwing out, for all persons conversant with the Mediterranean are well acquainted with the numerous breakwaters constructed centuries since for the protection of the ports and harbours of these shores. They are called by the Italians by the significant name of "*Scogliera*," in English "*rock-work*," and are formed entirely of huge blocks, roughly squared, varying from 20 to 30 tons each, without any filling up whatever. They have merely been pitched down upon and between each other until the mass has risen above the highest water-mark. All the quays, piers, and landings have been universally constructed in the smooth water under the lee of these Cyclopean rock-works.

Unfortunately in England there is so much capital to be employed, that engineering plans that do not cut out much work for the contractors are liable to be shelved; for the contractors of the present day are big men, and have much influence they are Members of Parliament, and have many friends in and out of the House; so that engineers are shackled and hampered in forming their plans, and cannot reduce them to their utmost simplicity, but, on the contrary, are compelled by circumstances over which they have no control, to introduce as much contractor's work as possible, and the nation, or, as the case may be, the shareholders, have to pay for it.

HENRY W. REVELEY, C.E.

FALL OF A BUILDING IN FRANCE.—It was lately observed that one of the principal walls of the hotel, the Lion d'Or, at Condoms, threatened to give way, and an architect was called in to examine it. While inspecting it a violent cracking was heard, and all at once the house fell in. By chance, every person residing in it was out at the time.



NEW CLOCK-TOWER, LONDON BRIDGE.
MR. CHRISTOPHER EDMONDS, ARCHITECT.

PROPOSED CLOCK TOWER IN SOUTHWARK.

MR. BENNETT, of Blackheath, having liberally offered to place the large clock contributed by him to the Great Exhibition in 1851, at the disposal of the Commissioners for Lighting the West Division of Southwark, they have determined on erecting a tower in which to place it on the spot where the lamp pedestal now stands, at the foot of London-bridge, at the corner of Duke-street, and the entrance to the railway stations. A design was made by Mr. Christopher Edmonds, the surveyor to the Board, and of this we give an engraving. It will be quadrangular, nearly 60 feet high, and will be constructed of cast iron. The four dials, each 6 feet in diameter, will be of white glass, strongly illuminated at night, and the windows will be filled with purple flashed glass. The cost is calculated at 700*l.* half of which is to be paid out of the rates, and the other half is to be raised by subscription.

It is a very happy idea, and we shall be glad to see the example followed. The parish ought to feel much obliged to Mr. Bennett.

It must not be considered, either in this or other cases, that because we publish the design, we necessarily approve it. We seek to make our readers acquainted with such of the new structures rising about us, or proposed for erection, as are likely to interest them on one ground or another, and when, to enable us to do this, we are obliged to apply to their designers for the materials, condemnatory criticism would be ungracious, and we give the views simply as facts, without comment. In the present instance we have no hesitation in saying that the design is not satisfactory. Looked at without reference to the material of which it is to be composed, the form of the buttresses at the angles is not good, and windows in such a position are unmeaning and false: but the radical error is this, that the proposed tower is a reproduction of a stone building in iron, and is for that reason wholly indefensible. The two materials require entirely different treatment, and we shall have done good service if Mr. Edmonds, taking these remarks in the spirit in which they are offered, be led to reconsider the matter, and produce a design having proper reference to this undeniable proposition.

THE LATE MR. JAMES SAVAGE, ARCHITECT.*

MR. JAMES SAVAGE was born at Hackney, Middlesex, April 10th, 1779. After receiving his education at a private school, he was articled to Mr. Alexander, the architect of the London Docks, under whom he acted for several years as clerk of the works. In 1798 he was admitted a student of the Royal Academy. In the year 1800 his design for improving the city of Aberdeen obtained the second premium of 150*l.* he being then under twenty-two years of age. In 1805 he was the successful competitor among the numerous architects who submitted designs for rebuilding Ormond-bridge over the Liffey, Dublin; and in 1808 he furnished the design for Richmond-bridge, over the same river, which was carried into effect. In 1806 he presented to the London Architectural Society, of which he was a member, an essay on bridge building, which they published in the second volume of their "Transactions." In 1815 his design sent in competition for a stone bridge of three arches over the Ouze, at Temsford, in Bedfordshire, with the adjacent road and flood bridges, was selected by the magistrates of the county. In 1819 his plans for building St. Luke's Church, Chelsea, were selected, from among above forty designs. This church is an imitation of the Gothic churches of the fourteenth and fifteenth centuries, and is noticeable for the ceiling of the nave, which consists of a groined vault of solid stone, whose lateral pressure is resisted by flying buttresses, also of solid stone. In the original design for this church the tower was terminated with an open spire, similar in principle to that of Sir Christopher Wren's church, St. Dunstan's in

* From a communication to the Royal Institute of British Architects, by Messrs. H. and C. W. Savage.

the East; but the Board of Works considered it their duty not to sanction the construction of such a spire, and put their veto upon it accordingly.* In 1823 his design for the new London-bridge was submitted to a committee of the House of Commons. His design for the bridge was highly approved, but the committee, by the casting vote of their chairman, decided in favour of the design of the late Mr. Rennie. Among several others, he was one who made a plan (in 1825) for improving the river Thames, but, while they selected the north bank for their operations, he chose the south bank. This scheme he named the Surrey Quay, which he proposed should extend from London-bridge to Bishop's-walk, Lambeth. Much of his practice consisted in arbitration cases, and the investigation of architectural and engineering questions brought before the courts of law. Among these was the long protracted Custom-house case of the Crown *v.* Peto, in which the defendant attributed his success mainly to the evidence of Mr. Savage.

About 1830 he succeeded the late Mr. Hakewell as architect to the Society of the Middle Temple. He erected the Clock Tower to their Hall; also Plowden-buildings in Middle Temple-lane, and other works.

In 1836 he published, "Observations on Style in Architecture, with Suggestions on the best Mode of procuring Designs for Public Buildings and promoting the Improvement of Architecture; especially in reference to a Recommendation in the Report of the Commissioners on the Designs for the new Houses of Parliament."

In 1840 he was commissioned by the Societies of the Inner and Middle Temple to prepare designs for the restoration of the Temple Church; and the works were fast progressing, when a disagreement between the societies and Mr. Savage induced the Benchers to apply to other architects to carry on the works, which, after some delay, were, however, completed according to the original intentions of Mr. Savage, a few unimportant alterations having been introduced.

Among other buildings and works which he designed and executed, the following may be mentioned:—Trinity Church, Sloane-street; St. James's Church, Bermondsey; Trinity Church, Tottenham-green; St. Mary's Church, Ilford, Essex; St. Michael's Church, Burleigh-street, Strand; St. Thomas the Martyr Church, Brentwood, Essex; St. Mary's Church, Speenhamland, near Newbury, Berks; St. Mary's Church, Addlestone, Chertsey, Surrey; two bridges on the road made through the crown lands at Reading, Berks; the new floor and bell frame, and repairs to the broad tower of Lincoln Cathedral, to receive "Great Tom," re-cast by Mr. Mears, of London, in 1836; repairs to the belfry floor and bell-frame of St. Mary-le-Bow, Cheapside, London, so as to enable the peal of twelve bells therein to be rung with safety, which had not been rung out for very many years prior to the alteration; the Baptists' College, Stepney; Bromley and Tenterden Union Workhouses, &c. &c. &c.

One of the last works upon which he was engaged till within a few months of his death, was altering and beautifying the Church of St. Mary-at-Hill, London. He had previously executed great alterations and repairs to this church in 1827-8, when it was in fact nearly rebuilt.

Mr. Savage was a citizen and Skinner of the city of London. He was also a Freemason; one of the oldest members of the Surveyors' Club; and, for a long period of his life, chairman of the committee of fine arts of the Society of Arts, in the Adelphi. He was a member of the Graphic Society, from the time of its formation, a member of the Institution of Civil Engineers, a member of the Architectural Society, and for a short time a fellow of the Institute of British Architects, from which, difference of views upon some matters of regulation induced his early withdrawal.

With the exception of attacks of gout and rheumatism, he enjoyed perfect health, till within six months of his death, which took place, after a fortnight's illness, on the 7th of May, 1852, in the seventy-fourth year of his age. His remains were interred on the 12th of the same month, at St. Luke's Church, Chelsea.

* To show the extent to which prejudice and timidity may mislead not only individuals but public bodies, the design for this structure (Chelsea Church) had been approved, the working drawings and detailed specification made out, the contractor engaged, and the building very considerably advanced, before the Parliamentary Commissioners for building New Churches, under whose superintending power this work was to be carried on, had actually discovered that the architect had designed to arch the groined ceiling of the nave with *real solid stone!* On this information coming to light, it was considered necessary immediately to assemble a council, to take into their most serious consideration the danger which was threatened to both Church and State if so daring a mode of procedure were allowed: nor would they permit it to proceed until the architect had been asked if he was willing to be answerable for the consequences in the event of a failure. In the original design it was intended to raise a spire on the tower, as mentioned above, somewhat like that of St. Dunstan's-in-the-East, near the Custom House, but this was considered too formidable a proposal: it was, in fact, too ingenious for their comprehensive powers to understand. The architect produced a large model of his proposed spire, composed of separate pieces of wood jointed proportionally, and exactly as the stones would be if it were executed: these distinct parts were merely piled up without anything whatever between them to act as a cement, nor were the joints at all banded or joggled together as the stones would be in execution; yet this rude model, with so many unfavourable circumstances, bore considerable vibratory shocks before it fell: but the impression of danger had already too powerfully affected the minds of the local and senatorial authorities to admit of confutation, notwithstanding mechanical, philosophical, and mathematical demonstrations and experiments were produced to elucidate the plan; consequently the architect was compelled to abandon his project.

PROVISION FOR THE FUTURE—MASTERS AND MEN.

ABANDONMENT OF THE PROPOSED BUILDING AND ENGINEERING WORKMEN'S FRIENDLY SOCIETY.

WE regret to hear that the committee appointed at the meeting held in Guildhall, on 11th December, 1849, have not succeeded in organising the proposed society, and are about to return to the subscribers the amounts placed at their disposal. The total sum subscribed was about 1,100*l.* It will be recollected that the idea of forming a society for the benefit of building and engineering workmen originated with Mr. Cockerell, who had long felt the want in this country of some strong bond of union and good feeling between employers and employed.

Our readers are aware that meetings were held, and that the workmen themselves, on considering the matter, came to the conclusion—

"1st. That unless a *sick fund* was included in the scheme, the most important element would be wanting in a friendly society for the building and engineering classes. 2ndly. That very few of them could afford to lay by sufficient money to purchase a deferred annuity; and that *they feared the average length of their lives* would make such an investment questionable. 3rdly. That the majority of the men were already members of friendly societies; that there was a strong feeling in the minds of the working classes in favour of savings banks, because of the immediate *personal control* over their savings which was thereby enjoyed."

The committee then proceeded to consider *seriatim* the suggestions which the deputation had offered, and several inquiries were set on foot to assist in the determination of the questions raised, and the result of a protracted inquiry was to elicit the gratifying fact that sick funds were found to be almost universally adopted by the larger firms, and were in very flourishing condition. It was found that the evidence of most of the actuaries and others taking interest in friendly societies, was to the effect "that it was impossible to watch *with sufficient vigilance over large sick societies* spread over wide districts;" and the committee came to the conclusion that they could not attempt to establish such a fund; that it was not expedient to offer deferred annuities; but that their efforts should be directed entirely to the question of life assurance. They determined to add a loan fund, whereby an assurer might borrow money on his policy; and that by a benevolent-aid-society provision should be made for paying all the working expenses of carrying on the association.

At a second conference with the deputation, the workmen repeated their conviction of the necessity that a sick fund should form the main feature of a friendly society, and frankly stated that, in their opinion, the society *would not be acceptable* to the workmen on the principles proposed. Moreover, the differences that arose between the engineering workmen and their employers, now happily at an end, having resulted in the conviction on the part of the heads of the several firms, that it is *equally their duty and interest* to aid the workmen in the conduct of their benefit societies, has led to the formation among them of a separate institution of this character, and has issued in their secession from the proposed society. The result is, the committee have come to the conclusion that it would not be possible to establish the society with any prospect of adequate success; and they have therefore abandoned their intention.

Mr. Baker, Mr. Piper, Mr. G. Wales, who has acted as hon. secretary, and some few others have remained sanguine, or at least hopeful, with Mr. Cockerell, to the last, and the whole body of workmen owe them thanks for their praiseworthy endeavours.

We cannot say that the failure of the attempt has caused us so much surprise as it has regret: at starting we saw reasons for believing that the issue was doubtful. We agree with the deputation of workmen, that to make the society acceptable *a "sick fund" was indispensable*, and we think the committee should have taken the better view of human nature, and included it in their scheme, even at the risk of an occasional imposition. Care in the admission of members, proper regulations, and the establishment of district committees might, we think, be made to protect the funds sufficiently.

We still look for one great and general "Builders' Provident and Benevolent Institution," uniting masters, men, and employers by kindly ties, and capable of supplying all the wants and necessities to which accident, misfortune, or old age, might expose them.

FALL OF FLOOR AT THE CORN EXCHANGE, LIVERPOOL.

THE daily papers have probably made the majority of our readers acquainted with this unfortunate occurrence, which caused the death of two individuals. The Liverpool Corn Exchange has been rebuilt, and enlarged, under the direction of Mr. J. A. Picton, and has beneath it two ranges of vaulted cellars, one over the other. At a moment when there was a large number of persons in the building, two of the arches failed, and the floor fell in to a considerable extent. An inquest has been held on the bodies of the sufferers, and the matter carefully inquired into. It appears that the builder (Leader), who undertook the contract in the first instance (for 8,115*l.*) failed to complete it, and that an arrangement was then made with a second (Mr. Mackarell), to execute the remaining carpenter's work. Some of the arches were turned, and the centres remained in. These Mackarell took out, under the superintendence of the clerk of the works (Mr. Code), in order to turn other arches, and the accident followed. The clerk of the works said in evidence, that he understood the architect to give orders for their removal from the upper arches, but this the architect denied. He had told Code that the centres already on the premises belonged to Mackarell, and that might have led to the misunderstanding. He had previously permitted the removal of those in the lower arches. Mr. Picton said, in the course of his evidence,—

"That the upper arches had been turned eight or nine months at the time the accident occurred. Under ordinary circumstances the mortar would have been sufficiently consolidated and set under these arches. Since the occurrence I have examined the mortar of the arches and the backing, and I find that it is not sufficiently consolidated. There were no means for testing this, the arches being covered by the floor above, which had a counter-ceiling under to prevent the cold drafts through the boards, and covered also by the centering below. At the time of these arches being constructed it was the latter end of the year—a time of great rain. The building lay open for a long time, waiting for the iron ribs of the roof and the plate glass. Of course all the rain that fell saturated the arches and backing."

The clerk of the works said he considered

the cause of the accident was, that the sleeper-walls were placed the wrong way of the arches.

Mr. Edward Woods, Engineer, called in by the Coroner to assist in the examination, said,—

"He was of opinion that the workmanship of the arches was executed with proper care. The bricks were good. The joints were close. The piers had been built in good cement. But the mortar of the arches had not properly set. That the accident is mainly attributable to the unseasoned condition of the mortar of the arches at the time the pressure came upon them. The mortar was saturated with moisture, and had consequently little cohesive power, and little capacity to sustain compression. That the sleeper-walls being built along the haunches of the principal arches, the weight of the flooring and its load exerted its pressure upon the haunches of the arches only. That this pressure tended to depress the haunches and to raise the crown. The soft state of the mortar and the thickness of the brickwork presented but a slight resistance to such a compression. That the arch was consequently fractured across inwards. That the next arch was left unbalanced, and the intermediate piers were consequently overthrown. That the amount of pressure which caused the accident would not suffice to account for the failure of the arch had the mortar been properly consolidated. That, considering the then existing condition of the mortar, and also having regard to the general construction of the building, it would have been a prudent and necessary precaution to have slackened the centres uniformly and gradually over the entire area, and not removing any of the centres until the mortar had become thoroughly dry, and had compacted the brickwork into a solid mass. That this premature removal of the centres, taken in connection with the circumstances adverted to, namely, the greenness of the mortar, the thickness of the arch, and the mode of the distribution of the pressure upon its surface, would conspire to cause the accident. The mortar was of fair, ordinary quality."

Mr. Rishton, one of the borough surveyors, concurred in Mr. Woods' evidence.

The jury, after three hours' deliberation, brought in a verdict of "accidental death," and made the following presentment:—

"That Philip Code is highly blameable for allowing the centres to be removed from the upper arches without previously applying for, and obtaining, the express permission of Mr. Picton, the more especially as he had expressed an opinion that he considered it dangerous to remove the centres till the whole of the building was completed; that he was also blameable for not requiring of Mr. Mackarell to supply new centres for the new arch, according to the specifications.

That Mr. Mackarell is not without blame, in failing to provide the necessary centering to carry on the works, agreeably with the specification.

Neither do the jury consider the Corn Exchange Committee entirely free from blame, and that it is a practice much to be censured that public bodies take the lowest tenders for work, without regard to the means of the parties to carry that work to completion.

That the jury exonerate Mr. Picton from blame, in reference to the removal of the centres of the upper arches, believing that his permission to remove any of the centres was specifically limited to the lower arches."

THE MEDIÆVAL BUILDINGS OF POITOU, IN FRANCE.

Some time since Mr. J. H. Parker, in continuation of a memoir read during the last Session of the Society of Antiquaries of London, upon the principal Buildings of the Middle Ages in the West of France, and particularly in the county of Anjou, addressed a second letter to Captain Smyth, upon the buildings of the same age and character in Poitou.

The object of Mr. Parker's paper was two-fold:—

1. To show the provincial character of the buildings of Poitou, which, though approaching more nearly to those of Anjou than any other, have still a certain distinct character of their own, as may be observed of most of the ancient provinces of France. This Poitevin character partakes of that of the north and of the south of France in rather a singular manner, as might perhaps be expected from its geographical position, the domical vaults being borrowed from the south, while much of the detail resembles rather that of the north.

2. To show that the buildings of Poitou, as of Anjou, are more advanced in style than those of Normandy at the same period, and still more in advance of England. Four churches are recorded to have been built in Poitiers in the eleventh century, and the remains of these four are so much alike, and so much what might be expected from their history, that there seems strong reason to believe the existing structures belong in great part to that period. One of these, St. Hilary, is a very large and fine church, partly rebuilt in the twelfth century, or not completed till that time. St. Saviour in Poitou is another large and fine church, the walls of which are covered with paintings that cannot be later than the eleventh century, and an inscription appears to fix that date for it. We had no buildings of this magnificence in England until quite half a century later. The progress of architecture appears to have been from the south to the north, by several distinct lines and in successive stages, each having a certain character of its own. That part of the cathedral of Poitiers, which was built by Henry II., consisting of the choir only, is rather more advanced in style than buildings of his style in England; but not more so than the Hospital of St. John at Anjou, also built by him. Mr. Parker endeavoured to call the attention of English antiquaries to these English provinces of France, and exhibited a series of drawings of the buildings mentioned.

ANCIENT AND MODERN MARBLES.

The following memoranda on marbles may, perhaps, interest some of your readers:—

The Parian, or *hard Greek Marble*, is the most white and beautiful of all statuary marble. The surface is remarkably smooth, and the grain composed of large scales. The statue of Minerva in the Vatican is of Parian marble.

Tyrium, or "*Greco Turchinecchio*," has a colour inclining to blue, and is remarkable for the fact that the steps of the "Scala Santa," taken from Jerusalem, are made of it.

Marmo Lunense, or *Carrara*, has a fine grain: the colour is more soapy than the Parian, containing occasionally dark and apparently metallic blotches. The quarries near Lima, a town or bay in Tuscany, on the confines of Liguria, were worked in the time of Julius Cæsar, and the marble precisely corresponds with the Carrara of the present day.

"*Giallo Antico*," or *Marmor Numidicum*, has a grain exceedingly fine, ground always yellow: the tints vary very considerably, the more dark the more valuable the marble. It has been compared by ancient writers to many different objects, such as ivory grown yellow with age, the golden rays of the sun, saffron, &c. Sometimes it displays a purple hue, and sometimes the lightest possible shade of yellow, some as bright as gold (*Giallo Dorato*), another orange (*Giallo Capo*), again, another sort the colour of a canary bird, which is extremely valuable and rare (*Giallo Paglia*); finally, another of a reddish tint called *Carnagione*, very beautiful and highly valuable when the colour, which is sometimes the effect of fire, is natural. There are six large columns in the Pantheon at Rome and one pair in the arch of Constantine composed of Giallo Antico.

Marmo Rosso Antico.—It is an extraordinary fact, that neither the ancient name of this beautiful marble, nor the country where it was quarried, is known. The colour is never bright red, but resembling liver, and covered with minute black crooked lines, like net-work: livid white blotches, characteristic of a "Brecia," on union-marble, appear on it occasionally, and sometimes livid white veins. The celebrated Fawns in the Vatican, in the Museum of the Capitol, and in the Palazzo Doria, are all of this marble.

Marmo Noro Antico.—Colour deep black, fine texture, marked occasionally with minute white short straight lines, but always broken and interrupted. Some fine specimens are in the museum of the capitol; but the largest masses in Rome are a pair of columns in the church of Regina Corla, and a table in the Palazzo Altempo.

Marmo Cipollino.—The colour of this is bright green on a yellow ground, or sometimes black on a white ground, and occasionally blended with a ground of yellow. This is a very rare marble. There are columns in the temple of Faustina and Antoninus in the Roman Forum, but the tints vary so much that it is difficult to define any: a kind with white ground and streaks of bright green is very beautiful, but very rare.

The above only forms a mere outline of the various antique marbles.

The marbles imported into this country from abroad are very various at this time, besides those of native Irish, some of which bear great affinity to the "antique."

Statuary White Marble is of the same quality, and from the same quarries as were in use in the time of Julius Cæsar. The texture is eminently beautiful—close and fine-grained, and in colour white as snow. When, however, it is perfectly *pure*, the value is very great: this occurs so rarely that any price is paid for a block opened, so that the quality may be seen.

Veined White Marble.—The texture is somewhat of statuary, close grained, but streaked with blue and black marks.

Bianca Chiara, or *Sicilian.*—This marble was comparatively unknown in England until introduced by the late Sir Francis Chantrey, who gave it the English name of "Sicilian," though it is well known to come from Tuscany, adjoining the statuary quarries. The ground is generally of a bluer cast than "*veined*," with "dots" of blue or black, instead of "streaks."

Porte Venere, or *Black and Gold Marble*, is a very beautiful black marble, with veins of gold or yellow, variegated all over it. The brilliant gold-like colour has caused it to be highly esteemed and given its English name.

Dove Marble, is as its name implies, "Dove," delicately marked with white blotches. The texture is close and fine.

Bardiglia Marble is somewhat of the "Dove," but more decided in its marks, of either a faint blue streak, or, in some and more valuable kinds, the colour approaches almost a black on its dove-ground.

Siena is very similar to "Giallo Antico," in texture perfectly so, and occasionally in colour. It is highly and deservedly esteemed, and varies as much as the description of the Giallo Antico, to which I refer.

I have lately seen, at Whitehall-wharf, some beautiful blocks of coloured marbles,—"red," "yellow," "green," and a mixture or "rainbow" description; all are equal to "antique," and some seem new in this market; also some Irish green, the colours of which may in part be likened to "malachite." It is very doubtful, if the ancients quarried blocks of black marble, of such large size as are now imported into London, from Galway. A Merchant.

METROPOLITAN BUILDINGS ADMINISTRATION BILL.

As we forewarned our readers, nothing will be done with the Buildings Act this session. Lord John Manners's Bill, of which we gave an abstract in our last, has been dropped. We are forced to regard it as a very inefficient and objectionable Bill, and are glad, therefore, to get rid of it: it ought never to have been brought forward. We must strenuously protest against thus uselessly occupying the public attention and wasting the public money.

Competition for the Leeds and Yorkshire Assurance Buildings.—We understand that there were fifty-four designs submitted, and the directors having availed themselves of the assistance of an architect, awarded the premiums as follows:—The first premium of 50*l.* to Mr. W. B. Gingell, of Bristol; the second premium of 25*l.* to Mr. E. H. Martineau, of London; and an additional premium of 25*l.* to Mr. J. Dobson, of Leeds. The selected design is to be immediately carried out under the superintendence of the architect.

REGISTERED INVERT BLOCK FOR THE BOTTOM OF SEWERS.

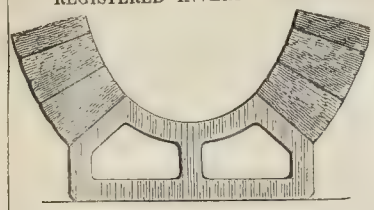


FIG. 1.

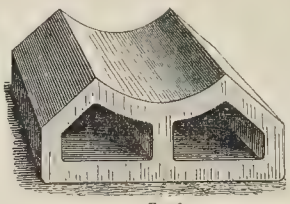


FIG. 2.

REGISTERED INVERT BLOCK FOR THE BOTTOM OF SEWERS.

MESSRS. DOULTON and Co. have recently registered an "invert block," which is intended to form a uniform and permanent surface for the bottoms of sewers and culverts, in addition to making a better foundation for the structure. The sectional elevation, fig. 1, represents the position of the block in the sewer. Fig. 2 is a view of one of the blocks. The concavity coincides with the "egg" curvature of the sewer, whilst the sides are inclined at the proper angle for receiving and supporting the superstructure. The base is level, to afford a good bearing surface, the hollow being to lighten the block, and may be used to carry away the superfluous land-water. The block is made of the ordinary stoneware, and appears to be a very useful application of it.

EPISTOLARY CHAT FROM PARIS.

THE following extracts from a letter I have just received from a friend now at Paris will, I conceive, not be unacceptable; therefore, as I shall not be guilty of any breach of confidence or other impropriety in communicating them to you for your journal, I venture to do so:—

"I have made inquiries," says my friend, "of all the publishers to find drawings and descriptions of the Church of St. Vincent de Paul, but without success. Grimm, the publisher of the *Moniteur des Architectes*, told me that Hittorff, he believed, had given some account of that edifice in his work on Polychromatic Architecture. To obtain a copy of that book was my next employment, for Grimm had it not, neither had Matthias, or any of the others in trade whom I tried. At last I went to the Bibliotheque National, where, on asking to see it, I was informed that, just a few days before, the Prince President had sent for that and several other architectural works, which had accordingly been forwarded to the Elysée. This looks as if the authorities, or rather the authority, here takes a direct interest in architecture, even to the extent of consulting books upon it, and was determined to judge for himself!"

After a good deal more, which I omit, my friend proceeds to say:—"From some conversation which I have had with ——, &c. I have every reason to believe that an *exposé* of Ruskin's doctrines would be not a little acceptable to the architectural world here; for even here he has more than one admirer among the superficial or ignorant, who are always caught by clap-trap phrases and chimerical fancies."

That, whatever others may be, the whole of the profession in France, and I should think nearly everywhere else, must be strongly opposed to views which are subversive of present practice and system, and that not in architecture alone, but in various other branches of art and manufacture also, scarcely admits of doubt. In fact, before Ruskinism could be established, a complete revolution in taste must be effected—a species of revolution not likely to happen even in France.

In another part of his letter, after speaking of some private affairs, my friend says:—"To return to matters more congenial to our tastes: I have seen the architectural drawings of this year's *Exposition* in the Palais Royal. What a contrast to the way in which they manage such things in England! The drawings are hung in a capital and well-lighted gallery,—are not at all crowded together,—nor are any of them placed much above the line of vision. Some of them are quite gems of art. In nearly all cases, too, projected buildings are fully explained by as many plans, elevations, and sections as the particular subject may require. In short, no pains seemed to be spared, but *con amore* study and diligence are shown. There are several *projets* for completing the Louvre, but I reserve my remarks upon them and several other things for conversation."

The above extract does, indeed, exhibit a contrast the reverse of flattering to ourselves. If it does not reproach us for inferiority of talent, it does for the unaccountable apathy which betrays itself here at home. Our Royal Academy embraces architecture only to smother it: it salutes it, but only with the kiss of a Judas. Yet, verily, so long as it does continue to admit architecture into its exhibitions, it ought to show itself equally attentive to it—equally watchful over its interests as over those of painting; whereas at present the former art may be said to be rather insulted than fostered by it, and to be treated with the most contumelious indignity; which could hardly happen did those R.A's who do, or are supposed to, represent architecture in the august body, perform their duty; and—but, perhaps, you will thank me for suppressing, quite contrary to my own inclination, what I do, being very doubtful whether, although I alone would be responsible for it, you would allow me to utter it in THE BUILDER. AN ARCHITECT.

LIVERPOOL ARCHITECTURAL SOCIETY.

THE report from the council just now published says,—

"There has been no dearth of communications during the session—many of great practical importance either to the science or the art of architecture. In the former may be instanced the communications from Mr. Elliott, of Blisworth, on the manufacture of vitrified bricks, and of Mr. Chantrell upon the application of fire and other clays to building and sanitary purposes. In the latter, Mr. F. Howard's contributions, and the essay upon the use of the pediment in modern architecture by Mr. Huggins, whose elegant contributions to our professional organ, THE BUILDER, have obtained extended circulation by translation into a continental language. Mr. Barry's communication upon the arrangement of union workhouses is also of considerable value, as treating of another phase of professional practice; and the council hope that it may be followed in future sessions by similar descriptions of the most desirable arrangements for schools, club-houses, counting-houses, banks, hospitals, and other buildings. Nor should reference to the several discussions in connection with St. George's Hall be omitted, since your council hope that they have resulted in a practical solution of the difficulty in the position of the organ as furnished in the plan suggested by Mr. H. P. Horner. The proper seasoning of timber is of vast importance, not only in building connected with architecture, but in many other trades also,—ship-building and cabinet-making, for example; and it may be in the recollection of the members that in the session of 1850-51 their attention was drawn to a mode of seasoning timber by its exposure to streams of hot-air, which had been patented by Messrs. Davis and Symington, and which had been introduced into Liverpool by Mr. Gregson, in his extensive saw-mills in Harrington. On the invitation of the company who now own the patent, your council undertook to conduct some experiments with the view of testing the value of this system. For this purpose they appointed a committee, consisting of the president, vice-presidents, Mr. Hay, and the secretary. This committee report that they have not been able to complete the experiments, although they hope to do so shortly; and your council, therefore, recommend that these gentlemen should be requested to continue their services until their inquiry is completed, in conjunction with Mr. H. P. Horner, who has rendered them considerable assistance. This committee wished to acknowledge the very polite attention and assistance they have received from Mr. Gregson, at whose saw-mills the experiments are being tried."

Notices of Books.

Société Centrale des Architectes, Fondée le 27 Mars, 1843. *Bulletin pour l'Année* 1851. Paris.

THE objects of the Central Society of Architects in Paris are to offer a point of union to all architects, French and foreign, pursuing either the theory or the practice of the art, to induce amongst them sentiments worthy of their profession; to examine any proposition submitted to them touching architectural practice, art, jurisprudence, &c. and to enter into communication with other bodies established for similar purposes. It consists of about 320 members, including the principal architects of the capital. Candidates to be eligible must possess a stipulated amount of knowledge, have given proofs of capacity and experience, and be in no way connected with undertakers of work (contractors), either as partner, clerk, or designer. It is their practice to refer the processes, propositions, books, &c. submitted to them to a small commission appointed out of their body; and the interesting volume before us contains several valuable reports, the result of this practice.

Mons. Gourlier was the principal secretary last year, and has been succeeded by Mons. C. Daly.

Schools and School-Houses. A Series of Views, Plans, and Details for Rural Parishes. By JOSEPH CLARKE, Architect. London: Masters, Bell, and J. H. Parker. 1852.

IN this volume Mr. Clarke has given plans, elevations, and details, of twelve schools on twenty-five plates, and two other plates showing the arrangements of schools as now directed by committee of council. We say *now* directed, because the committee appear to have thrown overboard all the designs and regulations which up to that time they had issued for guidance, and without attention to which there was very little chance of obtaining a grant. The number of bad churches, bad schools, bad workhouses, and unhealthy dwellings, which we owe to Government commissioners, the Privy Council, and Acts of Parliament, is distressingly large.

The schools given in the volume before us are at Monk's Horton, Lydd, Little Bentley, Coggershall, Coopersale, Wellesborough, Brabourne, Boreham, Foxearth, Hatfield, and Leigh. They are mostly of simple character, but fitting and appropriate, and range in cost from 120*l.* to 1,000*l.* and more. The principal schools illustrated are those at Leigh, in Essex, erected by the private munificence of the Bishop of Moray and Ross, but of these there are no descriptive particulars given. We take the following advice from the introductory preface:—

"In woodwork, the gift of green timber should be avoided: rather let it be sold, and invested in sound Memel timber. If well-seasoned oak can be obtained, it is preferable to deal, but not where it is cut in the same spring, or less than three or five years old; but one year of English winter felled oak, before the spring sap rises, is worth years of sprig-cut oak, in which every fibre rises from the emptying of the sap arteries, and is so weakened in the grain as to twist, crack, and warp more than almost any other of our native timber. Let all timbers be large enough to be mortised, and not halved, or nailed side by side, depending on their own cohesion. Floors require ventilation under, but not through, opposite walls: if possible, the openings should be on one side to the external atmosphere, and on the other inside the building. The floor-boards should be grooved, and tongued with oak tongues, but not with metal. A low skirting should always run round all the rooms.

For the sake of ventilation—it need not be said for appearance—as well as sound, all roofs should be of a high pitch and open. Boarding is better than plastering under the tiles or slates; but great care must be used, if boarding cannot be afforded, in not plastering to the tile-lathes or battens. For the covering of roofs, much must depend on the locality. If tiles can be had, they make the most picturesque appearance. It often happens that old tiles are difficult to procure, and new tiles are so bright as to be unpleasing; but by using a solution of manganese, into which the tiles should be dipped before placing in the kiln, this is quite obviated. Great care is necessary in securing the ridge and hip tiles; and the valley tiles require much care in laying. The joiners' work should be of the plainest description, but framed with great care: the windows should have window boards, and lined round, when these cannot be used; and where angles occur, these should be protected by wood beads, rather than plastered."

The book will be found very useful by all interested in school building.

A Dictionary of Science, Literature, and Art. Edited by W. T. BRANDE, F.R.S. L. & E. assisted by Dr. JOSEPH CAUVIN, M.A. and others. With illustrations. London: Longman, Brown, Green, and Co. 1852.

IF any who read the advice we lately gave against ignorance in matters pertaining to "natural philosophy, chemistry, and such things," should seek to be excused on the plea that they know no publication treating, *generally, and in a compendious and accessible* form, of *every* branch of human knowledge, we would point their attention to this Dictionary, of which a second edition has recently been issued by Messrs. Longman, Brown, and Green. The whole of the original work has been carefully revised, and such additions made as were rendered necessary by the progress of science, in the shape of a supplement containing all the scientific terms, processes, and improvements which have come into use since the appearance of the first edition.

The advantages of Encyclopædias are now so universally acknowledged, that it would be superfluous to endeavour to recommend the present work by dwelling on their peculiar merits; but by far the greater number of them are too voluminous and too costly for more than a limited use, embracing, as they do, an infinite variety of *treatises* (*rather than brief and comprehensive articles*), each making a considerable work. They are valuable substitutes for libraries, as repositories of the various knowledge connected with the different departments of which they treat, but they are too ponderous for ready consultation; while the extensive plan on which they are compiled necessarily renders them far too expensive for general circulation. The present work was prepared to avoid these objections, and supply a want. It has been most ably effected by Mr. Brande and those associated with him in the arduous undertaking. When we mention amongst his coadjutors Mr. Lindley, the late Mr. Loudon, the Messrs. Merivale, Mr. Galloway, Mr. M'Culloch, Dr. Cauvin, Mr. Joseph Gwilt, and Professor Owen, it will be seen that the right means have been resorted to to insure accuracy and excellence in the work.

"It must not be supposed," says the editor, "because the articles are for the most part brief and compendious, they are either flimsy or superficial. On the contrary, they have been compiled throughout with the greatest care. Popularity has not been sought for at the expense of science, nor brevity by the sacrifice of useful facts or appropriate illustration. The work contains not a few new and original views: no statement has been made as to any unusual or doubtful matter without referring to the authority whence it has been derived; and when subjects of general interest and importance are noticed, the reader is referred to the works relating to them, in which they are handled with the greatest ability."

It can hardly fail to be useful to individuals of all ranks and conditions,—to the man of business and the man of pleasure, the student and the superficial reader, the busy and the idle. Every one who takes any share in conversation, or who dips how cursorily soever into any newspaper or other publication, will every now and then find the advantage of having access to this *Dictionary of Science, Literature, and Art.*

Miscellanea.

DISCUSSION OF ART BY GERMAN ARTISTS.—The Düsseldorf artists form a very connected band, and amongst them the principle of *mutual cultivation* has taken firm root. A German paper on the subject, reprinted in the American *Literary World*, says that for a period of eight years and more, on every Sunday evening during the winter, the elder artists, including the director, Schadow, have assembled in an apartment of some public house in the city. The principal object of these meetings is artistic. They are, however, likewise devoted to literature and to the mutual enjoyment of it. Generally every fortnight or three weeks those painters who form the association are obliged each to bring a drawing, which is examined, criticised, and judged by the whole company. The artist finds himself here, far more than when he exhibits his sketch to a particular individual, immediately in the presence of a public, and, truly, one possessed of the requisite knowledge in matters of art. A general opinion is formed, which, as it gives to one a still higher degree of pleasure and enthusiasm in the prosecution of a successful composition, deters another from wasting time and pains upon a failure. On these evenings, a spirit of extreme animation and excitement generally prevails, and so much the more when the designs presented are particularly meritorious, and promise a successful progress and result. Then, too, the critical disquisitions regarding a drawing of doubtful merit, the projects suggested for the remedy of its defects, and the new discussions which arise from the consideration of these projects, occasion, at times, a spirit and interest of which the lover of art who derives his knowledge of the drawings and sketches of recent or elder painters merely from the portfolio of the collector can have no idea.

ASSESSMENT OF SMALL TENEMENTS.—A letter has been received from the Poor Law Board in reference to an important but much-misunderstood point in the mode of assessing cottage property, under the Act passed in the session of 1850. The board having been applied to for their opinion as to the extent to which the small tenements of a considerable owner of property should be assessed, the party referred to having given notice of his intention to compound in respect of such property, the board, in reply, state "that the owner who gives notice to compound cannot insist upon being assessed at one-half of the amount at which the property would otherwise have been by law rateable. One half is the limit fixed by the statute, beyond which the reduction cannot extend. Subject to that limit, it is in the discretion of the overseers to rate the tenements at any amount under three-fourths of their rateable value."—*Eastern Counties' Herald.*

WESTMINSTER-BRIDGE.—There was printed on Saturday, in a Parliamentary document, a copy of a letter from Mr. Walker, the engineer to the Commissioners of Westminster-bridge, on the present condition of the bridge. The letter is dated the 10th of November last, and describes a site for the new bridge. The cost of a temporary bridge would be 12,000*l.* Mr. Walker says, "As respects security to the public, I consider that a new temporary bridge of timber would be more secure than the present bridge, of which three of the arches are supported upon piles which have already stood for five years, and are not to be depended upon for resisting heavy pressure by ice or blows by vessels. Attention to, and a frequent examination of, the state of the piles and centering of the bridge is now considered to be expedient. Messrs. Cubitt and Co. offer to build a temporary bridge in one year." It is proposed that the new bridge be of granite, and, when completed, with the new Houses of Parliament, would have a good approach.

IMPROVED CHAIN.—Mr. Sisco, of Slough, has recently enrolled a patent for links of chains, and also anchors, pulleys, and other articles where great strength is required, of a series of layers or laminæ of iron, or iron and steel soldered together. For the purpose of forming the links of chains, the patentee employs a ribbon or strip of iron, or two strips, one of iron and one of steel, which he winds round a mould of the exact form of link required, and to any desired thickness, and then secures by binding them with wire, or by soldering so as to prevent the ends from slipping. The apparatus which he employs for the purpose of forming the links is so constructed as to admit of the link in process of formation being passed through that constituting the end of the chain, so as to form, when completed, a perfect part of the chain, and, by adding link to link in this manner, any required length may be produced. The links may also be rivetted instead of being soldered or bound round with wire. The patentee also constructs chains by making the links of a series of flat pieces suitably shaped, which he connects together according to any required thickness or strength of chain by rivets or by soldering. Links of layers well rivetted, combined with the flattened form of Price's chain, ought to make a cable of great strength, compared with any other, weight for weight of metal.

HARWICH PIER.—The driving of the first pile of a new pier at Harwich took place on 2nd inst. The pier will be 336 feet in length by 22 in width, on a platform level, with an arm extending eastward 220 feet. It will be constructed of timber, at an estimated expense of 12,700*l.*, and, according to the contract, will be completed and ready for opening on 31st August. The site is at the north-west part of the town, called Angel Quay. The work is projected under the Harwich Improvement Act. Mr. P. Bruff is the engineer; Mr. E. Smith the contractor; Mr. Scott the superintending engineer. The Dutch Government has granted a concession for the laying down of the electric telegraph from the Hague to Harwich, and the railway is on the point of being completed from London to Harwich, which will thus become an important medium of traffic between the northern nations of Europe and the metropolis. Three thousand poor people were feasted on the occasion of driving the first pile of the new pier. A political bias and colouring, it is said, has unwisely been given to the proceedings.

METROPOLITAN SANITARY ASSOCIATION.—The second anniversary dinner was held on the 4th at the London Tavern, the Earl of Harrowby in the chair. The Chairman, in giving the toast of the evening, "The Metropolitan Sanitary Association," said, they had been in the habit for some years past of talking so much about sanitary reform, that the public had heard so much in reference to the matter, that they began to think every thing had been done; but they had met that day to say that little after all had been done in the way of sanitary reform, more especially in this great metropolis. Lord Shaftesbury spoke. Mr. Brassey proposed, "The Sanitary Reformers of the House of Commons," to which Viscount Ebrington responded. Mr. Edwin Chadwick proposed, "The Literary Supporters of Sanitary Reform," to which Mr. F. O. Ward replied. The honorary secretaries of this institution deserve great credit for the perseverance and determination with which, in the face at one time of financial difficulties, they have prosecuted its objects, and maintained its efficiency.

LEAF IRON AND IRON BOOKS.—At the Renard Works in Prussia, sheet-iron so thin is manufactured, that it can be used for paper. A bookbinder of Breslau has made an album of it, the pages of which turn as flexibly as the finest fabric of linen rags. It is suggested that perhaps books may hereafter be printed for the tropics on these metallic leaves, and defy the destructive power of ants of any strength of forceps. Invent a white ink, and the thing is done. Of the finest sort the machinery rolls 7,040 square feet of leaf iron from 1 cwt. of metal.

THE NEW POWDER MAGAZINES AT LIVERPOOL.—Arrangements have been made for commencing the erection of the store-keeper's, assistant-keeper's, and workmen's houses, on a plot of land at Brombrough. The land purchased comprises about two acres; and the buildings, designed by Messrs. Walter and T. S. Scott, of Liverpool and Birkenhead, architects, and, for the present, about ten in number, will cost about 2,500*l*. The powder-vessels, of which there will be three, are to be moored between Brombrough Pool and Eastham, about a mile, or rather more, from the shore, a position said to satisfy the Master-General of the Ordnance. Two of the floating magazines will cost 21,000*l*.; and they are now nearly ready for launching, one from the yard of Messrs. Clarke, and the other from that of Mr. Roydon. No iron whatever is used in their construction, all being wood and copper. Two syphons, one foot each in diameter, are to be introduced into every vessel, so that an enormous quantity of water can be poured in immediately in case of need. No fires are to be allowed on board. Lightning conductors are to be fitted up under the direction of Sir W. Snow Harris. The quantity of powder to be stored is to be increased from 10,000 to 15,000 barrels. These magazines ought surely to have been placed at a greater distance than a single mile from the shore and town of Liverpool.

THE OXFORD BATHS AND WASHHOUSES.—A serious accident, attended with fatal consequences, occurred at these baths on Monday last, the first day they were opened to the public. From the evidence adduced on the inquest (which is, however, adjourned), it appears the accident arose from the hot-water tank bursting, from the want of a sufficiency of water in it, steam being generated faster than the condensing pipe could carry it off; causing a tall brick chimney connected with the apparatus to fall with a fearful crash, killing two persons, and severely injuring four or five others. The baths have just been completed from the plans of Mr. Bull, a local architect, and engineer to the Oxford Waterworks, at a cost of 2,765*l*. towards which Mr. P. B. Duncan, Fellow of New College, munificently contributed 1,000*l*.: the site, in Castle-street, was given by the corporation.

NEW SMOKE-CONSUMING APPARATUS.—An apparatus, according to a Glasgow paper, has been originated by Mr. Aitken, of Murdoch and Aitken, Hill-street East, of that city, the advantages of which every one is at liberty to avail himself of without payment of fees for patent or "lordship." The flames from three furnaces meet in a central space or oven. The furnaces being fired in succession, at intervals of ten or twelve minutes, two of them are generally in a white flame, and on meeting the smoke from the third furnace (which is supposed to be newly kindled) in this oven between the boilers, it is immediately consumed before it can enter the flue of the larger boiler. The advantages of this apparatus, in addition to the great feature of the consumption of smoke, are described to be a considerable saving of fuel, a saving of the tear and wear of the principal boiler, and the facility with which it can be applied to boilers at present in operation, at a moderate expense, and in a very short time.

ROAD-MAKERS' ESTIMATES.—Annexed I forward you a list of tenders received for forming a road, &c. upon the "New Moston Estate," the property of the "Manchester Bridgewater Freehold Land Society," Mr. W. Wilson, Surveyor.—X. X.

Hollinhead	£2,258	0	0
Jones	1,800	0	0
King	1,700	0	0
Mollineux	1,667	15	9
Knight	1,572	16	9
Wright	1,566	0	0
Coldwell	1,560	0	0
Dunkerby	1,550	0	0
Collinge	1,455	0	0
Barber and Worthington	1,390	0	0
Higginbotham	1,348	8	0
Thorpe	1,201	0	0
Worsley	1,120	0	0
Barnes (accepted)	1,010	0	0

ELECTRO-TELEGRAPHIC PROGRESS.—A submarine line has been laid down from Holyhead to Howth, with continuation in progress to Dublin. This line appears to be the result of a sudden thought, as rapidly executed, and quite unconnected with those projects which have been making comparatively slow progress for the last six to twelve months. Messrs. Newall, of Gateshead, gave an order for eighty miles of wire to be covered with gutta-percha in a fortnight, by the Gutta-percha Company, and the thing was done. The cable, however, was then covered with galvanized iron wire at Gateshead, and sent on trucks in one continuous line to Maryport, whence it was shipped to Holyhead, and thence laid down, the whole work, it appears, being done in about three weeks. Three other Irish submarine lines, it is said, are to follow. It is to be hoped, however, that precipitancy will, as far as possible, be avoided, care and outlay in the first instance being always cheapest in the end.

COMPETITION, MANCHESTER. — Twelve designs were submitted in competition for the new Congregational Church, Bury New-road, from which the committee have selected the design of Messrs. Barry and Murray, and Mr. Raffles Brown, of Liverpool, and have awarded the second premium to Mr. Moffat Smith, of Manchester.

THE MARBLE ARCH. — It appears that 11,000*l*. were voted as applicable to the removal and rebuilding of the marble arch. The amount of estimate was 4,339*l*. 18s. 4d. The sum expended in taking down the arch was 626*l*. 16s., and with other expenses amounted to 3,584*l*. 10s. 5d., leaving 6,660*l*. 1s. 8d. out of the vote as applicable to the improvement of the area in St. James's Park, in front of Buckingham Palace.

GAS FROM WOOD.—In experiments made some time ago, it was said that a considerable quantity of illuminating gas could be obtained from two ounces of wood. The process on a large scale is now, it seems, in operation at Basel, and about to be introduced at Zurich, Stockholm, and Drontheim. It is said to be far less expensive than the manufacture from coal, and to furnish a gas free from sulphuretted hydrogen, besides several useful by-products, such as charcoal, wood tar, and vinegar.

TENDERS

For building ten fourth-rate dwelling-houses, four with shops, at Bromley, Middlesex, for Mr. P. Pritchard; Mr. Wm. Humber, surveyor. Quantities furnished.

Walker and Soper	£2,456	0	0
Reader	2,441	15	0
Hack and Son	2,300	0	0
Cooper	2,270	0	0
Wicks	2,257	0	0
Watts	2,167	0	0

For Wax Chandlers' Hall; Mr. Charles Fowler, architect.

Brass and Son	£4,279	0	0
Norris	4,247	0	0
Thos. and Wm. Piper	4,128	0	0
Wm. Cubitt and Co.	3,988	0	0
Grimsdell	3,993	0	0
Henry Lee and Sons	3,855	0	0
Little and Son	3,849	0	0
Lawrence and Sons	3,840	0	0
Holland	3,780	0	0
Jay (accepted)	3,493	0	0

For erection of eight pairs cottages, at Stratford; Mr Lambert, architect.

Keen	£4,800	0	0
Hill	4,438	0	0
Rivett	4,320	0	0
Harmer	4,288	0	0
Rudkin	4,150	0	0
Perry	3,976	0	0
Mills and Son	3,890	0	0
Thompson and Co.	3,747	0	0
Cooper	3,734	0	0
Vaughan	3,680	0	0
Searle	3,350	0	0
Heath	3,328	0	0
Hoskins	3,000	0	0

For sundry alterations to warehouses at Messrs. Nevill's, Gresham-street West; Mr. W. E. Williams, architect.

Lindsay	£1,718	0	0
Richelieu and Niblow	1,475	0	0
Norris	1,454	0	0
J. J. Coleman	1,450	0	0
Carter and Ellis	1,391	0	0

For the new St. Mark's Hospital, for fistula and othe diseases, to be erected in the City-road; Mr. J. Wallen architect.

Cubitt	£8,380	0	0
Laurence and Sons	8,142	0	0
Ashby and Sons	8,140	0	0
T. and W. Piper	7,987	0	0
Grimsdell	7,777	0	0

TO CORRESPONDENTS.

"J. M." Lancashire (there can be no possible objection to our correspondent's christening his daughter "Sorillah," if he desire to do so. So far as we are concerned we can but consider it a compliment. The young Christian who bears it will at all events stand alone), "G. R.," "G. W.," "L. Y." "W. S.," "J. J.," "C. H. S." (thanks), "C. C. N." (ditto), "W. C. T." (ditto), "T. S." (ditto), "R. T." (would be ineffectual), "A. A.," "E. W. E." (thanks), "A Neighbour," "S. H.," "A. B." (declined with thanks), "Dr. L.," "R. W.," "J. B." Notts. (such reports are usually too local in interest), "J. J. L." (it has been mentioned once), "T. W. G.," "Burton Crescent" (St. George's R. C. Cathedral is chiefly of Bath stone; Lincoln's-inn Hall, magnesian limestone. Caen stone is an oolite), "J. N. W.," "W. H." "Ignoramus" (a letter to similar effect was in type before our correspondent's arrived), "Aldn. M.," "Mons. G.," "H. C." "O. J.," "J. K. W." (we shall be happy to receive the drawings: tracings will suffice), "B. B.," "Thalma," "R. B.," "W. H.," "J. J."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisemen* should be addressed to the "Publisher," and not to th "Editor:" all other communications should be addresse to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

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THE PROPRIETORS of "THE BUILDER" having taken Premises well situated and adapted for conducting a Publishing Business, beg to state that they will be happy to undertake the publication of Works connected with Architecture or the Fine Arts. Being extensive Printers as well as Publishers, they can offer unusual facilities to Authors for the publication of Works of the above description.

Office of "The Builder," 1, York-street, Covent Garden.

MASONS' PROVIDENT INSTITUTION.—W. TITE, Esq. F.R.S. President.

A PUBLIC DINNER, in aid of the funds of the above Institution, will be held on THURSDAY, JUNE 17th, at the FREEMASONS' TAVERN, Great Queen-street, Lincoln's-inn fields. The Right Hon. LORD ROBERT GROSVENOR in the Chair.

HONORARY STEWARDS.

Thos. Brassey, esq.	Chas Lushington, esq. M.P.
Joseph Browne, esq.	P. Mac Dowell, esq. R.A.
James Chadwick, esq.	George Myers, esq.
W. Cubitt, esq. M.P. Alderman	Sir John Villiers Shelley, bart.
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W. Freeman, esq. Treasurer	F.R.S.
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William Dix	Wm. Hannam	G. E. Thompson.

Dinner on Table at Six o'clock. Tickets, 21s. and 5s. each. Ladies' Tickets to the Gallery, including refreshments, 5s. each, which may be obtained of the Stewards and Committee; of the Secretary, at his residence; and at the Bar of the Freemasons' Tavern. JOSEPH T. WHITEHEAD, Secretary.

1, Johnson-street, Hollywell-street, Westminster.

THE OPERATIVE MASONS' BENEFIT SOCIETY, held at "The George," Great Chapel-street, Soho. Instituted 1849; Enrolled, 1850; Certified, 1851. The FORTY SECOND ANNIVERSARY of the above Society will be celebrated on MONDAY, July 19th, at the Highbury Barn Tavern

THOMAS JACKSON, Esq. in the Chair.

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Mr. W. Clark	Mr. Fluester
Mr. J. Foot	Mr. Lander
Mr. F. Nowel	Mr. Rutherford.

STEWARDS.

Joseph John Smith	Robert Hassell
Joseph Kay	George Bendsworth
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WM. F. TARRAN, Secretary.

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Rise in, 1852.

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17	" "	Sicilian
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The Builder.

No. CCCCLXXXIX.

SATURDAY, JUNE 19, 1852.

THERE is an evident anxiety amongst brickmakers to produce bricks of improved form and better character than those that have been long in use, and even the reproaches that we addressed to them some time ago have not been without their use. At present, however, little has been done: the removal of the fiscal hindrances has not yet produced the good results we looked for: bricks of the worst character are still used, and in respect of decoration the attempts are but feeble and have not yet been taken up by the public. Still there is a stir arising: brick machines of various sorts are patented, and bricks of different construction advertised.

We scarcely anticipate that bricks will be made more cheaply by machines than by hand, but we may have them better for the same cost. Those of both sorts ought to be cheaper than they are. We have an account before us of a "patent brick" manufactory conducted by Mr. Beart, at Huntingdon, not far from Cambridge. These bricks are perforated: each has twenty-four round holes through it. Steam grinds the clay and forces it into the machine: a small metal screen prevents stones from getting into the mill. The bricks are wheeled to the drying-stoves where they are kept twenty-four hours to dry, and are then built up in a kiln at the farther end of the stoves, to be burnt in the ordinary way. These have been proved, our informant says, by Ransome and May, of Ipswich, to be "stronger than solid bricks." This, of course, does not mean that the perforations give a stronger form of brick, but they admit of better burning, and allow the moisture to escape without producing fissures. "The cost at which bricks can be produced in the factory is, for labour, including raising the clay, 4*s.* to 5*s.* per thousand, to which the price of half a ton of fuel for working steam-engine, drying-stoves, &c. is to be added."

Hart's portable brick-machine includes a truck running on a tramway, to convey the clay to the machine; a pug-mill, in which the clay is tempered; and an endless chain, conveying moveable moulds passing under the pug-mill. The operation of the machine is as follows:—The clay is dug from the field, watered down in the usual manner, and placed by the temperers in the truck, when the machine is set in motion by two horses or steam power. The truck moves along the tramway up an incline plane, and when it reaches the hopper the latch is lifted up, and the bottom of the truck opens and discharges the clay into the hopper: the clay is then ground and passed down into moveable moulds, and is carried under the mill by an endless chain to the end of the machine, where the bricks are received by two persons, who open the moulds and place them on pallet-boards on the pages: they then place the moulds on a slide, which carries them to the other end of the machine, when they are again placed by two persons on the endless chain to be again filled. In this way, they say, 2,000 bricks may be made with ease every hour, and a greater quantity, if required.

The same power which makes the bricks grinds the clay. The machine runs upon two wheels, and may be moved with two horses at pleasure. The cost of making 20,000 per day of ten hours, at London prices, according to the patentee, is, by hand-labour, four gangs, 3*l.* 16*s.* and by machine, 1*l.* 9*s.*

In this calculation, however, he allows nothing for the cost of the machine (200*l.*), wear and tear, cost of steam power, &c. so that the statement is not quite fair.

From Louisville, United States, we hear of a machine, invented by an Englishman, not yet in operation, which is to manufacture bricks *ready for use* in thirty-six hours "at a cost of at least 50 per cent. less than the usual mode of manufacturing them."

Woodworth and Mower, of Boston, also in the United States, have a machine for making bricks from dry clay, which turns out 3,000 per hour. The clay is pulverised, and the machine worked by a steam-engine of 20-horse power. The clay is first dried, then ground between heavy rollers, then screened or sifted and passed into the machine in a uniform state, where it is subjected to the immense power of the machine, and a beautiful brick is said to be produced, almost as smooth and dense as polished marble. The bricks are taken from the machine and immediately set in the kiln ready for burning, without spreading previously on the yard to dry. The denseness and polish spoken of must interfere with the adherence of the mortar.

The machine patented by Messrs. Randell and Saunders, of Bath, has been already described in our pages. It consists of a horizontal reservoir for the clay, on a strong iron frame, in which revolve two shafts geared together by spur wheels. One of the shafts is prolonged outside the frame, on which is a spur-wheel connected with a pinion on the same shaft as a fast and loose pulley, through which the power is applied. Each of the shafts in the receiver carries a clay traversing screw, the threads of which are formed very deep and hollow, and in their revolutions not only force the clay which is continuously fed from a hopper forward, but pug it as it proceeds, until it is forced out in a continuous stream at the mouth-piece, which may be of the form of the common brick or tile, or by the introduction of a core they may be made hollow, or pipes of any form or calibre may be produced. On leaving the orifice of the mould they are received on an endless band passing over rollers, which is set in motion by the friction of the clay, and on the end roller is a cone pulley with grooves of various diameters, from which a crossed endless cord actuates a self-acting cutting apparatus, which, by shifting the cord on the cone, can be made to cut off the material in lengths from 3 inches to 3 feet.

Amongst those who are entering largely into the manufacture of bricks is Mr. Thos. Cubitt, who has opened extensive grounds on the Medway, set up steam-engines with lofty furnace-shaft, and is otherwise preparing for large operations in machine-made bricks. The arrangement he has in use at Thames-bank is that known as the Ainslie machine, with some improvements. One of these, attended by three boys, turns out 1,000 bricks per hour, a limit fixed, not by the machine, but by the ability of the attendants to remove those made. The clay passes through two rollers out of the pug-mill, by which means the air is driven out,—a very important point to be considered in examining the operations of any brick-machine. Oil runs in behind the die, to facilitate the passage of the clay through it, and this assists in giving a smooth face and ends to the brick, while the wire which cuts each off leaves a rough top and bottom for the mortar. It is scarcely necessary to remark that all clays will not suit brick-machines. There is a nice adaptation of the Ainslie machine for making large earthen pipes, with a "collar" at the end of each, by one operation.

Mr. Moon's "hollow chimney bricks" are slowly making their way into use; but it takes a long time to obtain an extended adoption of any new arrangement. The way in which smoke flues are formed in the large majority of houses now built is most unworkmanlike and barbarous, full of evil, and in some cases, danger: the bricks, or more usually bats, are put together without the least care, and the interior is coarsely plastered over with mortar or with pargetting, which is very speedily destroyed by the apparatus used for sweeping chimneys, and then the smoke finds it way out through the open joints to the destruction of the paint, paper, furniture, and comfort of the occupant on either side, if nothing worse ensue. The flues formed by the chimney bricks are 10 inches in diameter, and the thickness between each brick 9 inches. This, in some positions, might be an objection.

The bricks for "British bond," registered by Mr. W. Austin, are made to dovetail: the headers have the form, on plan, of two wedge-shaped pieces, joined together at the narrow ends. They are a simplification merely of Hitch's "Rebated bricks." Like the latter, they admit of continuous spaces in the wall for pipes, ventilation, &c.

The coloured and glazed bricks now manufactured offer materials for adaptation; and Minton's examples of ornament in baked earth, exhibited at Marlborough House, should show architects that there is an unworked field open to them for the display of artistic talent and ingenuity.

REASONS FOR THE COMPLETION OF THE NATIONAL MONUMENT OF SCOTLAND.*

THE site, on the summit of the Acropolis, must have greatly enhanced the beauty of the Parthenon. All structures depend much on situation for effect, more especially the Grecian Doric Temple, from its unity and simplicity of composition. The Greeks generally chose elevated and commanding sites, not unfrequently rural, and far removed from the bustle of cities; in illustration of which, besides the Temples of the Acropolis, the following examples, among many others, may be enumerated: the Temple of Minerva, on the promontory of Sunium; of Jupiter, on Mount Panhellenius, in Egina; of Apollo, on Mount Cotylus, amidst the forests of Arcadia; the temples on the rocky heights of Delphi and Eleusis; the Temple of Esculapius, near Ligurio, situated in a grove surrounded by mountains; the Doric temple on the precipitous rocks of Segesta; the Temple of Venus, on Mount Eryx; besides those of Juno, Lucina, Concord, Hercules, and Jupiter Olympius, on the lofty ridge of Agrigentum.

* The following formed part of a paper read before the Architectural Institute of Scotland. The paper gave also a sketch of the circumstances attending the commencement of the monument, and remarks on the ancient and modern state of the Temple of Minerva, or Parthenon.

The Calton Hill, bearing so striking a resemblance to the Acropolis of Athens, would be admirably suited to the display of the majestic beauties of a restoration of the Parthenon. Inexhaustible quarries of the most beautiful and durable freestone in the vicinity offer materials for its construction equal in appearance to the finest marble. The architects and operative masons of Edinburgh are inferior to none in Great Britain, and have already proved themselves capable of executing the most delicate and difficult members of Grecian architecture. In erecting a great national structure, it is of the utmost consequence to fix on some model of known and approved excellence, which will admit of being executed on its full scale, and in all its grandeur. Had a composition with a dome been adopted, it must, however handsome, have presented but a paltry and diminutive imitation of St. Peter's at Rome, St. Paul's of London, or perhaps a caricature of the Pantheon. In the Ionic and Corinthian we could never hope to equal the new Louvre of Paris, or the splendid structures of Italy, and other countries of Europe. The unapproachable beauty and delicacy of our Gothic cathedrals, waiving all considerations of their cost, would have rendered any attempts in that style utterly hopeless. In selecting the Parthenon as our model, no such risk is incurred. The chaste, majestic, and faultless beauty of the Grecian Doric temple will eclipse the most costly and magnificent works of modern times. Provided the restoration be correctly executed, and accompanied with appropriate sculpture and pictorial decorations, a certain and glorious success must be achieved, the influence of which on the future efforts of national taste and genius in the three sister arts, it is impossible fully to appreciate.

The Walhalla of Ratisbon (Regensburg), the national monument of Germany, begun about 1830, and completed and inaugurated in 1842, is a Grecian octostyle Doric temple, with seventeen columns in the flanks, in imitation of the Parthenon. The whole is constructed of a hard limestone or marble from the mountains of Salsburg. When I visited it in 1839, the external architecture was finished, and the sculpture, by Rauch and Schwanthaler, were placed on the pediments, but boarded over. The interior was only bare walls. From the description, however, by the overseer, of the intended plans, the interior, it would appear, is one great hall, with an entrance at each front, exclusively destined for the reception of statues and busts of the great men of Germany, after death. There is a gallery supported by columns over each entrance in the great hall, on which are placed caryatides supporting the ceiling. There are likewise narrow galleries on the sides, connecting with those over the entrances, with a projection in the centre of each, having two caryatides supporting the ceiling. I saw two of the caryatides nearly finished in a shed where the sculptors were at work. They were of white marble, but the overseer told me they were to be stained, and partly gilt, in imitation of the ancient statues of ivory and gold. There is to be no pictorial decoration. The building is fire-poof, without a particle of wood in its construction, the roof being of iron and bronze, and the portals of bronze, or some less costly metal, adorned with sculpture. Under the structure are extensive substructions, in which are placed the statues or busts of eminent men living, which, after death, are transferred by a species of apotheosis to the upper temple. The Walhalla is placed on the brink of a hill close to the Danube, the principal approach being by a double flight of massive stairs and terraces up the steep ascent from the river. The effect of this confused mass of white marble, as I saw it from the opposite plain of the Danube, was most unseemly, and destroyed the beauty and unity of the temple from the very point of view which would have been the most striking and interesting. The Scottish national monument was projected and begun more than eight years before the Walhalla. Whether the king of Bavaria ever heard of the intended Scottish restoration is doubtful; but whether he did or not is of little consequence. Scotland is at all events entitled to the credit of having anticipated the plans of a prince universally acknowledged to be a man of the most refined taste, in all that regards art, in Europe.

English architects, and writers on architecture, are not backward in eulogising the perfection of Grecian architecture in the abstract, but both, with few exceptions, evince the most decided aversion to its being restored in its purity and true dimensions. No sooner was it announced that the Scottish National Monument was to be in its external architecture a restoration of the Parthenon, than all these gentlemen raised a simultaneous outcry against such an attempt as preposterous and too absurd to be listened to. The Quarterly Reviewers signalised themselves as their champions in a long and elaborate article in No. LIV. An able answer was made in the *Edinburgh Review*, No. LXXV. but not quite so full as the subject demanded. The following passage from the *Quarterly Review* affords a fair specimen of their mode of reasoning:—

"When employed by its authors and inventors, the architecture of Athens is faultless. The separate members of the building have a definite relation to the whole. They are aggregated by affinity, and connected by apposition. Each one is in its proper place: no one is extraneous or superfluous: all are characterised by fitness and propriety. Grecian Architecture is a composition of columns, which are intended to assemble themselves into the form of a Grecian temple. They seek to enter into no other combination. Beauty and elegance result from their union. The long unvaried horizontal line of entablature rests in stable tranquillity upon the even ranging columns below, and the conical shafts are repeated in unbroken symmetry. The edifice is perfect in itself, therefore it admits of no change in its plan, of no addition to its elevation. It must stand in virgin magnificence, unmated and alone. The Grecian temple may be compared to a single crystal, and to the process of crystallization. Disturb the arrangement of the molecules of the crystal, and they will set into a mis-shapen fragment. Increase the number of their crystals, allow them to fix themselves upon each other, and their individual regularity will be lost in the amorphous mass. Thus in the Grecian temple the component parts have settled themselves into a shape of perfect harmony, such as is required by their integral figure; but it is a shape that cannot be varied in its outline, nor can it be changed in its proportions. Neither does it submit to be annexed to any other. Every attempt that is made to blend the temple with any other design produces a lame and discordant effect. We must reject the arch, the noblest invention of architectural science. Porticoes cannot be duplicated. Doric columns cannot be raised in stories. No windows can open to the cella. No wing can be added to the right or to the left, which does not at once convince the observer that it has no real relationship to the centre which it obscures. No adaptation can be given which will reconcile it to utility. Plate-glass windows glaring through the intercolumniation; chimneys and chimney-pots arranged above the pediment, are just as appropriate as English nouns and verbs in a Greek hexameter."

All this is a mere tissue of truisms totally inapplicable to the subject in discussion; for on the assumption that the architecture of the Scottish National Monument is externally to be a classic restoration or fac simile of the Parthenon, all their truisms and poetic imagery fall to the ground. Indeed one would naturally suppose that it was intended as a satire on their own Anglo-Greek buildings, which are characterised by the very faults, discordant combinations, and corruptions alluded to in the above passage. Grecian Architecture, according to the reviewers, is a composition of columns, which assemble themselves into the form of a Grecian temple, and seek to enter into no other combination. Were temples the only structures raised by the Greeks? Vitruvius describes various other combinations of columns,—the forum, with its numerous porticoes, colonnades, basilicæ, curiæ; the gymnasium or palæstra, with its xysta, extensive peristyles, halls, exhedræ, baths, &c.; the theatres, including their porticos and hypæthral walks. Even the Grecian temple itself assumes a great variety of form, proceeding not only from the different orders and degrees of intercolumniation, but from the several distinct species of temple, differing materially from each other in size, form, arrangement, richness of decoration, and disposition of the interior—from the simple temple in Antis, to the prostyle, amphiprostyle, peripteral, pseudoperipteral, dipteral, hypæthral, monopteral, circular—not to mention the extensive periboli which generally encircled the larger temples, embracing porticoes, galleries, statues, &c. In short, Grecian architecture included all the graceful variety of which columnar architecture was susceptible. Besides, are we to reject Grecian architecture, acknowledged by the reviewers to be so "faultless," "perfect," "beautiful," and "harmonious," because the arch cannot be introduced—porticoes cannot be duplicated—columns cannot be raised into stories—nor wings added;—in short, because we cannot succeed in vitiating and corrupting it according to our own wayward fancies? Had the reviewers been consistent, they would have regarded the steeple or tower equally incompatible with Grecian architecture as the introduction of the arch, duplication of stories, or chimneys or chimney-pots surmounting the pediments. But, so far from this, we find, in a subsequent page, the following passage:—"There is considerable difficulty in combining a steeple with the Grecian and Roman architecture. Wren mastered the difficulty, and produced combinations scarcely inferior to the Gothic." This is disturbing with a vengeance "the primitive molecules of the crystal," if not making a barbarous and unwarrantable attack on "its virgin magnificence, unmated and alone."

The reviewers maintain that "the restoration of the Parthenon will teach nothing to the architectural student which he cannot learn from the accurate drawings with which he is presented by his contemporaries." But, admitting this proposition to a certain extent, of what avail is such a knowledge if it is never to be reduced to practice, but reserved for the libraries and portfolios of amateurs and professional men? Would it not equally apply to the Gothic, Italian, and other styles?*

GEORGE CLEGHORN.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

ON Wednesday, June 9th, Mr. S. R. Solly, F.S.A. V.P. in the chair, Mr. Pidgeon exhibited two ancient chess-men of jet found in the Moot Hill, Warrington, Lancashire. Mr. Baigent made a further report of his progress in the discovery of mural paintings in St. John's Church, Winchester.

Drawings of various antiquities in the museum of Mr. Bateman, of Goulgreave, were exhibited by Mr. Brushfield; also a very curious reliquary set in a silver box, said to have been found in the stone coffin containing the remains of Benedict Biscop, obiit 703, in St. Peter's Monastery, at Monkwearmouth, Durham, during some alterations in 1803. It was accompanied by an interesting letter from the present proprietor, to whom it had been given by the person who took it out of the coffin; but the workmanship of the box was thought by several members to be of as late a date as the fourteenth century. The question, therefore, arises, was it really the coffin of Benedict Biscop? If so, it must have been disturbed at some earlier period, and the reliquary at that time placed in the coffin, as it can scarcely be considered the work of the eighth century.

Mr. Rolfe exhibited two spurs, not a pair, but both of the Elizabethan period.

Mr. Burkitt read a paper on the ancient signs of houses in London, and enumerated many that still exist. The paper was full of curious and amusing matter, and very agreeably terminated the last public meeting of the session.

The chairman stated that the exact day in August for convening the congress at Newark could not be fixed until something more definitive was known respecting the dissolution and re-assembling of Parliament, and that the earliest notice would be given to the members, of the period that would be most convenient to his Grace the Duke of Newcastle. The society then adjourned to November 10th.

* To be continued.

DIAGRAMS AS TO ADMITTANCE OF LIGHT TO BUILDINGS.

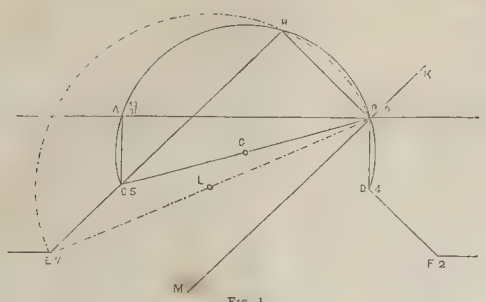


FIG. 1.

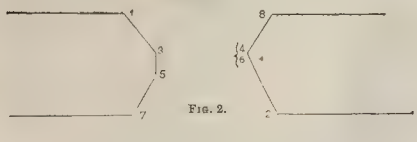


FIG. 2.

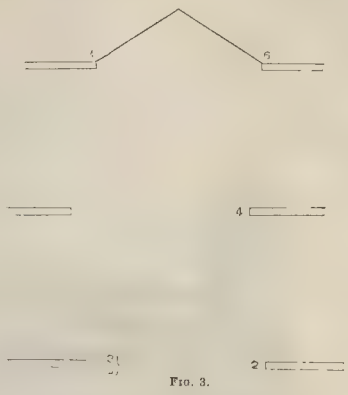


FIG. 3.

ON THE ADMISSION OF DAYLIGHT INTO BUILDINGS.*

THE following demonstrations will serve to make the subject more intelligible:—

Let ABEF (Fig. 1) be a section through a rectangular opening for light exposed to a hemisphere of sky, the section being at right angles with two of the sides of the rectangle. Let the sides AC, BD, of the opening be square with the face, and let CE, DF, be splayed off at equal angles one to the other. Let us consider first only the plane of the section. Join BC and BE, and bisect them in G and L respectively. With centre G rad. GC describe circle CHB, passing through A (because BAC is a right angle). With centre L rad. LE describe circle EHB. Produce EC cutting circle CHB in H. Join HB. Then H is a point in circle EHB also, because EHB is a right angle. Through B draw MK parallel to EH. Now BE is the line of *one* of the two extreme oblique rays which can pass through the opening (AF being the other). Also from every point in that part of the sky which is intercepted between EB and FA produced, triangles of rays will pass through the opening limited by its sides. These rays, if systematized according to their parallel directions will form parallelograms parallel to every line between BE and AF. Taking these parallelograms in order, from the line of the extreme ray BE to the line of the other extreme ray AF, their widths on BE is O; their widths then continually increase up to the perpendicular to AB, and then continually diminish till on AF they are again O.

A very approximate proportional value of these parallelograms may be obtained by taking the widths at certain small equal angular intervals as they pass from BE to AF. These small intervals will subtend equal angles so long as the centre lines of the successive parallelograms pass through the centres of the circles on which the degrees are measured, and let us take *two* degrees as the equal intervals. Take any such parallelogram HEKM—then ∵ CHB is a right angle, ∴ BH (or chord of arc BH) measures its width. So the chords of the arcs from B to BH (rad. LB), taken at two degrees intervals, measure all the parallelograms at such intervals as far as the parallel of EH. Thus far B and E have been the points which limit the widths of the parallelograms, but on passing the parallel of EH, B and C become the limiting points. At this parallel BH is the chord of both circles BHE and BHC. Also the chords from arc BH to arc BHA taken at such 2° intervals will measure all the remaining parallelograms at similar intervals, as far as the perpendicular to AB. ∴ the sum of the chords of arcs from B to arc BH (rad. LB) added to the sum of the chords from arc BH to arc BHA (rad. GB), will measure proportionally all the parallelograms passing at such intervals through the opening from BE to the said perpendicular to AB. Also the same will measure the parallelograms passing through the opening from AF to the said perpendicular to AB. ∴ twice the said sums of chords will measure all the parallelograms passing at such intervals through the opening on the plane of the said section. But the chord of an arc = 2 × sine of ½ the arc. ∴ (taking now degrees as the intervals instead of 2 degrees) 2 × sum of sines from B to ½ arc BH × rad. LB + 2 × sum of sines from ½ arc BH to ½ arc BHA × rad. GB measure the same.

But ½ arc BH rad. LB is represented by ∠ BEH (which = ½ ∠ BLH.)
And ½ arc BH rad. GB is represented by ∠ BCH (which = ½ ∠ BGH.)
And ½ arc. BHA rad. GB is represented by ∠ BCA (which = ½ ∠ BGA.)

Now, putting the diameter* BE for twice the rad. LB and the diameter* BC for twice the rad. GB, we have: BE × sum of sines from O° to ∠ BEC + BC × sum of sines from BCE (supplement of BCH) to BCA measure the same. A similar formula will apply to the section perpendicular to the other two sides of the rectangular opening, and the results of the two formulæ multiplied together will give *a number proportionate to the quantity of light passing through the opening.*

The following general theorem may be deduced in like manner. Let Fig. 2 represent a section perpendicular to two sides of a rectangular opening, the sides being irregular. Figure the two points which are in the line of one of the extreme rays 1, 2. Then considering the successive parallelograms which would pass through the opening, beginning from line 1, 2, these points 1 and 2 will at first limit the width of such parallelograms. The succession continuing, another point will, perhaps, become one of the limiting points instead of either 1 or 2. Let this point be instead of 1, and figure it 3; say the next limiting point is instead of point 2, and figure it 4; the next is (say) instead of point 3, and figure it 5; now suppose the next limiting point is instead of 5 (and therefore on the same side of the opening as 5); in this case recur to point 4, and assign it a second figure 6, then figure the limiting point instead of 5, 7; let the next be instead of point $\frac{4}{6}$ and figure it 8, and so on. The even numbers will thus be on the one side, and the odd numbers on the other side of the opening. This being done the table which follows will give the proper result:—

Diagonals.		*Sum of Sines.*	
1—2	×	from 0° to ∠ 213	
2—3	×	,, ∠ 132 to ∠ 324	
3—4	×	,, ∠ 243 to 90°+90° to ∠ 435	
4 5	×	,, ∠ 354 to ∠ 657	× ½ = ·
5—6	×	,, ∠ 576 to ∠ 768	
6—7	×	,, ∠ 687 to 0°	
7—8			
&c.			

The following are the rules for constructing the table. (1.) Put diagonals in order 1. 2, 2. 3, &c. as far as the figures on the diagram extend. (2.) If the same diagonal is represented on two lines, bracket them as $\begin{Bmatrix} 4 \cdot 5 \\ 5 \cdot 6 \end{Bmatrix}$ (3.) Put (or suppose) zigzag lines from 2 to 1, 1 to 3, 3 to 2, &c. as shown. This forms the first column of *diagonals.* The second column shows the angles between which the *sums of the sines* are to be taken at successive intervals of degrees. (4.) Look to the column of diagonals and take the angles in the zigzag order, as shown 213, ∠ 132, 324, &c. The first line will be from 0° to ∠ 213, the second ∠ 132 to ∠ 324, &c.; and the last line will be from the last three figures (as above, 687) to 10°. (5.) If two obtuse angles come in the same line (as in the third line above), put down from first angle to 90° added to 90° to the second angle. (6.) The third column is the multiple ½. The use of the table is as follows:—(1.) Measure the diagonals 1. 2, 2. 3, &c. and put down the measures in order in feet and decimals. (2.) Measure the angles 213, 132, &c. and put down the number of degrees in order. (3.) Find from the table *below* the sums of sines (taking the supplements where obtuse) and note them in their place. (4.) The result is found as follows: Diag. 1, 2 × sum of sines from 0° to ∠ 213. + diag. 2, 3 × sum of sines from ∠ 132 to ∠ 324, and so on. The sum of the quotients to be multiplied into the third column (½).

So long a formula will seldom be required in practice. Where the sides of the opening are similar it will be sufficient to go only up to 90° from the line of the extreme ray. Thus, in Fig. 1, which is figured according to the rule, the formula is—

Diagonals.		*Sum of Sines.*	
1—2 / 2—3	×	from 0° to 324	=
3—4	×	,, 243 to 435	
4—5	×	,, 354 to 546	

The third line is nil, because 354 and 546 are both right angles. The third column (½) of the formula is cancelled, because we have

* See p. 364, ante.

* These are hereafter called diagonals, as more expressive of lines passing through the angles formed by the sides of the opening.

ST. MARY CHURCH, SOUTH DEVON.



considered only the parallelograms up to the perpendicular to AB, and the result would have had therefore to be doubled.

Fig. 3 is a diagram showing the application to openings through floors, &c. as well-holes under a skylight. The figures apply to the quantity of light passing through the bottom opening $\frac{3}{6}$ 2. The formula is—

Diagonals.		*Sum Sines.*	
1 . 2	×	from 0° to 213	× ½ =
2 . 3	×	,, 132 to 324	
3 . 4 / 4 . 5	×	,, 243 to 546	
5 . 6	×	,, 465 to 0°	

Table of the Sums of Sines of Arcs taken at intervals of degrees, from 0° to 90° radius 1, to 2 decimal places :—

Deg.	Sums of Sines.	Deg.	Sums of Sines.	Deg.	Sums of Sines.	Deg.	Sums of Sines.	Deg.	Sums of Sines.
1	·02	19	3·28	37	11 84	55	24 84	73	41 02
2	·05	20	3·63	38	12 45	56	25 67	74	41 95
3	·10	21	3 98	39	13 08	57	26 51	75	42 93
4	·17	22	4 36	40	13 73	58	27 36	76	43·91
5	·26	23	4 75	41	14 38	59	28 21	77	44 89
6	·37	24	5·16	42	15 05	60	29 08	78	45 87
7	·49	25	5·58	43	15·73	61	29 95	79	46 85
8	·63	26	6·02	44	16·43	62	30·84	80	47·84
9	·78	27	6 47	45	17·13	63	31·73	81	48 83
10	·96	28	6 94	46	17·85	64	32·63	82	49 82
11	1·15	29	7·43	47	18·59	65	33·53	83	50 81
12	1·36	30	7 93	48	19·33	66	34·45	84	51 80
13	1·58	31	8 44	49	20·08	67	35 36	85	52·80
14	1·82	32	8 97	50	20 85	68	36·30	86	53·80
15	2 08	33	9 52	51	21·63	69	37 23	87	54 80
16	2·36	34	10·07	52	22·41	70	38·17	88	55 79
17	2·65	35	10 65	53	23·21	71	39·11	89	56·79
18	2·96	36	11·24	54	24·02	72	40·08	90	57 79

NOTE.—To find the sum of sines between any two arcs, deduct the number opposite the smaller arc from that opposite the larger arc, thus: sum of sines from 16° to 81° = 29·95 − 2·36 = 27·59. It will be generally sufficient to use only *one* decimal place for the sums of sines, and *one* only for the parts of a foot in measuring the diagonals.

JOHN ABEL AND HIS TOWN-HALLS.—With reference to the notice of John Abel recently given, a correspondent reminds us that views and full particulars of his works there mentioned, are given in Mr. Clayton's "Ancient Timber Edifices," published in 1846. The town-halls of Hereford and Leominster are the most curious and perfect buildings of their kind ever erected, especially the former. The lower part is open, and there were two stories above carried on pillars and arches. In Mr. Clayton's drawings the upper story is restored. The old hall at Weobly and the school-house there, both by Abel, are also represented.

ST. MARY CHURCH, SOUTH DEVON.

THE present condition of the parish church in this village is very deplorable, and efforts are now being made to obtain a more fitting edifice.

Plans have been prepared, by Mr. W. J. Hugall, of Cheltenham: a faculty has been granted for building a new chancel, external to the present church, and rebuilding the whole of the present structure, the area of which, with a considerable addition on the south side, will be covered by the new nave and north and south aisles, and the two chancel aisles. Annexed we give an engraving of the design, and we take from *The Churchman's Companion** the following particulars:—The entire internal length of nave and aisles will be 98 feet; width of nave, 23 feet 4 inches; width of south aisle, 22 feet; width of north aisle, 9 feet 3 inches; length of chancel, 48 feet 6 inches; width of chancel, 23 feet 4 inches; chancel aisles, each 22 feet 6 inches by 16 feet. There will be a south porch 12 feet by 11 feet in the second bay from the west. The nave and aisles will be seated transversely with open benches. The font will stand under a canopy on the west side of the south door; the pulpit against the north pier of the chancel-arch, and the prayer-desk on the opposite side. The chancel is to be stalled on both sides with subsellæ, all formed of cedar.

Four sedilia will occupy the space to the west of the south-eastern window, and in the north a "sedes majestatis," with a high stone canopy, supported on marble shafts, and terminating in a spire, will be set apart for the bishop.

The style adopted by the architect is the Geometrical. The nave is divided from the aisles by arcades of six arches: the nave-aisles communicate with the chancel aisles by means of arches, and the chancel aisles have arcades of two bays, separating them from the chancel. The roofs of the nave and aisles will be open timbered; that of the chancel vaulted in oak, with moulded ribs, and carved bosses.

BOARD OF HEALTH, DERBY.—On Monday, in last week, at a special meeting of the Local Board of Health, Mr. David Jones, of Mansfield, was appointed surveyor to the Board. The committee appointed to examine testimonials, and recommend to the Board, had received fifty-three applications, and selected two candidates out of that number for the Local Board to choose from.

* Masters, Aldersgate-street.

DR. FARADAY AND JUSTICE TO THE ALCHEMISTS.

WE have occasionally, for the last six or seven years, ventured to withstand the ridicule and contempt to which the old chemists usually called the alchemists had till then been perpetually exposed as the wildest of visionaries and the grossest of impostors. Having had occasion to look closely into the ancient history of chemistry, we found internal evidence in their writings, of the fact, that they were, as a class, neither visionaries nor impostors, and that they were intimately acquainted with the elements we call oxygen, hydrogen, chlorine, even bromine and other of the most recently "discovered" and most recondite of chemical elements. Moreover, we went so far as to point out at some length the singular correspondence between their doctrine of transmutation and Professor Graham's very advanced and enlightened theory of the constitution or nature of metals. As to the alchemists being *merely theorists*, however, *in search of* transmutative agencies, we have clearly shown that this they could not be, for that they gave grave and elaborate, though enigmatical, instructions *how* to transmute the metals, and that therefore they could not rank amongst mere theorists or enthusiastic searchers after such agencies, but must either be the most extraordinary and unaccountable of impostors, or the most practical and matter-of-fact transmuters of metals. The merits of the alchemists are now coming to be regarded in a very different light from that in which they were held before we had the courage thus to question the public opinion in regard to them; and we are now pleased to find a corroboration of the truth of the report that Dr. Faraday, at the last meeting of the British Association, had admitted the principle of transmutation to merit practical investigation; inasmuch as, in a recent lecture by the Doctor at the Royal Institution, on Carbon, it is reported that—

"Towards the conclusion of his discourse, the lecturer spoke emphatically, prophetically almost, on some probable developments of chemistry. The course of experiment had at length brought us, he said, into tracts very similar to those of the alchemists, and although the exact objects proposed by these enthusiasts for solution might not be achieved, chemists are now warranted in expecting results something similar: in short, transmutations of a certain kind, as between elements, were now far from improbable."

Dr. Faraday must reconsider the term "enthusiasts," as applied to the alchemists. As we have shown, they are not entitled to shelter, from utter condemnation as the most unaccountable of liars and impostors, under any such soft and amiable title as that of "enthusiasts." If their *positive teachings* be not irrefragible *truth*, as they solemnly assert them to be, they must be deliberate, unmitigated, and most inexcusable falsehoods, not mere hopeful and "enthusiastic" theories, hypotheses, or illusions. This is a curious question, and one of grave importance in this Californian "age of gold."

NATIONAL EXHIBITION OF ARTS AND MANUFACTURES AT CORK.

THE Exhibition of Irish arts and processes at Cork has been opened: trumpets have been blown, banquets eaten, balls attended, and the fact is accomplished. That it may prove advantageous to the sister country we sincerely hope: at all events, it has given pleasure to many, and will send an extra number of tourists to a country which they ought to know. Our readers are already aware of the size of the various apartments in which the Exhibition is held. The nucleus of the building is the Corn Exchange, which stands upon Albert quay. To this an addition was made, now called the Fine-Arts Hall, 177 ft. long and 53 ft. wide, with a semi-circular roof, with laminated girders, lighted from a continued top-light, 20 ft. wide. A semi-circular end serves as the orchestra. The ball and banquet rooms are fitted up with fluted coloured cotton, with banners and shields: the Fine-Arts Hall is hung with "flocked calico" of crimson colour, a new material executed by the tradesmen in the building.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

I ENDED my last letter at the commencement of the fourth century, when the Emperor Constantine, who had embraced the Christian faith, removed the seat of empire from Rome to Byzantium. Under his rule the followers of the new religion emerged from the caves and crypts to which they had been driven by severe laws, and sought fitting temples wherein to worship God. There were in Rome, as I said, halls built for the administration of justice and as places of assembly for the merchants during winter, called *basilicæ*, and these offered the most convenience for the celebration of their religious rites. In one of the side divisions, or aisles, the male applicants for justice waited, in another the females. At the end next the tribune, and terminating the aisles, there was in some of them a division in a transverse direction for advocates, which simply wanted elongating to make the whole present the form of the cross. The Christian basilica afterwards built in Rome was a repetition of its Pagan predecessor. Constantine was anxious to render his new city equal to Rome, and made extraordinary efforts to effect this. Not merely did he take all the best artificers that were left in the ancient capital, but he carried off marbles, bronzes, and columns, wherewith to construct new edifices. A description of the city, composed about a hundred years after its foundation, enumerates a school of learning, a circus, two theatres, eight public and 153 private baths, fifty-two porticoes, five granaries, eight aqueducts, four halls, fourteen churches, fourteen palaces, and above 4,388 houses distinguished by their size or beauty. As the number and skill of his architects were unequal to the greatness of Constantine's designs, the magistrates of the various provinces were directed to appoint professors, and to induce a number of youths who had received a liberal education to engage in the study of architecture.

Constantinople became the resort of men of skill from all countries. Artists of every kind were invited from various parts, especially from Greece. Constantine raised an enormous number of buildings; but they were built so hastily and with so little care for stability, that in a very short time they required re-erection. Justinian, who ascended the throne of the East in 527, renewed such of his buildings as were left, and with increased splendour. Sta. Sophia, first built by Constantine, and destroyed by fire, was rebuilt by Justinian so magnificently, that he was able to exclaim when he had completed it (thirty-sixth year of his reign), "I have vanquished thee, O Solomon!" Gibbon thinks that the cost of it must have been more than a million sterling.

Anthemius of Thrales and Isidorus of Miletus were the architects of Sta. Sophia. Justinian employed more than 500 architects to repair buildings and erect new ones. Sta. Sophia, as erected by Justinian, was the great type of the second period of Byzantine architecture, and on this was founded all the subsequent architecture of the Eastern world.

Byzantine art necessarily influenced many structures erected in Italy, too. The octagon church of St. Vital, in Ravenna, is an example of early Byzantine art, and St. Mark's at Venice exhibits a strong Byzantine influence.

Some of the features of Byzantine architecture (induced by the use of columns and materials ready to their hands, desire to avoid the appearance of a heathen temple, and increased skill in the construction of vaults) were semi-circular arcades one over the other, semi-circular openings containing within them two or more smaller arches, and the use of Cupolas, the main offspring, indeed, of the style. The body of the churches was covered in many cases by a dome carried on four piers or pillars placed in the centre of the area, so as to form a cross of equal arms, since called the Greek cross. In the Latin cross (the plan of most of our own cathedrals) the transept or transverse arms are shorter than the longitudinal arms—the western arm longer than the eastern. The large flat surfaces which the walls presented led to the use of mosaics, and painted and gilded decorations, in the production of which the Greeks of the lower empire so excelled that some mosaic work was universally termed *opus Græcum*. They maintained their superiority in this respect for several centuries. In the art of fresco-painting and glass-staining they attained considerable skill. Many of their buildings thus decorated, the walls coated with marbles and the cupolas plated with gold, must have presented a dazzling appearance.

Eusebius, in his Life of Constantine, describes many of the buildings erected by him, and shows that they were magnificently adorned. Of the Church of the Apostles, for example, he says (Book III.), that when he had carried the whole of this temple to an immense height, he rendered it splendid with various kinds of stone, encrusting it from the base, even to the roof, with marble. The roof was delicately ornamented and gilt, and the whole building, as a protection against the weather, was covered with brass, which, again, being overlaid with gold, was so resplendent, that it dazzled the eyes of spectators afar off by the reflection of the sun's rays.

To Byzantium, as I have said, we owe the cupola, and, as Hope remarks, so much does this feature prevail in the old churches, both in Italy and in Germany, that the Latin word *domus*, or house, applied to that of worship, *par excellence*, and retained alike in the Italian appellation of *duomo*, and the German one of *dom*, given to the cathedral of each city, has, in French and English, been transferred and restricted to, and become synonymous with that peculiar part thereof more properly called *cupola*.

Mohammedan and Moorish architecture grew out of that of Byzantium; so also the architecture of Russia: its influence, indeed, as you will find, was felt everywhere. For the second time, then, as you see, the Greeks obtained dominion over architecture; and from them again were the first lessons in it given to the world.

I am afraid you will think all this very prosy, but if you will take the trouble to master this period, which forms the turning-point between ancient and modern history, you will find it has a value.

To return for a short time to the ancient capital. Long before the reign of Justinian—namely, in the fourth century—Rome was besieged several times, and ravaged by the Goths, and numberless fine specimens of ancient art were destroyed. When these energetic people, however, obtained possession of Italy, their chiefs showed considerable anxiety to protect rather than injure, and sought by such means as were in their power to advance the arts.

Theodoric, king of the Ostrogoths, who ascended the throne of the western empire in 493, had been educated in Constantinople, and was impressed with the importance of architecture. He called to Rome Greek architects, and, with his minister Cassiodorus, insisted on the preservation of ancient buildings, and aided in the erection of new. At his death, however, which happened after a prosperous reign of thirty-three years, darkness came over Rome, and the arts remained for many years extinct. It must not be supposed that the architecture we call GOTHIC was invented by these Goths. They seem simply to have imitated, at first unskilfully, what was before them. Though the manner of building then in use was actually the mode out of which grew Pointed Architecture, this owed nothing to the Goths. The term "Gothic" was applied to Pointed architecture in much later times by Sir Henry Wotton, and then by Evelyn, simply as an epithet of opprobrium to distinguish it from the works of the classic period.

In the year 553 Rome was re-united to the Eastern Empire. Soon afterwards Italy was overrun by the Lombards, a rude people, who, however, soon attained a considerable degree of civilisation, and influenced greatly both commerce and art.

The Lombards, had no architecture of their own, but they employed the artists of Constantinople, and their buildings were after the Roman manner (*more Romano*),—Romanesque, as it is termed. The Roman basilicæ, and the churches of Byzantium, both assisted to produce the style; and the churches of the Rhine are its noblest results. Semicircular arches, columns of any height according to the necessity, without reference to the diameter, as in classic times, and vaulted ceilings, are amongst the characteristics of the style. They covered the façades of some of their buildings with a number of small arcades, rising one over the other, and enriched them with a profusion of sculptured ornament: the windows were mostly small round-headed openings, and their doorways were richly adorned with shafts at the sides, and sculpture in the semi-circular arches over the square-headed doorway. They adopted the long nave and apses of the Basilica and the dome of the Byzantines; and we have to thank them for one very important new feature, and that is the development of the *bell-tower or steeple*, notwithstanding that towers probably first arose in Constantinople.

This style endured long in Italy, from the invasion of the Lombards to the 13th century, and was variously modified, but I need not trouble you with more minute particulars.

The cathedral at Pisa, which you remember very well, was commenced in 1063 or 1064, was finished in 1113, and became the type for many other churches. The west front presents tiers of small arcades, one above the other. It is

* No. X. See also pp. 100, 133, 164, 196, 224, 260, 292, 324, and 356.

covered with carvings and mosaics, and has bands of blue marble on the face of the wall. You must not attribute the whole of the church, though, as you now see it, to the period mentioned, because it was repaired after a fire in 1596.

The famous leaning tower at Pisa, too, forming one of the singularly interesting group of buildings there, is a later specimen of the same style.

With reference to the progress of architecture on this side of the Alps, let me say here that in the 8th century Charlemagne (and never let us forget this means Charles the Great), bent on restoring civilization, drew from Byzantium, Rome, and Lombardy artists of all descriptions to decorate Germany, as indeed had been previously done on a more limited scale in England and France, so that all over Europe this round-arched style prevailed, until it gave place universally to the Pointed style, of which we have in our own country such noble specimens.

Cologne, the "Rome of the north," one of the most interesting cities in Europe, notwithstanding its bad smells, and that it is,—

"——— a town of monks and bones,
And pavements fanged with murderous stones,"

contains many fine specimens of the Lombard style, some of them showing very strongly the influence of Byzantine art. I dare say you remember the church of the Apostles there, with its absides, steeples, cupola, and galleries of small arches. St. Gereon, too, one of the only two good things that Coleridge found in this city,—

"Mr. Mum's Rudesheimer and the church of St. Gereon,
Are the two things alone, that deserve to be known,
In the body and soul stinking town of Cologne;"

St. Martin's, St. Cunibert's, and several others might be mentioned. The oldest church there, "Santa Maria of the Capitol," is even more Byzantine than the others.

O, pleasant Rhine! Green and swiftly flowing river! with thy castle-crested crags, pleasant villages, picturesque old towns, and world-famous memories, how full of beauty are thy banks! how charming the recollections which I have of thee!

Do you happen to know Poitiers and Angoulême, in France, on the road to Bordeaux? Notre Dame in the first and the Cathedral in the second of these ancient towns occur to me as interesting examples of this round-arched style, Lombardic if you like, but still impressed with the Byzantine stamp. The mention of these places, too, recalls recollections of many bright days and pleasant rambles, with knapsack on back and note-book in hand, at a time when travelling abroad was less easy and convenient than it is now, though not *very* long ago either, but perhaps fuller of incident and more varied in character.

I have mentioned Charlemagne and the 8th century, and this is a satisfactory starting point for modern history. Architecture spreading out from the parent plant, took root in the various countries on this side of the Alps. In tracing its further progess I will, for a time at all events, confine myself to one offshoot, and that will be the branch that grew up in "Merry England."

The magnificence of the Romans, of which something has been said, was not confined to Rome. Amphitheatres, circuses, and villas, were built in all the Italian states, and ultimately all over the world. Wherever the Romans obtained possession there they at once erected buildings, and led the inhabitants to practise the arts of peace. They were teachers as well as conquerors.

The Romans had possession of Britain about 400 years, and during that time erected here theatres, baths, aqueducts, halls, and temples, which they decorated with statues and other works of art. They also instructed the inhabitants, so that until the middle of the 4th century architecture flourished greatly, and Britain became so famous for the excellence of her artificers that they were sent for to go into other countries. For example, when Constantius, the father of Constantine, rebuilt the city of Autun, in Gaul, he was chiefly furnished with workmen from Britain.

Numerous remains of Roman work are still to be found in England, baths, tombs, roads, and city-walls, which attest the extent of their labours. The number of tesselated pavements of great beauty which have been dug up from time to time is quite extraordinary, and fresh discoveries are made every day. Bath is said to have had its temple to Minerva; and London its temple to Diana, where St. Paul's Cathedral now stands. At Lincoln there is a fine Roman Gateway, and so there was at Chester, until a short time ago, when it was destroyed by the Corporation,—to their shame be it said. In Roman walling of stone you will often find occasional layers at regular distances of Roman bricks. These bricks, or rather tiles, are larger and thinner than ours. Their presence, however, is not always a proof of Roman work, for the Saxons and Normans occasionally re-used them in their structures. When the mortar contains small pieces of pounded brick, some antiquaries maintain that the work is undeniably Roman, but there are early records of materials used in the mediæval times which tend to lessen one's faith even in this test: all the concurrent circumstances must be considered to arrive at a correct judgment. Richborough Castle (*Rutupium*), near Sandwich, in Kent, is a fine relic of the Roman occupation of this country, and standing, as it does, far away from any modern construction, deserted and silent, the associations which it recalls are not interfered with. You may people it again with the soldiers of the 2nd Legion, and watch them march through the *Decuman* gate, ten abreast (whence its name):

"I listen, half in thought, to hear
The Roman trumpet blow—
I search for glint of helm and spear
Amidst the forest-bough."

At Leicester, very interesting foundations of a Roman building have been recently opened: indeed, all over the country vestiges of their structures exist. In London, many have been found, but few have been preserved *in situ*. The *Hypocaust* in Thames-street, discovered when preparing for the erection of the new Coal Exchange, and carefully preserved beneath that building, is a most interesting exception. In Trinity-square, near the Tower of London, there is a portion of the Old London Wall, the lower part of which is evidently of Roman workmanship, and shows the bonding-courses of tiles alluded to. This wall would have been destroyed ruthlessly a few years ago, but for the exertions of some who feel the importance of preserving those few relics of the past which time, ignorance, and the course of improvement have left. Monuments of this description become historical evidences, nationally important, and are found to be of the greatest service when tracing those changes in our state and manners which time is constantly effecting. As I have elsewhere said, they are awakeners of sentiment—silent teachers—and have never been destroyed without much after-regret and condemnation.

"Past and future are the wings,
On whose support, harmoniously conjoined,
Moves the great spirit of human knowledge."

The importance of the study of antiquity is now very universally admitted. It was, at one time, the custom amongst the people generally to reward the labours of the antiquary with ridicule and contempt; to consider the investigation of a ruined building, the preservation of a piece of pottery, or the noting down of the manners and customs of past ages, as the mere idlings of weak minds; and that he who so employed himself was not merely unworthy of praise, but deserving of censure for misapplying time. The value of the works of this class of men is now, however, better understood, and therefore more duly appreciated. Through the exertions of these "musty" antiquaries, the civilised world is able to look back upon itself and contemplate, in a great degree, its actual state, so far as regards the arts which flourished, the sciences which were understood, and the consequent position of the people, at various periods of its age; and that, too, not merely in the accounts of contemporary and succeeding writers, but in the very results of these arts so practised,—in the coins used, the dresses worn, the furniture employed in their houses, and the buildings raised for ecclesiastical, for warlike, or for domestic purposes.

The architecture of a people especially, offers important evidence, in the absence of written records, towards the elucidation of their history; perhaps, I may say the most important—for it speaks plainly of the state of society at each particular period, and hints at the degree of knowledge possessed by individuals, or by the people at large. As the comparative anatomist can from one bone determine the size, the shape, and the habits of an animal, which he has neither seen nor heard of, so we may almost discover, from the ruined building of a people, their prevailing habits, their religion, their government, and the state of civilization to which they had arrived.

These relics, then, should never carelessly be suffered to decay, still less be wilfully destroyed. Too much devastation has been committed already, and it is to be hoped that every fresh proposal to remove ancient remains will be examined most seriously before it be acceded to.

Immediately after the departure of the Romans, perhaps before, architecture and the other arts declined in Britain, and by the time that the Saxons arrived in the year 446, were quite extinguished. A hundred years after this the latter had obtained dominion over nearly the whole of Britain, and shortly afterwards began to the extent of their power to imitate the Romans in their policy and arts: they came, I may remind you, from the north-west corner of Germany, contiguous to Denmark. When the Anglo-Saxons were converted to Christianity at the commencement of the seventh century, structures wherein to perform divine service became necessary. The missionaries from Rome brought with them workmen: others were sent for, probably some of them Greeks; and numerous buildings which excited admiration at the time, were erected in imitation of those in Rome and Byzantium. It was the habit not many years ago to term all the most ancient buildings wherein appear short columns supporting semi-circular arches, adorned with zigzag mouldings and rude sculptures, Saxon; but it is now generally maintained, that there are very few buildings remaining in England of that date, and that those so pointed to belong to the Norman period. Doors, windows, and towers are to be found, but there are few whole buildings which can with certainty be termed Saxon. In truth, however, there may really be more than some architectural antiquaries are disposed to admit. Anglo-Saxon architecture was, in its broad character, that round-arched style which I have spoken of as Romanesque and Lombardic, and so was the Norman which followed. The differences they presented require more minute analysis than I can expect you to follow. I may mention, however, some obvious features which belong especially to it, the occurrence of which would enable you to say that the building in which any one of them appeared, belonged to a period before the Norman Conquest, though their absence alone would not enable you to pronounce to the contrary. Amongst them are angular-headed openings, or straight-sided arches, as they are sometimes called, which are also found in the earlier Romanesque works of Germany and France. You will remember, too, that I described them as occurring in the works of the early nations.

Fig. 22 is a sketch of one of these arches, in the lower part of the tower of Trinity Church, Colchester, which is of the Saxon period. The angles of buildings ascribed to this æra are often formed of hewn stones placed alternately flat and on end, which have been called "longs and shorts:" the walls often show flat strips of stone running up the face of them, and projecting slightly from the surface, appearing like the uprights in a timber construction, where the spaces between are plastered. Another peculiarity is the occasional use of a rude baluster (a short swelling shaft divided by a band in the middle) to form a

window into two lights, as in the tower of St. Benet's, Cambridge, and the church of Earl's Barton, Northamptonshire.

Of the domestic architecture of the Anglo-Saxons I need say nothing. Their houses were for the most part rude, and their requirements simple. The chief and his "hearthmen," or "hearth companions," as they were expressively termed, sat by the fire at which their meat was cooked, and shared the same sleeping apartment. They had able artizans nevertheless, good workers in iron and the other metals especially, and were altogether much more advanced as a people when they were overcome than is usually thought. Their descendants have been manfully fighting their way upwards in their own country ever since, and have fought a fight for the world at the same time.

But I must conclude, or I shall weary you. Believe me with equal respect and regard,

Sincerely yours,

Reggeo.



Fig. 22.—SAXON DOORWAY IN THE TOWER OF HOLY TRINITY CHURCH, COLCHESTER.

THE HOUSES AND SHOPS OF OLD LONDON.*

The sketches given in connection with our last paper are almost the only pictorial records we have of London previous to the publication of Agas's bird's-eye view of London in the reign of Queen Elizabeth (1558—1603). This scanty supply of information is the more to be regretted when we consider how few specimens of the street architecture of London remain which can, at the present time, be recognised as belonging to the period to which we have alluded. After several years' careful examination of London antiquities, so far as we have seen, the house in Tothill-street, Westminster, (No. 7), is, with the exception of Gerrard's Hall, the oldest fabric for commercial purposes which exists in a tangible shape at present. No doubt there are portions of buildings of an equally old date remaining; but these have been almost as much changed for their greater convenience and preservation as the knife of the sailor, which had been twice rebladed, and once treated with a new handle. The Cock at Westminster is composed in a similar style of massive Gothic timber-work to the example, No. 6, which has for some years been demolished. Respecting the ancient hostelry, there is a tradition that it was used as a lodging and pay house by the workmen engaged in the erection of Henry VII.'s Chapel at Westminster Abbey. This inn was old, even in the time of Stowe, and in further corroboration of the above tradition, some carvings of considerable antiquity and of much beauty of design and execution are still preserved inside the house, which are said to have been the work of artists employed at Henry VII.'s Chapel. The sign of the house (the Cock) has, no doubt, been intended originally as the emblem of St. Peter, the patron saint of Westminster Abbey. It is also stated that the first stage-coach which ran from London started from this place. The present exterior appearance is very picturesque, although plastered and painted. Several steps descend into the interior, which is built in a substantial manner, with huge beams of chesnut, as shown in engraving No. 8.

It has been mentioned by several (amongst others, by Saunders, in Charles Knight's "London"), that a considerable portion of the Tabbard Inn, in the Borough, is of the time of Chaucer, and was probably the identical hall in which were assembled the pilgrims so graphically described by the great poet. We are sorry to be obliged to differ from this opinion, which is so interesting in associations, for, after a careful examination of the Tabbard, the writer is led to think that there is no portion of the present building older than the time of James I.

Smith, in his "Antiquities of London and Westminster," says: "The instances of early dates on buildings in London are very rare: I have only met with two, those of 1595 and 1599, the former on the bracket of a house on the east side of Gray's-inn-lane" (see our engravings, Nos. 17 and 18), "the latter across the back beam of a house in Duke-street, West Smithfield (No. 6).* It must not be concealed that a date of 1430 is to be seen on the front of the White Hart, Bishopsgate-street."

The houses lining the streets of London previous to the reign of James I. appear not to have been remarkable for the extent of their carving or decoration, but were probably intended more for use than ornament. The circumstance that the houses built opposite the cross in Cheapside were looked upon at the time of their erection with wonder for their richness and beauty, together with the *existing drawings*, leads us to suppose that few domestic buildings existing in London at that time were at all to be compared with those of Coventry, Chester, &c.

Norden states, with regard to domestic architecture, that till late in the reign of Henry VIII. there were few high buildings, and fewer of stone, in the metropolis, or in England, excepting the palaces of the first nobility, cathedrals and parish churches, and the greater monasteries: the rest were mostly mud wall tenements of the cottagers, lesser free-traders, and villagers. The timber and lath buildings of cities and towns were houses erected with strong oaken posts interlaced with bricks and mortar, and which, like the examples in Tothill-street and Duke-street, would have stood several hundred years, unless purposely removed or destroyed by fire.

Houses in former times, before they were erected, were framed ready; that is to say, that while their foundations were being dug in one place, the timbers were being framed in another. In the time of Edward III. his exchequer was in a building called Cornet's Tower, which must have stood about the west end of the Poultry. This tower afterwards came into the possession of Buckle, or, as Stowe calls him, "one Buckle." This worthy citizen, who was of the Grocers' Company, considering a shop of more use than the ancient tower, resolved to pull it down, and erect a more fashionable edifice. During the demolition he was killed by the falling of a beam, and his widow shortly afterwards married, and her second husband set up the frame of timber which had been commenced by his predecessor.

Nonesuch-house (16), which formerly stood on Old London-bridge, was brought from Holland, and was so called because it was entirely constructed of wood, brought over in pieces from Holland, and erected in this place, with wooden pegs only. This remarkable edifice stood on the seventh and eighth arches of Old London-bridge from the Southwark end. On the London side of the bridge the Nonesuch-house was partly joined to numerous small wooden dwellings, of about 27 feet in depth, which hung over the parapet on each side, leaving, however, a clear space of 20 feet in the centre: over all these its carved gables, cupolas, and gilded vanes majestically towered. Two sun-dials, declining east and west, crowned the top on the south side, on the former of which was painted the old and appropriate admonition, "*Time and tide wait for no man.*" The southern front shown in the engraving, was unconnected with any building, and must have had an excellent effect, and presented the appearance of a large building projecting over the bridge on either side. The whole of the front was ornamented with a profusion of transom-casement windows, with carved wooden galleries before them; and richly sculptured wooden panels and gilded columns were to be found in every part of it. In the centre was an arch of the width of the drawbridge, leading over the bridge; and above it on the south side were carved the arms of St. George, and those of Elizabeth, France, and England, quarterly. From this circumstance, and from a building answering the description of Nonesuch-house being mentioned in a document of the date 1585, it is supposed that this structure was erected during the reign of Queen Elizabeth. Many of the old houses near the Southwark end of London-bridge (13) were also brought from Holland.

Although the houses of Old London, up to the period at present under notice, would appear, with a few exceptions such as Nonesuch-house, to have been only plain and substantial, yet we learn from various accounts, that the interiors were greatly adorned with tapestry, and leather hangings, richly gilt and ornamented. Turkey and Persian carpets are seen in paintings of this period, covering the tables of the rich and middling classes of the community: the floors were still strewed and matted with rushes, although the ceilings were richly decorated. Stephen Perlin, a French physician, who visited England in the time of Edward VI. says, "The English make great use of tapestries and of painted linens, which are well done, and on which are many magnificent roses, embellished fleurs de lis and lions, for you can enter but few houses where you do not find these tapestries." In the time of Queen Elizabeth ornaments of china for domestic purposes had been brought from Italy, but shortly after her death (about 1631) they became regular matters of importation by the East India ships.

* See p. 342, *ante*.

* This date was only on a portion of the house, and was probably added some time after the buildings were erected.

The extent and increase of London during the reign of Queen Elizabeth caused the greatest alarm to the Government; yet in comparison with the present extent and progress of London, how idle, at a first glance, seems the fear: still when we consider the sanitary condition of London at that time, and the imperfect state of the roads throughout England, we cannot wonder at the dread, particularly as plague and famine were frequent visitors to Queen Elizabeth's London citizens. In Agas's Map of London there are only a few houses shown outside the City wall from St. Botolph's, near the Tower, to Bishopsgate: the Spital-fields are without a house, and the space which is at present occupied by a dense population of silk weavers, &c. is studded on the map with archers practising their games, and cows and milkmaids. The continuation of Bishopsgate-street is shown with a single line of houses on each side, stretching as far as Houndsditch. From Bishopsgate to Moor-gate there are only one or two detached houses outside the wall: one of them is called the "Dogge House:" here in the green fields are numerous persons bleaching linen, &c. The Finsbury-fields are shown with footpaths across, the only buildings upon them being four windmills. The space between Broad-street and Coleman-street is occupied by large gardens. Outside Cripplegate, Grub-street, now Milton-street, and one or two other small streets are shown: except these buildings, all is fields and gardens. Aldersgate-street, from the corner of Barbican runs but a short distance. The Charter House abuts upon the fields. The "Schmyt Fyeld" is planted with two rows of trees: the sites occupied by the houses 22 and 25 are marked as built upon: Cock-lane, Hozier-lane, and Coney-lane are short rows of houses leading to the fields. Cow-cross and a portion of St. John's-street, Clerkenwell, and a few houses at Holborn-bridge, end London in that direction. Field-lane is planted with trees, the Fleet running at their side. Ely-gardens, mentioned by Shakespear, as famous for the growth of its strawberries, are shown of great extent. Holborn has a single row of houses on each side, with fields on the north, and gardens and plantations on the south. Gray's-inn-lane is the only branch to the north in the whole extent of Holborn, and the house, No. 18, which is still near Liquorpond-street, is probably that shown in the map as the end of London in this part. Holborn continues until about as far as Red Lion-street, and then becomes a country road, with hedges on each side, and so continues to the little village of St. Giles, which is in the midst of fields. No houses appear nearer than the Strand on the south. St. Martin's-lane and the Haymarket are green lanes, through which the Oxford-road and the "Waye to Redinge" pass.

What changes have taken place since that day! what wonderful extension! and still London in 1852 is not only better supplied with provisions than in the time of Elizabeth, but also vastly improved, notwithstanding our numerous abuses, in sanitary condition.

In addition to the sweating sickness, the plague, during the reign of Queen Elizabeth, visited London several times: in 1563, 20,372 persons died; in 1569, a very large number. About this time the City laid out 814*l.* 15s. 8d. in cleansing the City ditch, between Aldgate and the Postern on Tower-hill, and making a new sewer and wharf of timber from the head of the Postern into the Tower-ditch, which before this time had always laid open. In 1590, nearly 11,000 persons died; and in 1603, the year in which Elizabeth died, the plague carried off 30,578 persons, 3,090 of whom died in one week.

In 1579 the alarm to which we have alluded respecting the increase of London, was so great that an inquisition was ordered to be taken of the number of foreigners in London, when it appeared that the number had increased threefold in twelve years. In 1567, the number of strangers in London was, Scots, 40; French, 428; Spaniards and Portugese, 45; Italians, 140; Dutch, 2,030; Burgundians, 44; Danes, 2; Liegois, 1; in all, 2,730: in 1579, the number was 8,190. This increase produced a remonstrance from the Lord Mayor and aldermen against the number of new buildings and inhabitants within the city and suburbs of London. In consequence of which her Majesty issued a proclamation, forbidding any new buildings of a house or tenement within three miles from the gate of the City, where no former house could be remembered to have stood, and likewise not to suffer more than one family to inhabit any house. The Lord Mayor was empowered to commit offenders against this proclamation, or to hold them to bail.

In 1564, the common council of London ordered that all such citizens as should thenceforth be constrained to sell their household goods, leases of houses, or such like, should first cause the same to be cried through the City by a man with a bell, and then to be sold by the common outcrier appointed for that purpose, and he to receive one farthing in the pound for his trouble.

During the reign of Queen Elizabeth, several improvements were introduced amongst them. A description of police was established composed of beadles, &c. of the various wards, to preserve order amongst vagrants, &c.

In 1556, Christopher Draper, alderman of Cordwainer-street Ward, appointed a man to go about his ward at night with a bell, and at certain places, with an audible voice, to bid the citizens be careful of their fires and lights, to help the poor, and pray for the dead. This institution was soon after adopted in all other parts of the City.

In the year 1566, a proposition was made by Sir Thomas Gresham, merchant, of London, to erect, at his own expense, a commodious building for merchants to meet and transact business, provided they would find a convenient site for the same. The citizens, agreeing to this proposal, purchased, for the sum of 3,532*l.* eighty houses in the two alleys called New St. Christopher's and Swan Alley, leading out of Cornhill into Threadneedle-street, the materials of which eighty houses were sold for 478*l.* and the ground, being cleared, was conveyed to Sir Thomas Gresham, who, on the 7th of June, accompanied by several aldermen, laid the first brick of the new building: each alderman also laid a brick, and a piece of gold for the workmen, who persevered with such assiduity that the building was roofed by the month of November in the next year, and was soon after finished under the title of the Burse (14). On 23rd Jan. 1570, Queen Elizabeth, attended by the nobility, went into the City and dined with Sir Thomas Gresham at his house in Bishopsgate-street. After dinner her Majesty returned through Cornhill, went into the Burse, and after viewing it in all parts, commanded proclamation to be made by a herald, with sound of trumpet, that thenceforth it should go by the appellation of the Royal Exchange.

Sir Thomas Gresham, by will dated 26th November, 1579, devised the Royal Exchange, its profits, &c. to the Mayor and citizens of London and the Company of Mercers, to be equally enjoyed amongst them, on condition that the citizens, out of their moiety, should pay a salary of 50*l.* per annum each to four persons, who should read lectures in divinity, astronomy, music, and geometry, in Gresham College, and to pay 6*l.* 13s. 4d. per annum each to eight almspeople situate behind the said college, in Broad-street, and 10*l.* yearly to each of the prisons of Newgate, Ludgate, King's Bench, Marshalsea, and Wood-street Compter;—that the Mercers, out of their moiety, should pay 50*l.* each per annum to three persons to read lectures in law, physic, and rhetoric, in his Mansion-house, and 100*l.* for four quarterly dinners to be provided in their hall for the entertainment of the whole company, and also to pay 10*l.* per annum to the following places, viz. the Poultry Compter, Christ's Hospital, St. Bartholomew's, the Spital, Bethlehem, and St. Thomas's.

In 1576, Mr. William Lamb, citizen and clothworker, erected a conduit on Snow-hill, which he fed from a water source near the Foundling Hospital: part of the covering of this well is still remaining in a garden near the "Lamb," Lamb's Conduit-street. An effigy of this public benefactor will be found in the chapel attached to an hospital endowed by him, at the north end of Monkwell-street, Cripplegate.

In 1582 Peter Maurice, a German engineer, proposed a scheme to the Lord Mayor and aldermen for erecting a machine to supply the City with Thames water, which scheme being approved of, the same was erected in the river, near London-bridge. As an encouragement for this piece of ingenuity, Maurice obtained a lease of one arch, and a place for fixing his engine upon the north end of London-bridge, for the term of 500 years, at the rent of 10s. per annum. Two years after this he obtained the lease of a second arch, and the citizens finding the advantage of this invention, he and his posterity grew wealthy by its improvement. In 1701 they sold the property to Richard Soams, a goldsmith, for 36,000*l.* Maurice having first obtained another lease of the fourth arch. Soams got from the City a confirmation of Maurice's lease at the yearly rent of 20s. and 300*l.* fine, after which Soams divided the whole property in 300 shares, at 500*l.* each, and made it a company.

Having extended this notice as far as our space will permit, we will give, in our next, illustrations of the shops and houses in London at the time of the reign of James I. and glance briefly at the history of the domestic architecture of that period.

REFERENCES TO THE ENGRAVINGS.

13. Old Houses near the south end of London-bridge, from a view of London published at Amsterdam, 1616.
14. Front of the first Royal Exchange, built by Gresham, 1566-67. (Wilkinson's *Londina Illustrata.*)
15. The Custom-house, from a print in Wilkinson's *Londina Illustrata*, copied from a scarce engraving of the date of 1634.
16. Nonesuch House, formerly on London-bridge, from Agas's Map.
*17. Bracket, with date 1595, on house in Gray's-inn-lane.
*18. Elizabethan House, east side of Gray's-inn-lane.
19. House and Shop, West Cheap, as it appeared in 1585, engraved in Wilkinson, from a drawing by R. Triswell.
20. House formerly in Grub-street (now Milton-street). (Smith's Antiquities.)
*21. Bracket on house in Milton-street.
*22. Houses in Long-lane, Smithfield.
*23. Part of House in Carey-street, Chancery-lane.
*24. Old House, St. Clement's-lane, Strand.
*25. House in Long-lane, Smithfield.

The engravings marked * are drawn from existing examples.

PARSEY'S COMPRESSED AIR LOCOMOTIVE.

AFTER a long absence Mr. Parsey has again appeared: having built an experimental compressed air engine, permission was given to try it on the Eastern Counties Railway on the 25th May last, when the locomotive, with eight persons on it, travelled (as we are informed) from Stratford Station to Lea Bridge and back, a distance of four miles. The engine weighs about 1½ ton, pistons 9 in. stroke, 2½ diameter, capacity of the reservoirs of highly compressed air, about 39 feet, which were charged to 11 atmospheres, or 165 lbs. per square inch. The regulator was set to give an uniform pressure on the piston of about 20 lbs. per inch. The object of this part of the engine is to keep a self-acting uniform working pressure. The gradual decline of pressure has hitherto been the failing point of all attempts to make use of compressed air as a motive power. We are told that less than 40 cubic feet at a density of 11 atmospheres drove the engine and eight persons four miles —about 2 tons, from which data some idea of the cost of power may be ascertained. This is the first time a compressed air engine has run upon a railway.

THE IRON TRADE.—Prices, it is reported, are looking up, and orders are on the increase. Some charcoal iron has been imported from Nova Scotia, and it is thought that this iron, which is well adapted for steel of the best quality, and which obtained a medal at the Great Exhibition, may ultimately compete with that from Sweden and Russia.

THE HOUSES AND SHOPS OF OLD LONDON.


13

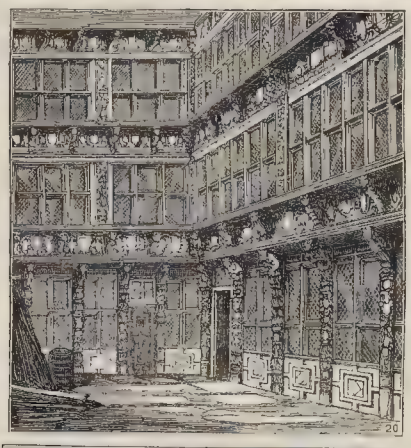

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J.BROWN. DEL. LANG Sc.

LECTURES ON PRACTICAL ART AT MARLBOROUGH-HOUSE.

THE following are the propositions enforced by Mr. Owen Jones in his second lecture. The subject was, "The laws which govern the employment of colour illustrated by the woven fabrics of the collection."

14. Colour is used to assist in the development of form, and to distinguish objects or parts of objects one from another.

15. Colour is used to assist light and shade, helping the undulations of form by the proper distribution of the several colours.

16. These objects are best attained by the use of the primary colours on small surfaces and in small quantities, balanced and supported by the secondary and tertiary colours on the larger masses.

17. The primary colours should be used on the upper portions of objects, the secondary and tertiary on the lower.

18 (Field's Chromatic Equivalents). The primaries of equal intensities will harmonise or neutralise each other, in the proportions of 3 yellow, 5 red, and 8 blue,—integrally as 16.

The secondaries in the proportions of 8 orange, 13 purple, 11 green,—integrally as 32.

The tertiaries, citrine (compound of orange and green), 19; russet (orange and purple), 21; olive (green and purple), 24; integrally as 64.

It follows that,—

Each secondary being a compound of two primaries is neutralised by the remaining primary in the same proportions,—thus, 8 of orange by 8 of blue, 11 of green by 5 of red, 13 of purple by 3 of yellow.

Each tertiary being a binary compound of two secondaries is neutralised by the remaining secondary—as 24 of olive by 8 of orange, 21 of russet by 11 of green, 19 of citrine by 13 of purple.

19. The above supposes the colours to be used in their prismatic intensities, but each colour has a variety of *tones* when mixed with white, or of *shades* when mixed with grey or black.

When a full colour is contrasted with another of a lower tone, the volume of the latter must be proportionally increased.

20. Each colour has a variety of *hues*, obtained by admixture with other colours, in addition to white, grey, or black: thus we have, of yellow,—orange-yellow on the one side and lemon-yellow on the other; so of red,—scarlet-red and crimson-red; and of each every variety of *tone* and *shade*.

When a primary tinged with another primary is contrasted with a secondary, the secondary must have a hue of the third primary.

21. In using the primary colours on moulded surfaces, we should place blue, which retires, on the concave surfaces; yellow, which advances, on the convex; and red, the intermediate colour, on the undersides; separating the colours by white on the vertical planes.

When the proportions required by proposition 18 cannot be obtained, we may procure the balance by a change in the colours themselves; thus, if the surfaces to be coloured should give too much yellow, we should make the red more crimson and the blue more purple—*i. e.* we should take the yellow out of them; so if the surfaces should give too much blue, we should make the yellow more orange and the red more scarlet.

22. The various colours should be so blended that the objects coloured, when viewed at a distance, should present a neutralised bloom.

23. No composition can ever be perfect in which any one of the three primary colours is wanting, either in its natural state or in combination.

24. When two tones of the same colour are juxtaposed, the light colour will appear lighter, and the dark colour darker.

25. When two different colours are juxtaposed they receive a double modification,—first, as to their tone (the light colour appearing lighter and the dark colour appearing darker); secondly, as to their hue, each will become tinged with the complementary colour of the other.

26. Colours on white grounds appear darker; on black grounds, lighter.

27. Black grounds suffer when opposed to colours which give a luminous complementary.

28. When ornaments in a colour are on a ground of a contrasting colour, the ornament should be separated from the ground by an edging of lighter colour,—as a red flower on a green ground should have an edging of lighter red.

29. When ornaments in a colour are on a gold ground, the ornaments should be separated from the ground by an edging of a darker colour.

30. Gold ornaments on any coloured ground should be outlined with black.

31. Ornaments of any colour may be separated from grounds of any other colour by edgings of white, gold, or black.

32. Ornaments in any colour, or in gold, may be used on white or black grounds, without outline or edging.

33. In "self-tints," tones, or shades of the same colour, a light tint on a dark ground may be used without outline; but a dark ornament on a light ground requires to be outlined with a still darker tint.

NOTES IN THE PROVINCES.

Cambridge.—A proposal was recently made to erect a new lunatic asylum for Bedfordshire, Cambridgeshire, &c. at a cost of about 50,000*l.* for 500 or 600 patients; Cambridge to subscribe 20,000*l.* Bedford and Herts 15,000*l.* each, and Hunts 10,000*l.* Cambridge, however, has resolved to proceed at once with the building of its own asylum, Bedford having declined the proposed union. Tenders are accordingly to be advertised for. The county, isle, and borough, it appears, contain about 180 lunatic and idiots.

Warwick.—Mr. Rammell, C.E. accompanied by Mr. J. Tibbits and the surveyor, has been examining the various sources of water supply for this borough. Mr. Rammell is to report to the Local Board of Health.——Extensive improvements and additions are about to be made to the Grand Stand on the race-course at Warwick. The committee have resolved on expending about 700*l.* upon the work.

Oulton Park, Cheshire.—The new schools recently erected within the precincts of the park, through the munificence of Sir Philip Malpas De Grey Egerton, bart. have just been completed. The provision for the children consists of two school-rooms (connected by a cloister), and residences for the mistresses attached. The design is of Early Decorated character, by Mr. Chas. Vickers, of London.

Rugby.—The first stone of the intended Church of the Holy and Undivided Trinity, at Rugby, was laid on Monday week.

Great Crosby.—The ceremony of laying the foundation-stone of the new Church of St. Luke, Great Crosby, was performed on Wednesday week. The church is being built from a plan designed by Mr. Arthur Holme.

Nottingham.—The debt on the parish church has been liquidated, and the vicar will now take steps for the erection of two new district churches, one in Millstone-lane, and the other at the top of Back-lane, near the general cemetery. The plans have been prepared for some time, and each building, it is said, is to accommodate upwards of 500 worshippers.

Sheffield.—The Gas Consumers' Company have accepted the tender of the Butterley Iron Company, for the supply of about 2,000 tons of mains and pipes.——The foundation-stone of the schools about to be erected in connection with Trinity Church, Wicker, was laid on Monday in last week. The schools, which will be built from designs of Messrs. Flockton and Son, will be a plain edifice. There will be accommodation for about 500 scholars. The total cost will be about 2,600*l.* but of this, 1,200*l.* has been paid for the site. The Committee of Council on Education have given 620*l.* and 200*l.* were from the National School Society. The rest has been raised by private subscription.

Elsecar.—This village is situated near Wentworth, and on the estates of Earl Fitzwilliam, at whose expense chiefly there have just been completed, at a cost of nearly 1,000*l.* exclusive of a grant from government, a set of school-buildings containing a mixed school, infant school, and class-rooms, together with a teacher's residence. The opening of these schools was celebrated on Whit-Tuesday.

Balderstone.—The church of St. Leonard's is in a fair way of being replaced with something more in character with the sacred object for which it is set apart, than that which the present rude and ruinous structure presents. The tenders were opened on Friday last, when the Messrs. Hargreaves, builders, Clitheroe, were declared the successful competitors. We are informed that the works will be proceeded with immediately, and that it is intended to lay the foundation-stone on the 22nd of next month.—*Blackburn Standard.*

East Retford.—The ancient font in the parish church has been restored, under the superintendence of Mr. George G. Place, of Nottingham, architect. Mr. W. Lee, of Boston, builder, was the supervising draughtsman, and Mr. John Mee, of Derby, the operative sculptor. The cost has been defrayed by an inhabitant; and the improvement has led to the restoration or rebuilding of the porch by some other gentlemen connected with the parish, who have contracted with Mr. Lee for the work. An offer has also been made to restore the great western entrance, which is in a dilapidated state; and it is thought not improbable that other parts, if not the whole edifice, may thus by degrees be restored, in consequence of the example given in the case of the font.

Bradford.—The proposed cemetery for Bradford is in a fair way towards realization, as the company for carrying out the project has been formed and registered, and the purchase of a site is to be effected forthwith.

Doncaster.—The erection of St. James's Bridge across the Great Northern and South Yorkshire railways, at the point where the latter joins the former, is now proceeding with activity. The stone-work at the base of the piers has been commenced by the contractors, Messrs. A. and G. Holme, of Liverpool. The approach is abrupt. The bridge will consist of seven arches, one of which will be a skew. Each arch will be of 24 feet span. They will be of the flat segment kind, with moulded cornices. The height of the arches from the level of the rails will be 16 feet; and from the top of the bridge to the level of the rails, 22 feet. The extreme length of the bridge will be about 230 feet. It will be of stone, except the filling up of the arches. The stone-work will be stroke-tooled and chamfered quoins, plinths, imposts, arch-quoins, coping, &c. The ashler work between will be rock-faced. The works are under the engineering skill of Sir William Cubitt, and Mr. Thomas Glaister, the manager to the Messrs. Holme. The estimated cost is between 3,000*l.* and 4,000*l.* The stone is from the quarries of Messrs. J. and T. Palfreyman, of Mexborough, who have contracted to discharge eighty tons per day. The approach each way to this bridge will be very steep. Cherry-lane will be considerably widened. The opening will take place before Doncaster races.

Sunderland.—The south entrance to the new docks at Sunderland is now finished. Another dock of ten acres is agreed for. The directors have arranged with the Marquis of Londonderry to bring 60,000 chaldrons of coals along the Pensher branch railway to the docks as soon as the rails are laid.

Edinburgh.—The rental of the city of Edinburgh, within the police bounds, has risen, it is said, during the last five years, more than 20 per cent. The rental now is somewhere about 450,000*l.*—more than 100,000*l.* having been added to it within the time specified. It is understood that rents have reached a maximum, and that no attempt will be made to increase them further.

Dunkeld.—Preparations are being made to erect an episcopal church, with schools attached, at a cost of about 3,000*l.* Large subscriptions have already been made. The only licensed place of worship within a circuit of twelve miles of Dunkeld, in connection with the Scottish Episcopal Church, is in a hired room over a coach-house.

Guernsey.—The contract for the harbour works at St. Peter's Port is not yet signed; but the contractors are opening the quarries and forming a road on the islet of Jethou for the shipment of the stones.

Walcot.—A new church has been consecrated here; Mr. Warner Goodman, architect. An ecclesiastical appearance has been obtained with small expenditure. It will accommodate 200 adults, and cost 450*l.*!

THE HARMONIOUS RELATIONS OF COLOUR.—A diagram to illustrate the harmonious relations of colour has been prepared for the use of schools in connection with the department of practical art, and is published by Messrs. Chapman and Hall. It will be found useful in architects' offices and elsewhere.

Notices of Books.

The Building erected in Hyde Park for the Great Exhibition of the Works of Industry of all Nations, 1851. By CHARLES DOWNES, Architect, and CHARLES COWPER, C.E. London, John Weale. 1852.

So many descriptions of the Exhibition Building have been published, that some readers will, perhaps, ask what occasion there can be for the portly quarto here described. Never was there an event so fully chronicled, never was there a building so minutely described! The present work, nevertheless, stands alone: it consists of 28 large plates by Mr. Downes, from the working drawings of the contractors, with technical descriptions by Mr. Charles Cowper. Besides plans and elevations, the plates give the details of columns, wood trusses, and wrought and cast iron girders, the galleries, roofs, gutters, trusses, in fact, of the whole construction, so that those who desire to erect a similar building, or to apply, without the trouble of thinking for themselves, any of the arrangements used there, may do so.

Every one knows that the dimensions of the building are multiples and sub-multiples of one primary dimension, 24 feet; but what fixed this primary is not so generally known. Mr. Cooper says:—"To facilitate the whole of the operations, they determined to adopt one unit of length throughout the building. It was found that sheet-glass could be procured of the length of 49 inches, but that a greater length would be much more expensive, from the difficulty of blowing and handling such long pieces. Glass of this length, placed on a slope of 2½ to 1, was found suitable for a ridge and valley roof, in which the pitch on distance from centre to centre of gutters is 8 feet. Three times this pitch, or 24 feet, was considered to be a convenient length for the cast-iron girders, and was, therefore, adopted as the unit of length. The wider avenues were made twice this unit, or 48 feet wide, and the central avenue, or nave, was made three times this unit, or 72 feet wide. We thus see that the difficulty of manufacturing glass of greater length than about 4 feet was the primary cause which determined the dimensions employed throughout the building."

All the plates are very clearly drawn and lithographed.

Ancient Halls of Lancashire. From original Drawings by ALFRED RIMMER, Architect. Liverpool, Deighton; London, Bogue. 1852.

WE have here, in a thin quarto, twenty plates, on stone, illustrating a number of the old halls of Lancashire; as, for example, Peel Hall (half timbered); Wardley Hall (the same); Smithell's Hall, a fine panelled dining-room; Hoghton Tower, one of the best of the views; Salmesbury Hall; Rufford Hall, with its bold roof; and others. Salmesbury Hall has a fire-place 14 feet 10 inches wide. One of the purposes of the large fire-places was, according to a family MS. of the Cunliffes, that the young folks could sit and crack nuts and divert themselves, and "in this manner the sons and daughters got matching without going much from home."

There is a quaintness in the writings of early days amusing, and sometimes touching. Take this extract from the diary of one John Ireland, when he was building an old hall in Newton Valley, between Liverpool and Manchester: the date is 1634:—

"'Oct. the 13th, 1634.—Aboute buildinge I did spend the whole of this day * * * * Resonably well spente I this day in sivell outeward cariage; but inwardlye I am but worldly miended, could in devotion, and quite could in zeal, too earthly minded and troubled aboute bilding.

16th.—This was our rearinge day, and about this busines I spent this whole day.

17th.—Much troubled with bildinge.

19th.—Sunday, my minde verye much disquieted about my bildinge.

24th.—Incumbered very much with my bildinge.

Nov. 11.—Aboute my bildinge I spent all this whole daye: worldlye miended, and my thoughts are very much entangled about my bildinge.

December 1st.—This morning, after I had saied my morninge prayers, I wente to the new bildinge, and theare my selfe alone did pray and meditate.' &c. The window dressings of this house are enriched with stone diamonds and fleur de lis, coloured black."

Mr. Rimmer's book offers two subjects for regret—1st, that it does not include *all* the halls in the county; and 2ndly, that through want of previous acquaintance with lithography the drawings are not so effective as they might be. So many ancient buildings, however, have been swept away of which we have no record, that he has our thanks for what he has done.

The British Winter Garden: being a practical Treatise on Evergreens; showing their general Utility in the Formation of Garden and Landscape Scenery, and their Mode of Propagating, Planting, and Removal, from One to Fifty Feet in Height; as practised at Elvaston Castle. By WILLIAM BARRON, Head Gardener. Bradbury and Evans. London, 1852.

The Flower, Fruit, and Kitchen Garden: containing full Directions for the Hothouse, the Greenhouse, and every Branch of Fruit, Flower, and Vegetable Culture. By Practical Gardeners and Florists. Lloyd, London.

The Gardener's Record, and Amateur Florist's Companion. Under superintendence of Mr. J. T. NEVILLE. London, Groombridge. Nos. 1 to 4.

IN the first of these little volumes we have an explanation of all those mechanical and other processes through which the constant verdure and pictorial landscapes of Elvaston have become celebrated; and whereby desired *effects* may be at once produced by transplantation of trees of nearly all sizes and ages by wholesale, without the necessity of awaiting the slow processes of Nature's gradual adornment by the growth of trees planted only in their infancy. The volume also contains advice as to the species and habits of trees desirable for such purposes, and as to modes of distribution. The author, we observe, contemplates the publication of fifty lithographs from calotype views taken at Elvaston, whenever a sufficient number of subscribers have indicated their desire to possess them.

In the second book of the lot we have, month by month, all that is likely to require attention in the ordinary conduction of gardening operations. The book is cheaply got up, but it contains a good deal of miscellaneous and useful information to all who delight in ornamenting the vicinity of their domiciles with the ever-varying beauties of nature, or wish to do so.

The last of the trio at the head of this notice, is a pleasant and promising cheap serial, which adds, to the practical information it gives, a touch of that sentiment and poetry properly belonging to Nature's pets.

GREAT YARMOUTH.—The association for promoting the prosperity of Great Yarmouth have issued a statement of the objects they have in view, which comprise the establishment of public amusements, such as concerts, instrumental music at promenades, balls, &c.; and also the advocacy of public improvements, as by the suggestion of a public company to erect a promenade pier, extending from Victoria-terrace 650 feet into the sea, or 100 feet beyond the present jetty, so as to allow steamers to land passengers; the formation of a public promenade and carriage-drive from Victoria-terrace to Britannia-terrace, with approaches from the town and the beach; the widening of the jetty entrance, and throwing open of a large space in a semi-circular form, with carriage-ways and footpaths; the improvement of the Chapel denes, waste grounds, rope walks, and quay; sanitary improvement of the town, &c. A subscription list for publication is in course of formation in aid of the funds of the association, of which Mr. A. Gourlay is the treasurer.

Miscellanea.

NORWICH CATHEDRAL.—Various alterations and improvements have been made, and are still going on, in this cathedral, according to the local papers. The choir galleries have been removed, and about two-thirds of either transept thrown into the choir, and separated by screens. The floor of the choir had been lowered about 18 inches to its original level, which allows the carved work of the benches to be seen, forming a rise of two steps eastward of the tower. The open archways from the aisles to the transepts have been filled in with stone screens of a perpendicular character—the panels filled with plate glass. In the south aisle a small Norman arch recessed is to be filled with stained glass, by Wailes, of Newcastle-on-Tyne, as a memorial window. Two new stained windows have been recently inserted, one in the north aisle, in memory of the late Professor Smyth, by Warrington, of London; the other in the south aisle, in memory of a Mr. and Mrs. Hale, by Wailes. It is hoped that several other windows in this cathedral will be similarly filled with stained glass, which are now blocked up with masonry. St. Luke's Chapel has been restored to its original Norman character. The north aisle, next the Bishop's garden, has been renovated similarly to St. Luke's Chapel. The architect who has had the management and superintendence of all these improvements is Mr. John Brown, of Norwich.

EASTCHEAP.—Just now the neighbourhood of Eastcheap furnishes plenty of matter for remark. The end of St. Mary-at-Hill Church having been laid bare, presents some stone ornaments very different from the rest of the church, which at some time or other has been stuccoed over stone. A little way further down Love-lane, on the right-hand side, is an old mansion, built by Sir Christopher Wren, which has just been purchased for the Ward School. One room on the ground floor is covered with curious old panel paintings. The church of St. George, Botolph-lane, ought to be visited at the same time. It has just been discovered that within a foot of the flooring of the church are numbers of bodies and remains, and something is about to be done. In the vault is to be seen a mummy, or rather the body of a woman, (so it is said) quite brown and hard, which is put in a sort of box upright—*pro bono* pew-opener.—A NEIGHBOUR.

CONDITION OF THE WORKING CLASSES.—In the House of Commons, on 11th inst. Mr. Slaney moved,—"That it is expedient that a department standing committee, or unpaid commission, be appointed to consider, suggest, and report from time to time preventive and remedial measures to benefit the social condition of the working classes, and for removing social and other obstacles to their improvement." He entered at some length into the subject, at first in the face of a little impatience on the part of members present; and after various speakers had addressed the House for and against the appointment of such a commission as that proposed, of which Mr. Walpole, on the part of the Government, disapproved, the motion was negatived without a division.

CONTEMPLATED DESTRUCTION OF OLD VERULAM.—In reply to the notice in our pages of Mr. C. R. Smith's remarks on this subject, the "National Freehold Land Society," who have purchased the site, state in their *Circular* that "the only part of the allusion that applies is, that the land has been purchased for the members; but as the tenancy of the present occupier will not expire until more than twelve months hence, we think we may safely assert that the land has not been 'marked out for excavations for houses,' at least not by us; and as to the contemplated destruction of the ruins which the writer so pathetically deplores, we can only say that we have not contemplated anything of the sort, for the best of all possible reasons, namely, that until we have possession we have no power to touch them." We cannot say much for the logic of the reply, but have reason to believe it augurs a good intention.

SYDNEY DWELLING-HOUSES.—The stranger is much struck by the handsome appearance given by the profuse use of cedar in the fittings of the Sydney dwellings. It has all the beauty in colour and figure of the Spanish mahogany: indeed, the experience of an upholsterer is necessary to detect the difference by sight alone. In solidity and closeness of grain, the Australian cedar is, however, greatly inferior to mahogany. The doors, sashes, window-frames and shutters, staircases and balustrades, skirtboards and cornices, and, in a few instances, the floors and ceilings are of cedar. Even the housemaids' closets have all the exterior appearance of polished mahogany doors. This profusion of dark-coloured, unpainted wood in the fitments of a house pleased my eye exceedingly; but my taste was disputed by many, some going so far as to state that it made a dwelling-house look like a gin-palace!—*Mundy's "Our Antipodes."*

ROMAN BATH AND PAVEMENT AT LYME.—An ancient Roman bath and a tesselated pavement have been opened out in an enclosure with old stone walls and earth, called, from time immemorial, the churchyard, and situate at Holcombe Farm, in Uplyme parish, Lyme Regis. The pavement was first discovered about two years ago, but was covered up again till lately. The enclosure is about 300 feet long by 42 feet broad, and is said to contain a great quantity of old building materials. Some hundreds of loads of worked stone were many years since taken out of this enclosure for drainage purposes.

THE ROYAL EXCHANGE, LONDON.—The liberties that are being taken with the façade of the City Exchange in connection with the "improvement" of the shops with which it is associated, still form the subject of urgent protests on the part of our correspondents. We regret to think that the letter we published some weeks since has not as yet put a stop to these proceedings, and it is of little use, we fear, printing the communications of "Civis" and others to a similar effect, still forwarded to us on this subject.

THE THAMES TUNNEL.—A project is on foot to complete the approaches to the Thames Tunnel on both sides of the river. A very large traffic is constantly going on between the Surrey side of the Thames and Wapping, Limehouse, Poplar, &c. all of which has now to be conveyed an unnecessary circuit of nearly six miles. London-bridge would be relieved of a great portion of this traffic by the opening of such a communication, which would also give to Southwark and its outlying districts a short and easy access to and from the East and West India Dock Railway terminus, and thence to the whole net-work of railways north of the Thames.

A CARBONIC-ACID GAS ENGINE.—Years since we pointed attention to a piece of common marble as a hopeful source of useful power in place of steam, where fuel was scarce but sulphuric or other acid abundant. In marble—a carbonate of lime,—or in carbonate of soda, we have an abundance of "fixed air," as carbonic acid gas was once called,—air fixed, but easily set free,—a sort of bottled wind,—wherewith cylinders might be filled, and machinery worked. The idea has been latterly realized, we know not with what success, by a Mr. J. F. Lackerstein, who has patented certain apparatus for obtaining power by the use of carbonic acid gas, generated, as he prefers, from carbonate of soda, in solution, by means of sulphuric acid, but also from other carbonates, such as that of lime, and by means of other acids besides the sulphuric. The products are in many cases so valuable as to greatly economise the working power. The operation of the acids on the apparatus is of course guarded against, in this case, by protection with platnum or gold. Enamelled iron, such as acid conserves are made in for household use, would be cheaper than either gold or platinum.

CAMBRIDGE ASYLUM FOR SOLDIERS' WIDOWS.—The first stone of this building was laid on Tuesday, the 15th, in Norbiton Park, Kingston, Surrey, by H. R. H. Prince Albert. The design, which we have already noticed, is by Mr. Thomas Allom. Messrs. Locke and Nesham are the contractors.

THAMES EMBANKMENT.—The Bill, as amended by the select committee, to enable the Commissioners of Works to make an embankment from Vauxhall to Chelsea-gardens, has just been printed. A clause has been added, that the Act is not to affect agreements already entered into between the Commissioners of Woods and Forests and other parties.

ST. BRIDE'S, FLEET-STREET.—The interior of this church is about to be repaired, painted, marbled, and gilded, under direction of Mr. John Shaw. The tenders were,—Clarke and Barnes, 669*l.*; George Cooke, 644*l.*; Robert Cooke, 549*l.*

METROPOLITAN SEWERS COMMISSION.—Mr. Richard Jebb, of Old-square, Lincoln's-inn, has been appointed by the Lord Chancellor as chairman of the commission.

METROPOLITAN CATTLE MARKET.—It is now definitively settled that the market will be established in Copenhagen-fields; the Corporation having purchased land for that purpose.

TENDERS

For new church, Thornhill-square, Islington: Messrs. Newman and Johnson, architects.

Beckensell (Abingdon)	£8,950	0	0
Myers	6,500	0	0
Carter and Ellis (Islington)	5,989	0	0
Jay	5,717	0	0
Dove (Islington, accepted)	5,600	0	0

Quantities not furnished.

For building four dwelling-houses and a warehouse at Whitechapel. Mr. William Dobson, architect.

King	£2,198	0	0
Starkie	1,959	10	0
Parke	1,957	0	0
Hill	1,945	0	0
Webb	1,945	0	0
Perry	1,935	0	0
Haynes	1,887	0	0
Brake	1,812	0	0
Case and Higgs	1,677	0	0
Livermore	1,649	0	0

For restoration and additions to Trinity Hall, Cambridge. Mr. Anthony Salvin, architect.

Peck	£6,400	0	0
Quinsee and Attack (Cambridge)	5,380	0	0
Bell (Cambridge)	5,353	0	0
Smith and Appleford	5,150	0	0
Lawrence and Son	5,066	0	0
Myers	4,890	0	0
Holland	4,867	0	0
Lucas, Brothers	4,850	0	0
Kelk	4,885	0	0

For the erection of the new church at Bitterne. Mr. Guillaume, architect.

King and Vere	£3,484	10	0
Chapman	3,260	0	0
Haines	3,170	0	0
Langdon	2,998	0	0
Brown (Southampton)	2,986	0	0
Brown (Winchester)	2,985	0	0
Fry	2,936	0	0
Gambling	2,850	0	0

For a house at the Sugar Refinery, Plymouth. Quantities furnished. Mr. W. Damant, architect.

Stitson	£1,066	18	6
Bovey and Matcham	1,060	0	0
Westlake	990	0	0
Roberts and Co.	970	0	0
T. Marshall	964	5	0
C. Dwelley	960	0	0
J. Marshall (accepted)	895	0	0

For additions and alterations to *Morning Advertiser* office. Mr. Stevens, architect.

Perkins	£2,670	0	0
Mills	2,590	0	0
Weston	2,510	0	0
Gammon	2,287	0	0
Jay	2,135	0	0
Cooper	2,128	0	0
Locke and Nesham	2,045	0	0
Chesterman	1,988	0	0
Rudkin	1,975	0	0
Norris	1,893	0	0
Bensby	1,771	0	0

For work at Bethlem Hospital. Mr. Sydney Smirke, architect.

Holland, H. and R.	£4,974	0	0
Willson	4,917	0	0
Baker and Son	4,632	0	0
Grimsdell	4,595	0	0
Haward and Nixon	4,497	0	0
Pritchard	4,472	0	0
Lee and Son	4,445	0	0
Todd	4,428	0	0
Piper, T. and W.	4,370	0	0
Locke and Nesham	4,330	0	0
Lucas	4,282	0	0
Jay	4,261	0	0
Myers	3,863	0	0

For works at the London Orphan Asylum. Mr. Asbpitel, architect.

Holland, H. and R.	£3,089	0	0
Barber	3,084	0	0
Myers	2,994	0	0
Jay	2,761	0	0
Coleman	2,588	0	0
Piper, T. and W.	2,583	0	0
Norris (accepted)	2,490	0	0

TO CORRESPONDENTS.

"*Tar.*"—Can any of your correspondents inform me what I can introduce into some Stockholm tar for the purpose of making it dry, hard, and quick?

"*Theory of the Tides.*"—Several correspondents have addressed us on this matter, simply assenting to or dissenting from the views to which we recently gave insertion The inquiry would not be advanced by printing their communications.

"Clericus" (the arrangement proposed for heating churches would *not* be satisfactory. Amongst other objections the air admitted would be *burnt* instead of warmed), "W. H. C." "G. W. B." "J. H." (under our mark), "M. C." (do), "Grono." "Vindex." (the "College" in question has expired), "J. P. W." "One of Mr. Baker's Hodmen," "S. H." "C. C. N." "W. P." (declined with thanks), "C. J. R." (was made aware of the proceeding), "F. S." "T. P." "J. A. F." "Rural Rambler" (the minister may have some good reason, of which we are not aware, for not allowing tiles to be laid down at King's Norton church), "Young Antiquary" (the signature of the minister of his parish, or any known inhabitant, will obtain him a card to read at the British Museum, or the Head of the firm from which he dates his letter), "M. and H." (will appear), "Q. E. D." (ditto), "Footpad," "F. H. M.," "E. T.," "G. T. R.," "W. A." (we have the published report), "W. H." (we shall be glad to have block).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

A STEADY PARTNER WANTED, to join the Advertiser's son, who can succeed a Civil Engineer, with whom he has been engaged several years. An intelligent young man may soon be instructed. About 50*l.* capital required.—Apply, by letter, to P. C. at the Office of "The Builder," 1, York-street, Covent Garden.

TO BUILDERS, TIMBER MERCHANTS, QUARRYMEN, AND RAILWAY CARRIAGE BUILDERS.

PARTNER WANTED, by John Wilson, of Grantham, in the county of Lincoln.—In consequence of the declining health of Mr. Neale (Mr. Wilson's late partner), an opportunity now presents itself to a gentleman who can undertake to manage a proportion of either of the above branches, and such gentleman having from 2,000*l.* to 3,000*l.* to invest either immediately, or in a few months, will be admitted to all the connection possessed by the advertiser, of sixteen years' standing. For building purposes, the workshops are exceedingly well arranged, and very extensive, principally on the ground floor. For the timber trade, the yard is capable of doing any amount of business, with excellent cranes, and every convenience, close to the saw-mills, which mills in all are sixty-horse power. A branch from the Ambergate Railway runs through the yard and workshops, which line will, in a few weeks, be intersected by the Great Northern Railway.

LINCASTER STONE QUARRIES.—These quarries are in the occupation of the Advertiser, and will form a portion of the partnership.

The railway carriage building department is complete with all kinds of machinery, such as lathes, drilling, screwing, punching, and planing machines, with fitting shops and smithy, containing twelve forges.

The above affords a favourable opportunity for the investment of capital, with every prospect of a large return.—For further particulars apply to Messrs. NEALE and WILSON'S Offices, Grantham.

SHOP FOREMAN WANTED, capable of superintending about forty men.—Apply by letter, pre-paid, to A. B. 62, St. Martin's-le Grand

FIRE-CLAY GAS RETORTS.—WANTED, immediately, ONE or TWO GOOD HANDS accustomed to the manufacture of fire-clay retorts.—Address, F. C. Post-office, Leeds.

WANTED, a few good BENCH JOINERS, at Country Wages.—Apply to F. CUSLING, Elmham, Norfolk.

TO CARPENTERS AND JOINERS.

WANTED, Eight or Ten GOOD HANDS.—Apply to ROBERT GRIFFITHS, Builder, Quatford, near Bridgenorth.

WANTED, a FOREMAN, who thoroughly understands the whole routine of a Saw-mill.—Apply at Caledonian Mill, New Wharf-road, Caledonian-road.

WANTED, a BUILDER'S CLERK, fully conversant with the duties of the office.—Apply, stating salary required, full particulars of last engagement, &c. to S. O. 1, Office of "The Builder," 1, York-street, Covent-garden.

WANTED, in the Country, a GENERAL BUILDER'S CLERK and BOOK-KEEPER. He must understand measuring all kinds of works, and taking out quantities, &c. State age and salary.—Address, 88, Cheapside.

WANTED, by an Architect in the north of England, a good DRAUGHTSMAN and GENERAL ACCOUNTANT. One who has been brought up in a builder or surveyor's office would be preferred.—Address, A. B. Post-office, Sunderland.

TO PLUMBERS.

WANTED, a steady, active MAN, as Three-branch Hand. It is essential he should be a good Plumber and of good character. A suitable man, willing to make himself useful, would have constant employment at good wages.—Apply at 51, Broad-street, Golden-square.

WANTED, a SITUATION as CASHIER, TIME-KEEPER, or CLERK, by a person thoroughly experienced in contractors' accounts; he has been accustomed to measuring, and is fully competent to the superintendence of works, &c. &c. Testimonials from and references to eminent contractors with whom he has been.—Address, D. D. Railway Coffee-house, 75, Seymour-street, Euston-square, London.

TO BUILDERS' FOREMEN.

WANTED, an active WORKING FOREMAN, in a Joiner's Shop, fifty miles from London. A person not beyond middle age would be preferred.

WANTED, also, an OUT-OF-DOOR GENERAL FOREMAN, competent to superintend the several branches of the building business.—Addresses, post paid, stating particulars, references, where last employed, and when at liberty, to J. P. 35, Cranbourn-street, Leicester square.

TO BUILDERS.

AN active experienced FOREMAN is in want of a SITUATION as WALKING or SHOP FOREMAN, being accustomed to both duties. He can be well recommended.—Direct, A. B 8., Lower Marsh, Lambeth.

VACANCY for a CHECK CLERK, in a factory. The duties are to keep time and accounts, also to ring the workmen in and out. It is necessary to have a person of very regular habits, ability, and nerve, to keep a large number of workmen in order in the absence of the foreman. A middle-aged man, from the country preferred, without a large family, as he will have to reside on the premises.—Apply by letter, stating age and last employment, to T. K. Office of "The Builder," 1, York-street Covent Garden.

TO CARPENTERS, JOINERS, AND OTHERS.

WANTED, by a respectable Young Man in the country, a SITUATION, in a good shop, as IMPROVER; in or near London preferred. Please address A. B. C. to be left at Wroughton Post-office, near Swindon, Wilts.

TO PLUMBERS, PAINTERS, AND GLAZIERS

WANTED, by a Young Man, EMPLOYMENT as PLUMBER. No objection to fill up his time with Painting and Glazing in town or country.—Address, A. B. Office of "The Builder," 1, York-street, Covent Garden.

TO PAINTERS, BUILDERS, &c.

WANTED, by a Young Man, a SITUATION as WHITER and GRAINER. He thoroughly understands House Painting, and has no objection to fill up his time. Specimens may be seen.—Address H. D. 21, Caledonia-street, King's cross.

WANTED, by a Young Man, in his 31st year, a SITUATION in a BUILDER'S OFFICE, or on the Works. He is practically acquainted with building, and has had some experience in a Surveyor's Office.—Address, pre-paid, W. R. S. 13, Essex-street, Islington.

TO BUILDERS AND OTHERS.

WANTED, by a Married Man, aged 38 years, a PERMANENT EMPLOY; he understands painting, paperhanging, and jobbing carpentering, brickwork, &c. Can look after a house and yard. No objection to the Country. Can be strongly recommended.—Address, J. H. WELD, House Mail, Kensington Gravel-pits.

TO CONTRACTORS, BUILDERS, AND OTHERS

THE Advertiser, a Young Married Man, for several years engaged on public works, as clerk, Timekeeper, or Gauger, wishes a PERMANENT ENGAGEMENT at home or abroad. Can take out quantities, measure work and survey.—Address, H. M. Mr. Bayley's, Stationer, Ironmonger street, Stamford, Rutland.

TO PLUMBERS, BUILDERS, &c.

A YOUNG MAN, aged 27, a first-rate Plumber, and who also understands and has been used to Painting and Glazing, both common and good work, desires an ENGAGEMENT, either in Town or Country. He has undeniable references as to steadiness and punctuality, and would be found deserving any appointment of trust.—Address W. R. 24, Hereford-street, Lisson-grove, London.

ARCHITECTS and BUILDERS are invited to inspect Messrs. BOWER and Co.'s PATENT ARCHITECTURAL ORNATURE, by which an immense saving is effected both in time and expense. Price of the Illustrated Tariff, 1s.; post free 1s. 6d. Patterns to be seen at 2, a, Hatton-garden. The Prize Medal was awarded to Messrs. Bower and Co. for this invention.

OLD MANSIONS and BUILDINGS of every description PURCHASED to pull down, for immediate cash.—Mr. C. F. SMYRK, late of Kensington Gravel-pits, to announce that he is, at all times, a purchaser of property of the above description to any amount, no objection to distance, if convenient to the rail or water carriage, provided the purchase of sufficient magnitude.—Apply to Mr. C. F. SMYRK, Auctioneer and Valuer, Mina Road, Old Kent Road.

TO CAPITALISTS AND BUILDERS.

BOURNEMOUTH, near Christchurch and Poole.—After much deliberation, it has been determined to erect a Sanatorium at Bournemouth, in connection with the Hospital for Consumption and Diseases of the Chest, established at Brompton. The extraordinary salubrity of Bournemouth has been long celebrated by the late Dr. James Clarke, Sir James Clark, and other eminent physicians, and most abundantly proved by the successful results which have attended a sojourn in that most healthful vale. There has long been a demand for houses, as well for residents as for visitors, but there has not been any adequate supply of sites suitable for building purposes until the present time. The Tenantry Estate, comprising Eastern Cliff, which overlooks both sides of the Bourne Valley to the extent of more than two miles in length, are now prepared to OFFER to the public most eligible SITES for BUILDING, either immediately contiguous to the very spot selected for the Sanatorium, or in its neighbourhood, or at a greater distance from it, as may be preferred. Roads have been formed, and many other important improvements have been made, and one now in progress, for bringing into notice the capabilities of this lovely locality, which for all purposes of health or enjoyment is not to be surpassed in England. For further information apply to Messrs. WINTER, WILLIAMS, and Co., Solicitors, 16, Bedford-row, London; or 1, Richmond-terrace, Bournemouth, near Poole.

TO ARCHITECTS

AN ARCHITECT in London is willing to DISPOSE of his PRACTICE, having been engaged for some years on a most extensive and private works. This would be a desirable opportunity for any one about to enter the profession.—Apply by letter to F. S. G. Office of "The Builder," 1, York-street, Covent garden.

BARBICAN FOUNDRY, PLYMOUTH, with DWELLING HOUSE, &c. TO BE LET, with immediate Possession. The Steam Engine, Plant, Patterns, Lathes, Planing Machines, Iron Safes, Tools, &c., will be let with the Foundry, or may be taken at a Valuation. The Premises are extensive, and adjoining Saltash Quay, in Sutton Harbour. The Plant at Plant are in good order, and can be immediately set to work.—Apply to Mr. BAILY, Solicitor, Plymouth.

DESIRABLE WHARF TO LET, on the Regents Canal, at Battle Bridge.—TO BE LET, on lease for a term of Thirty-Five years, a very convenient WHARF, with Dwelling House, and offices suitable for the Stone, Timber, or Coal Trades, or the erection of a Factory of any description. The depth is about 130 feet, with water frontage on two sides, 200 ft. in length, and very convenient approaches.—For further particulars, apply at 36, Gray's Inn-lane.

TO LET, a BRICK FIELD, with immediate possession, on the line of the Great Western Railway, near Maidenhead Station. The field is in full work, with every preparation for making bricks; and a wasell, brick-kiln, and stables. It is of very good quality, is 10 feet deep, 6 feet of which is malm earth. The bricks made in the field last season were much approved of in the London market.—Apply to Mr. J. WETHERED, Maidenhead, Berks.

TO PAPER MAKERS.

TO BE SOLD BY PRIVATE CONTRACT, the VALUABLE MACHINERY of the IPSWICH PAPER MILLS, which have been erected without regard to expense by the late proprietors within the last three years, for making fine papers.

The main key consists chiefly of—

A powerful high-pressure and condensing steam-engine (Sims's patent) of 40 horse power, with its patent condenser, and two steam boilers.

A 16 horse power condensing engine, by Boulton and Watt, with Hall's patent condenser and boiler.

A 4 horse power high pressure table engine, recently erected to drive the two paper machines.

Eight boiler condensing rag washers, by Piper and others.

One paper making machine, with cast-iron stuff vat, agitator, and gearwork, 12 feet diameter, fitted with 3d, 2d, and 1st pressrolls, air pumps, vacuum boxes, two couching cylinders, calendars, &c. &c. for 60-inch paper, all having been quite complete.

One ditto as ditto, for 48-inch paper.

One of Ranson's patent sizing machines for 48-inch paper, with driving gear complete.

Two of Ranson's patent drying machines, for 60-inch paper, with driving gear complete.

Two excellent 60-inch cutting machines.

Four sets of glazing rolls, fitted driving apparatus, tables, &c., complete.

One double-powerful hydraulic press and pumps used for paper.

One hydraulic press and pump used for hot stuff.

Three sheet drying cats, with agitators and gear-work.

One patent rotary disc engine, and intricate leathering apparatus, &c.

Further particulars may be obtained upon application to

GEORGE HURWOOD, C.E. Ipswich.

TO GLASS MERCHANTS AND BUILDERS

THOMAS ENGELBACK, Glass Bender, No. 16, Thrawl-street, Brick-lane, Spitalfields, begs to inform them that he has built a very large Furnace for Bending Glass and can undertake to bend any size glass up to 12 feet long, by 7 feet wide, at low prices.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEAL to imitate OAK, MAHOGANY, or SATINWOOD colours. For specimens of the effects of these Dyes the public are referred to the WOODWORK of the GREAT EXHIBITION, and particularly the ENTRANCE DOORS, which were coloured with the stains invented and manufactured by HENRY STEPHENS, of 54, Stamford-street, Blackfriars-road, who supplied to the workmen both stain and varnish, and who was the first person to introduce and call the attention of the public to this means of colouring wood, so as to bring forth the ornamental effect of the natural grain, and thus save the expense of artificial imitation.—Prepared and sold by HENRY STEPHENS, 54, Stamford-street, Blackfriars-road.

WANTED, to PURCHASE, a new STEAM-ENGINE, of two or three horse power, upon the most simple construction, and in the most complete form, high pressure, price required for cash; with and without the boiler and therewith particulars of dimensions and weight of both.—Address, post paid, to A. B. the Chanter Coffee-house, St. Paul's, London.

STEAM-ENGINES of every description, Corn and Flour Mills, Paper Machines, Rag Machines, Saw Mills, Sugar Mills, Water-wheels, Gimers, Malt and other sorts of Iron Castings, manufactured by ROBERT DOUGLAS, Stratheden Works, Cupar Fife.—JAMES MELROSE, Agent, 78, Hatton-garden.

STEAM-ENGINE BOILERS of every description, Wrought-iron Girders, Gasometers, Ship Tanks, Sugar and Salt Pans, Canal Boats, Turbines, and General Wrought-iron-work, manufactured by MELROSE and DOWLEY, Bradley Works, near Bilston, Staffordshire.—Office in London, 78, Hatton-garden.

QUARTZ-CRUSHING and GOLD-WASHING MACHINERY.—ATLAS WORKS COMPANY, Emerson-street, near Southwark-bridge, Engineers, Millwrights and Copersmiths. Engines and machines made on the most improved principles; repairs promptly executed; contracts entered into for large or small orders. To be seen at the works Gwynne's Patent Amalgamator and Pulverizer, for crushing, washing, and separating of gold quartz, &c. All communications addressed to THOMAS ELLIS, Secretary, either at the City Office, 4, Dowgate-hill, or the works, Emerson-street, near Southwark-bridge.

TO CABINET MAKERS, BUILDERS, &c.

COULSON'S REGISTERED MORTISING MACHINE.—This machine is of a very superior make, being entirely built of wrought iron and cast metals; is fitted-up with six chisels, will morthse hard wood as well as soft, and works by a hand-lever, and foot-spring. For ease in working, certainty, speed and durability, it by far surpasses any other. For particulars, &c. apply to WILLIAM COULSON, No. 36, Fetter lane, York. Cash price, £41 10s. N.B. Patterns can also be furnished with cutters to the above machine for tenoning, if required.

COLLINGE'S PATENT HINGES.—Sole Manufacturers, CHARLES COLLINGE and CO., 64 and 65, Bridge-road, Lambeth, where a great variety are always on view for church, park, railroad, coachhouse, and other gates and doors of large and small dimensions, a gate of a ton weight moving with these hinges as easily as a wicket. Ornamental hinges, adapted for drawing-rooms, &c., doors fitted with them may be removed and replaced in an instant. Rising and double acting spring hinges, and superior gate fastenings, at moderate prices. None genuine unless "Charles Collinge, Charles Collinge, Lambeth." Plain and ornamental cast and wrought iron work, for building and other purposes. Engines, machinery, patent axletrees, sugar-mills, &c.

FOUNDRY AND IRON WORKS,

68, DRURY-LANE, and CHARLES-STREET, DRURY-LANE.

GLOVER, BROS.,

Solicit the attention of the Trade to their extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION either structural or ornamental.

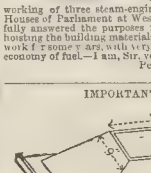
Patterns of Columns, Pilasters, Balconies, Railing, Ornamental Carriage and Park Gates, Lamp and Street Posts, Tanks, Pipes Wheels, Pinions, Lathes, and Steam-engines; Range and Hot-plate Metal. An improved Boiler adapted for internal work.

A large stock of Rain-water Pipes, Plain and O G Gutters, Airbricks, Sash Weights, Air-tight Sewer Grates, Stable Fittings, Hurdles, &c.

Plain and Ornamental Vases 20 per cent. cheaper than Terra cotta.

Estimates given for Iron Buildings, Wrought-iron Roofing, Greenhouses, Staircases, Wrought-iron Girders, Fireproof Doors, Book-safes and Strong Rooms, Tanks and Boilers, and every description of ironwork to specification, and the work executed with every attention to quality and despatch.

GLOVERS' IRONWORKS,
168, DRURY-LANE, and CHARLES-STREET.



A SAVING of TIME and MATERIALS, with solidity of building

NATHAN GOUGH'S PATENT PORTABLE STEAM-ENGINES of 2, 3, 4, and 6-horse power, for grinding mortar, raising building materials, driving piles, circular saws, pumps, &c., 46, Albert-street, Manchester.

TESTIMONIAL

from Charles Barry, Esq.:—

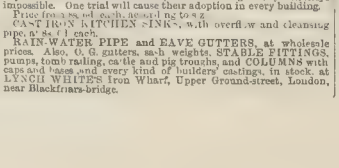
2, Great George-street, Westminster, London, Oct. 27, 1849

Mr. Nathan Gough.

Sir,—I have, for Mr. Barry, the pleasure of replying to your request of the 25th inst. for a testimonial of the working of three steam-engines you have supplied to the New Houses of Parliament at Westminster, by saying that they have fully answered the purpose for which they were required, viz., hoisting the building materials; and two of the three have been at work for some years, with very little repairs, and with considerable economy of fuel.—I am, Sir, your obedient servant,

Per pro CHARLES BARRY,
ALFRED MEESON.

IMPORTANT TO BUILDERS.



REGISTERED CAST-IRON CHIMNEY-TOPPER and CHIMNEY BAR COMBINED, ensuring a perfect formation of the Flue, and rendering smoke-chimneys impossible. One trial will cause their adoption in every building.

Price from 5s. 6d. each, according to size.

CAST-IRON KITCHEN SINKS, with overflow and cleansing pipe, at 8s. 6d. each.

RAIN-WATER PIPE and EAVE GUTTERS, at wholesale prices. Also, O. G. gutters, sash weights, STABLE FITTINGS, pumps, tomb railing, cattle and pig troughs, and COLUMNS with caps and bases and every kind of builders' castings, in stock, at LENCH WHITES Iron Wharf, Upper Ground-street, London, near Blackfriars-bridge.

TO GAS COMPANIES AND OTHERS.

PARTIES having any SECOND-HAND GAS APPARATUS to DISPOSE OF are requested to forward particulars of same, stating the size, weight, and price to JOSIAH F. FAIRBANK, Gas Engineer, Scarborough.
Scarborough Gas Works, June 15, 1852.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's Park, and various other public and private buildings; in quantities to finish twenty square yards for 18s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 15s. and 28s. each.

PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 5s.; Greens and Blues, 8s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price; only 3s. per gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. BELL and Co. Steam Mills, 2, Wellington-street, Goswell-street, London.

WHITE, or OXIDE of ZINC.—LANGSTON, SCOTT, and WHITE.

Patentees and sole Manufacturers in the United Kingdom, can now furnish SHIPPERS and the TRADE with a large and regular supply of WHITE ZINC, for paint, enamelling, paper staining, glass, gutta percha, floor-cloth, &c. &c. of uniform quality and colour, and superior body.

Moulds, quarters made, and sample casks of not less than 1 to 2 cwt. forwarded (warranted pure) from their works,

Grand Surrey Canal Dock, Rotherhithe, London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.

Four years since the proprietors placed their manufacture on a large scale, and I put this elegant Paint into competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, do the end in body, and impair the precious curative properties for which the original paint stands pre-eminent.

Injustice to the proprietors these shall not be confounded with the original, even though sold under the pretence that it is all the same.

Hubbuck's paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT!"

and if the cask has been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, or Japanners, for gutta percha, and for shading decorations, and for other purposes where it is used with size, gum, varnish, spirit, &c. &c.

A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This PAINT is superior in every respect to white lead; it is unequalled in whiteness, and grows harder after it is laid; it is permanent, is, therefore, for interior work, susceptible of a high polish. Besides, it is entirely free from all poisonous influences, is unaffected by sea-water, sulphuretted hydrogen, or any gases, and preserves its original colour, which white lead does not do.

WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's colic, or paralysis, &c. &c. to which dangerous occupants the workmen and manufacturers who use it are subject, and to which persons who inhale paint, are liable. Since the introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over every other paint. Should it be considered, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.

The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the casks bearing their name are solely to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agents, residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.

The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from their grinding agents, Messrs. C. DEVAUX and Co. 63, King William-street, City, London; and Messrs. ROBT. ANDERSON and Co. Timber Bank, Leith, Scotland. Pure White Zinc Paint may likewise be purchased from Messrs. BLUNDELL SPENCE and Co. Hull.

For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's offices, 13, Manchester-buildings, Westminster-bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will have, in different degrees, the confidence because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it is a well known White Lead, and the combination of the chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemistry by guage, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time Messrs. Washington have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have induced others to make experiments to be performed in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now offer it to the public to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective both in and out of doors, as the oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, the different kinds of the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

OFFICE IN LONDON—Mr. R. COOKE, No. 7, Sise-lane.

Office of the Washington Chemical Company,

74, Grey-street, Newcastle-on-Tyne, January 1, 1852.

GREAT EXHIBITION—CLASS XXII.

"CHUBB AND SON—FOR LOCKS, PRIZE MEDAL AND SPECIAL APPROBATION."

BY APPOINTMENTS,

MANUFACTURERS TO THE QUEEN AND H.R.H. PRINCE ALBERT.

IT will be noticed that but one other Lock-maker in the United Kingdom, out of the immense number of Exhibitors in this department, has received the award of "Special Approbation." The undoubted character of CHUBB'S Locks for simplicity, durability, and safety, against all surreptitious attempts by thieves to pick or open them, has thus been recognised and rewarded. These Locks have now been used for more than thirty years by Bankers, the Governments of this and other Countries, and by many hundreds of thousands of individuals, and no instance has ever occurred of any robberies having taken place through these Locks having been picked or opened by false keys. The great care exercised in their manufacture, and the moderate prices at which they are sold, still cause them to maintain their pre-eminent position as the most secure Locks for general as well as special purposes.

CHUBB and SON have from time to time invented and applied such improvements in the manufacture of their Locks, so as to combine the greatest security with that simplicity which is essential to Locks used for ordinary purposes. They have lately added, besides other improvements, a Patented Invention of great simplicity, which will in future be applied without any additional cost.

CHUBB and SON have not been in the habit of publishing Testimonials of the practical worth and efficient security of their Locks and Fire-proof Safes, the universal approval by all purchasers having rendered this course unnecessary. They, however, think it proper to bring before the public the following Testimonials:—

Recent Attempt to rob the Dundee Bank frustrated by Chubb's Lock.

"Dundee Bank, Dundee, Feb. 6, 1852.

"GENTLEMEN,—I suppose it will be gratifying to you to receive the following testimonial of the security of your Locks. An attempt was made upon this Bank on the night of Saturday last by a set of thieves evidently quite accomplished in their profession. The part of our property which they selected for their operations was an iron door secured by one of your Locks, in attempting to pick which there can be no doubt all their ingenuity was at first expended, as the only alternative was the tedious and laborious one of boring into the Lock, in order to destroy it. Before this could be accomplished a sudden alarm made them take to flight; but the work done in boring, &c. could not have occupied less than four or five hours, plainly showing that they despaired of being able to open your Lock in that time. And as in their flight they left all their implements behind them, including a perfect set of lock-picking instruments, it is also seen that they were amply furnished for their work, had they believed it practicable.

"So far as the construction of your Locks is concerned, their safety seems very efficient; all that appears to be wanting is, that they should be enclosed on all sides in case-hardened steel, and their security would seem to be complete.

"I am, Gentlemen, yours obediently,

"Messrs. CHUBB and SON, "GEORGE C. BOASE, Cashier.

"57, St. Paul's Churchyard, London."

In the Bankers' Safes made by CHUBB and SON, the plan of covering the Locks with case-hardened steel plates is adopted, and has been so for some years.

On the morning of Monday, Feb. 9, 1852, the counting-house of Messrs. Arthur and Smith, Bridewell-street, Bristol, was found to have been burglariously entered during the previous day, and after forcing open several desks the thieves turned their attention to an iron Safe, the door of which was secured by CHUBB'S Lock. This they first unsuccessfully endeavoured to pick, and then tried to destroy it by drilling through the door, but were completely foiled. CHUBB and SON have received the following letter on the subject from Messrs. Arthur and Smith:—

"Bristol, 17th February, 1852.

"GENTLEMEN,—In reply to your favour of yesterday, we have to say that our repository was provided with one of your Locks, upon which, no doubt, the thieves first tried their ingenuity in attempting to pick it, but failing in this, they had recourse to drilling. "We are, gentlemen, yours respectfully,

"Messrs. CHUBB and SON, "ARTHUR and SMITH.

57, St. Paul's-churchyard, London."

"Messrs. CHUBB and SON, "83, Limekiln-lane, Liverpool.

"GENTLEMEN,—On Thursday last our shop was, for the third time within the last two months, attempted to be entered by thieves, which attempts, owing to your lock being on the door, we are happy to say were frustrated. So determined were the parties to succeed, that considerable force must have been used, as the woodwork was torn away, as if by a crowbar. "We are, gentlemen, yours, &c.

"21st February, 1852." "A. and J. LAWSON and Co.

THE PRIZE MEDAL, WITH "SPECIAL APPROBATION,"

HAS BEEN AWARDED FOR

CHUBB'S FIRE-PROOF SAFES,

BY THE JURORS OF THE GREAT EXHIBITION.

CHUBB and SON have the pleasure to state that the only Fire-proof Safes in the United Kingdom which have received the award of "Special Approbation," were of their manufacture. The decision of the Jury, made after a full and careful consideration and comparison of the merits of the Safes exhibited, is therefore conclusive of the great superiority of CHUBB'S WROUGHT-IRON FIRE-PROOF SAFES, as being the strongest against the attacks of burglars, and giving the greatest security to Books, Deeds, and Papers, from fire.

Many thousands of these Safes have been supplied to Bankers, Merchants, and others, both at home and abroad; and in every case they have given efficient protection from fire and thieves. Many Safes which are sold as Fire-proof, are made of the thinnest plate iron, and must necessarily be crushed, and the contents destroyed, in case of timbers or brickwork falling upon them. CHUBB and SON'S Safes are made of double casings of strong wrought-iron, the intermediate spaces being filled with the best proved non-conducting substances; they are fastened strongly together with rivets, dovetails, and angle-iron, so that if the whole building in which they may be placed should fall, they would remain uninjured. The whole of them are fitted with CHUBB'S improved Detector Locks.

The Visitors at the Great Exhibition would not fail to notice the Koh-i-noor Safe and Cage, and the Safe containing the magnificent Jewels of A. J. B. Hope, esq. M.P. both of which were manufactured by CHUBB and SON. The Safe used by the Executive Committee for securing the 360,000*l.* taken as admission money, was also made by them.

A decided testimony in favour of the efficiency of CHUBB'S Safes to preserve Books and Papers from Fire, was borne by Mr. Braidwood, the Superintendent of the London Fire Brigade, at a meeting of the Institution of Civil Engineers in 1849, when the subject of "Fire-proof Buildings" was under discussion. Such an opinion, founded on the great experience of this gentleman, will speak for itself.

From an Article on the Great Exhibition in the "Illustrated London News," May 24th, 1851:—

"Various contrivances to protect books, papers, and valuable documents against the ravages of fire are exhibited in the Building. They resolve themselves into two classes—those which resist the action of fire from being non-conductors of heat, and those which give off a gaseous material. The best specimen which we have seen is manufactured by Mr. Chubb, of St. Paul's Churchyard. Its case contains such an extreme thickness of non-conducting matter, that we should not hesitate to trust any document with it, no matter how important, in any moderate fire."

As to the security of these Safes from the attacks of burglars, the following facts are submitted. From the "Stamford Mercury," Jan. 19, 1849:—

"BURGLARY.—On Friday night last, the offices of Mr. Wilkinson, solicitor, in Peterboro', were entered by thieves, who picked the lock of the door, and so obtained an entrance. The chief point seems to have been a large iron chest in Mr. W.'s office; this at the time contained a considerable amount in cash—notes, gold, and silver—which had been omitted to be paid into the bank during the day. The chest was one of Chubb's celebrated make; in this the burglars broke their picklocks, which were abstracted by means of a magnet the following morning. Having failed with the lock, they next tried to force open the lid; but here again they were foiled: the metal was too tough to break, and too solid to be wrenched or cut, and the thieves were baulked of their expected prize. Money appears to have been their object, as beyond the trifling damage done in opening the desks, &c. nothing was injured or taken away."

Extract of a Letter from F. W. GUNDRY, Esq. Bridport, dated April 16th' 1849, addressed to CHUBB and SON.

"I had my office broken into last night, and several locks smashed; one of your iron chests fortunately resisted the attempts of the robbers, although they tried hard."

Desperate Attempt to open CHUBB'S SAFE completely baffled.

"128, Cross-street, Manchester, Feb. 3, 1852.

"SIRS,—My premises have been entered twice by thieves in the course of the last two months, and an attempt made to open my safe, which is one of your make and has one of your Patent Locks upon it. I have the satisfaction to state to you that they did not succeed in either case in opening the same. The last attempt was made on the evening of Friday last, the 30th of January.

"I am yours obediently, "JOS. CLARKE.

"Messrs. CHUBB and SON, 57, St. Paul's Churchyard, London."

In the above instance the thieves had picked no less than eight Locks of the ordinary kind, and then tried the Safe Locks with such violence as to break one of their picks, a part of which was found in the Lock. Finding themselves thus foiled, they attempted to force open the Safe, but it resisted all their efforts.

STRONG-ROOM DOORS AND FRAMES, WROUGHT-IRON AND FIRE-PROOF,

OF ALL SIZES, KEPT ON SALE.

DETAILED PRICED LISTS OF SIZES OF ALL THE ABOVE ARTICLES WILL BE FORWARDED ON APPLICATION.

CHUBB AND SON, 57, ST. PAUL'S CHURCHYARD, LONDON;

28, LORD-STREET, LIVERPOOL;

16, MARKET-STREET, MANCHESTER; AND HORSELEY-FIELDS, WOLVERHAMPTON.

LOANS.—Persons desirous of obtaining ADVANCES from 50l. to 250l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3½ per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN that the Governors of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100l. is to bear interest after the rate of 3l. per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of the Bond, containing full information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.
By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

MERCHANT'S and TRADESMAN'S MUTUAL LIFE ASSURANCE OFFICE, 5, Chatham-place, Blackfriars, London.
JOHN MACGREGOR, Esq. M.P. Chairman.

The Advantages offered by this Society are—
POLICIES INDISPUTABLE, unless obtained by fraud.
All the MEDICAL FEES PAID by the Society.
Policies payable during the lifetime of the Assured.
Non-forfeiture of Policies. Assurers who find it inconvenient to pay their premiums as they fall due, may have a credit of the amount on application to the Board.
LOANS granted on Personal and other Securities in connection with Life Assurance.
Prospectuses and every information may be obtained at the Office. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.
Persons of all ages, and in every station, may assure with this Society, and the assured can reside in any part of Europe, the Holy Land, Egypt, Madeira, the Cape, Australia, New Zealand, and in most parts of North and South America, without extra charge.
FIFTH DIVISION OF PROFITS.
The FIFTH BONUS was declared in January last, and the amount varied with the different ages, from 54l. to 95l. per cent. on the premiums paid, during the last five years; or from 1l. to 2l. 10s. per cent. per annum on the sums assured.
The annual share of profit divisible in future among the shareholders being now provided for, without intrenching on the amount made by the regular business, the Assured will hereafter derive all the benefit possible from a Mutual Office, with, at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital—thus combining, in the same office, all the advantages of both systems.
A copy of the last report, setting forth full particulars, with a prospectus, can now be obtained of any of the Society's agents, or by addressing a line to
GEO. H. PINCKARD, Resident Secretary.
99, Great Russell-street, Bloomsbury, London.

PHŒNIX FIRE ASSURANCE COMPANY, Lombard-street, and Charing-cross, London, Established in 1782.
TRUSTEES AND DIRECTORS.
SIR ROBERT HARRY INGLIS, Bart. M.P.

Decimus Burton, esq.	James Horne, esq.
Octavius Edward Coope, esq.	John Dorrien Magens, esq.
William Cotton, esq.	J. Masterman, esq. M.P.
William Davis, esq.	John Petty Muspratt, esq.
George Arthur Fuller, esq.	Richard Pryer, esq.
Emanuel Goodhart, esq.	George Stanley Repton, esq.
James A. Gordon, esq.	Benjamin Shaw, esq.
Henry Grace, esq.	Charles Hampden Turner, esq.
Joseph Owen Harris, esq.	Matthew Whiting, esq.
Kirkman Daniel Hodgson, esq.	Thomas Wilson, esq.
Thomas Hodgson, esq.	

ASSISTANT DIRECTOR—Thomas Richter, esq.
AUDITORS.

John Davis, esq.	John Hodgson, esq.
William Hammond, esq.	

SECRETARIES.

Wilmer Harris, esq.	George William Lovell, esq.

ARCHITECT AND SURVEYOR—John Shaw, Esq.
SOLICITORS.—Messrs. Dawes and Sons, Angel-court.
Insurances against Loss by Fire are effected by the PHŒNIX COMPANY upon every description of Property, in every part of the World, on the most favourable Terms.
Persons insuring with the PHŒNIX COMPANY are not liable to make calls upon others, as in the case of some offices.
Insurances with this Company expiring at Midsummer must be renewed within Fifteen days thereafter, or they will become void.
Receipts are now issued at the principal Offices, Lombard-street and Charing cross, and with the respective Agents throughout the United Kingdom.

GUARDIAN FIRE and LIFE ASSURANCE COMPANY, No. 11, Lombard-street, London.
DIRECTORS.
Thomson Hankey, jun. esq. Chairman.
Sir Walter R. Farquhar, bart. Deputy Chairman.

Henry Hale Bellenden Bere, esq.	Stewart Marjoribanks, esq.
John Dixon, esq.	John Martin, esq. M.P.
Francis Hart Dyke, esq.	Rowland Mitchell, esq.
John Harvey, esq.	James Morris, esq.
John G. Hubbard, esq.	Henry Norman, esq.
George Johnstone, esq.	Henry R. Reynolds, jun. esq.
John Labouchere, esq.	John Thornton, esq.
John Loch, esq.	James Tulloch, esq.
George Lyall, esq.	Henry Vigne, esq.

AUDITORS.

A. W. Robarts, esq.	Henry Sykes Thornton, esq.
Lewis Loyd, jun. esq.	John Henry Smith, esq.

George Keys, esq. Secretary.
Griffith Davies, esq. F.R.S. Actuary.
LIFE DEPARTMENT.—Under the provisions of an Act of Parliament, this Company now offers to future Insurers Four-fifths of the Profits, with Quinquennial Division, or a Low Rate of Premium without participation of Profits.
The next division of Profits will be declared in June 1855, when all Participating Policies which shall have subsisted at least one year at Christmas next will be allowed to share in the Profits.
At the several past Divisions of Profits made by this Company, the Reversionary Bonuses added to the Policies from One-Half to Five per Cent. per Annum on the sums Insured, and the total Bonuses added at the four Septennial Divisions exceeded 77,000l.
FOREIGN RISKS. The Extra Premiums required for the East and West Indies, the British Colonies, and the northern parts of the United States of America, have been materially reduced.
INVALID LIVES.—Persons who are not in such sound health as would enable them to insure their Lives at the Tabular Premiums, may have their Lives insured at Extra Premiums.
LOANS granted on Life Policies to the extent of their values, provided such Policies shall have been effected a sufficient time to have attained in each case a value not under 50l.
ASSIGNMENTS of POLICIES.—Written Notices of, received and registered.
Notice is hereby given, that Fire Policies which expire at Midsummer must be renewed within fifteen days at the Office, or with Mr. SAMS, No. 1, St. James-street, corner of Pall-mall; or with the Company's Agents throughout the Kingdom, otherwise they become void.

PARTICIPATION IN PROFITS.
GLOBE INSURANCE, Cornhill and Pall-mall, London.
ESTABLISHED 1803.
(Empowered by Special Acts of Parliament.)
For FIRE, LIFE, ANNUITIES, and the PURCHASE of REVERSIONS and LIFE CONTINGENCIES.
James Wm. Freshfield, esq. M.P. F.R.S. *Chairman.*
Fowler Newsam, esq. *Deputy Chairman.*
George Carr Glyn, esq. M.P. *Treasurer.*

Henry Alexander, esq.	Boyd Miller, esq.
John S. Brownrigg, esq.	Sheffield Neave, esq.
Boyce Combe, esq.	William Phillimore, esq.
Thomas M. Coombs, esq.	W. H. C. Plowden, esq. M.P.
William Dent, esq.	Robert Saunders, esq.
Edward Goldsmid, esq.	Robert Walter Stirling, bart.
Sir L. L. Goldsmid, bart. F.R.S.	Wm Thompson, esq. ald. M.P.
Robert Hawthorn, esq.	William Tite, esq. F.R.S.
John Hodgson, esq.	Henry J. Wheeler, esq.
Richard Lambert Jones, esq.	Josiah Wilson, esq.
Robert Locke, esq.	Benjamin G. Windus, esq.

CAPITAL:—ONE MILLION Sterling, the Whole Paid up and Invested.
NEW TABLES of Life Premiums, on a just and liberal basis, have been adopted by the "GLOBE INSURANCE," combining the Plan of Participation with those principles of Solidity and Security which have distinguished the Company from its formation.
TWO SCALES of Premiums, Participating and Non-Participating.
TWO-THIRDS of Profits divided as BONUS every Seven Years.
ONE-THIRD of the Premium may remain unpaid as a debt upon the Policy—and other facilities afforded to Insurers.
Insurances taken to the extent of 10,000l. on a Single Life.
Every class of FIRE and LIFE Insurance business transacted.
PROSPECTUSES with full Tables, and Details—and Forms; may be had at the Offices of the Company; or of any of the Agents.
By order of the Board,
WILLIAM NEWMARCH, Secretary.
Fire Policies due at Midsummer must be paid on or before the 9th July.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 300,000l.
TRUSTEES.
Lord Wenlock. Earrick Park.
G. L. Thompson, esq. Sheriff Hutton Park.
Robert Swann, esq. York.
BANKERS—Messrs. Swann, Clough, and Co. York.
ACTUARY AND SECRETARY.—Mr. W. L. Newman, York.
The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.
Extract from the Table of Premiums for Insuring 100l.

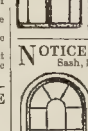
Age next birthday.	A MALE.	A FEMALE.	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	48	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 9 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 5 0	5 12 6
26	2 0 3	1 16 3	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 3	2 6 3	73	11 16 8	11 9 8
40	2 19 0	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 25l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.
Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.
FIRE INSURANCES
are also effected by this Company, on the most moderate terms.
Agents are wanted in those towns where no appointments have been made. Applications to be made to Mr. W. L. NEWMAN, Actuary and Secretary, York; or to
Mr. RICH. WOOD, Solicitor, 12, John street, Bedford-row, Agent for London.

LAWRENCE and SON, Carpenters and Sash Makers, REMOVED to No. 1, Brook-street, New-road, near Tottenham Court-road.

CHARLES WM. WATERLOW, Manufacturer of Sashes and Frames, and Joiner to the Trade,

121, Bunhill row, Finsbury-square.
Well seasoned materials, superior workmanship, lowest prices.
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes and Frames, always on sale.
Glazed goods securely packed for the country. Steam-struck mouldings in any quantity.
N B This Establishment is worth the notice of all engaged in building.


NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade,

beg to inform their Customers and the Public generally, that they have removed to more extensive premises in
BAKER-STREET,
BAGNIGGE WELLS-ROAD,
where they have convenience for carrying on a larger business.

N B. By inclosing a postage-stamp a full list of prices may be had by return of post.

COLLAN KELLY and SON, Sash, Shop Front, and Door Makers to the Trade, beg to inform their customers and the public generally that they

are now prepared to supply their goods lower than any other house in the trade.
2, ARTHUR-STREET, near OXFORD STREET, and COAL-YARD, DRURY-LANE, BLOOMSBURY.
C. K and Son have a quantity of 4 framed square doors on stock at 7s. each.

N.B By inclosing a postage stamp, a full list of prices may be had by post.

TARPAULINS FOR COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

IMPORTANT to FAMILIES FURNISHING, who study Elegance with Economy.—JAMES COOK'S three guinea French polished Mahogany Arabian Bedstead, Bedding, Cabinet, Carpet, Looking-glass, and Upholstery Warehouse. Estimates given, and a list of prices sent post-free.
BROMPTON HOUSE, 22 and 23, QUEEN'S-BUILDINGS, KNIGHTSBRIDGE.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 34, Commercial-road, Lambeth.

BUILDING MATERIALS of every description WHARFED, &c.—Timber loaded at 1s. per load; carted at 1s. per load per mile; other goods in proportion.
BEST COALS, 22s. per ton; Seconds, 20s. thoroughly screened.—THOMAS LAMBERT, St. George's-wharf, Upper Belgrave-place, Pimlico.

PALMER'S PATENTED PROCESS for reducing or enlarging Paintings, Prints, Sculpture, Daguerreotypes on Glass, Microscopic Objects, copying Landscapes, Buildings, Portraiture, &c. &c. and printing the same with the greatest accuracy and facility, either by the artist or amateur.—W. ELLIOTT and SONS, 56, Strand London, Sole Agents for the apparatus, which may be seen daily from twelve to two.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the Public generally, to this Vulcanised India Rubber Tubing, which is now manufactured from 1-8 inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.
*** Testimonials may be had on application at the Manufactory.
N.B. VULCANIZED WASHERS and SHEET RUBBER of Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

GUTTA PERCHA TUBING.—Many inquiries having been made as to the durability of this tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received from Mr. C. Hacker, Surveyor to the Duke of Bedford:—
"Office of Works, Woburn Park, Jan. 10, 1852.
"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, although it will eat lead through in two years; we have adopted it largely, both on account of being cheaper than lead, much lighter fixed, and a more perfect job.
"Yours, &c. C. HACKER."
N.B. The Company's Illustrated Circulars, containing instructions to plumbers for joining tubes, lining tanks, &c. will be forwarded on the receipt of three postage stamps.
THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.
Wholesale City Depôt, Messrs. BURGESS and KEY, 103, Newgate-street.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Covings for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 9, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

ORNAMENTAL TILING for ROOFS.—The Society of Arts awarded Mr. ROBERT BROWN a Medal for his improved Italian Tiles, and in the Great Exhibition of 1851 they were awarded a Prize Medal, and were the only Italian tiles scientifically named by the jury. These tiles have been used by Sir CHARLES BARRY, and other architects, and have met their marked approval; they have generally received the approval of eminent men in most parts of Europe. The slight curve enables the lower tiles to be fitted close by tog-ther without mortar or cement. The horizontal indentation forms a perfect security against the driving rains; when on a building, they have the exact appearance of the most admired form of Italian tiling. The grey or green colour is uniform, and is permanent. They are supplied at a stated price per square.
ORNAMENTAL PLAIN TILES, in great variety, made from the Sutton clay, and also from the Staffordshire terro-metallic clays, at per square.
PLAIN GOTHIC RIDGE TILES, HOP and VALLEY TILES, and COVING BRICKS.
The GROOVED RIDGE TILE for the reception of any varied outline of vertical ornament, was invented by Mr. Robert Brown, and for which invention he also received from the Society of Arts a medal. He now makes these tiles, of any desired colour, from the Surbiton clay, as also from the Stafford-shire terro-metallic clays. He has lately devoted great attention to the varied conditions of form, so as to adapt them to the different periods of Gothic Architecture. The attention of architects is particularly invited to those ridge tiles of a green colour. They are supplied at a stated price per foot run. Mr. Robert Brown trusts that architects who consider the Grooved Ridge Tile worthy of introduction, will think it but fair and honourable that the inventor should supply them, provided he does so as cheaply and well as any other party. But should even this hope not be realised, he will still have the satisfaction of having been the inventor of an article which has become of universal adoption.
TILE WORKS, SURBITON-HILL, SURREY.

PAN TILES, 48s. per 1000; PLAIN ditto, 32s. 6d. per 1000: FIRE BRICKS, 65s. per 1000.—WARD and CO. Honduras Wharf, Bankside, are now offering their Fire Goods (being about to make a considerable alteration in their Premises, at very reduced prices. Dutch Clinkers, Windsor Loam, Tiles, and Bricks; Fire-clay, superior, 12 inches and 9 inches; Paving Tiles, of a rich colour, at a very low price. Gas Bricks and shaped Tiles.

HOOPER'S WHITE BRICKS, moulded for Plinths, Jambs, Chimney-shafts, Wall-copings (at from 4d. to 8d. per foot run); Paving Tiles of different patterns, in white, red, and blue; Fancy Roofing and Ridge Tiles, coloured brown, or for slate; White Rebate Tiles, for facing buildings, &c. sent to all parts of the country direct from the kilns.—Office, 9, Portland-street, Southampton, where samples and illustrated price-lists may be had on application, post-paid.

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.
COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutting Grey, &c. &c.
KENTISH RAG STONE of the finest quality, and of the blue tinge so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.
Apply to Mr BENJAMIN GOUGH, 37, Newington-crescent, Newington Butts.

BRICKS of the FIRST QUALITY, at the lowest possible prices for Cash, to be had at E. ASHENDEN'S, Vauxhall Wharf, Shipping and Draw-Dock, Millbank, Westminster.
E. ASHENDEN has to acquaint the Public, that having taken the above Premises, he will have constantly for sale a large quantity of Bricks, &c.
Orders addressed as above, or to his Brickfields, Sittingbourne, Kent, will meet with prompt attention.
Red-facing Bricks, Black Headers, and Moulded Bricks to any

MOON'S PATENT HOLLOW CHIMNEY BRICKS, for Circular Flues, 10 inches diameter; strong and fire-proof for Chimney Building. Particulars to be had of Mr. HENRY CLAYTON, the Prize Brick and Tile Machine Maker, Alma Works, Upper Park-place, Dorset-square, London.
The Bricks to be had at the following places, viz.:—

Stevenage, Herts	Makers.
King's-cross, London	Warren and Matthews.
Epping, Essex	Miss Hinde.
Leyland, Lancashire	Henry Holland.
Swansea, South Wales	
Ryde, Isle of Wight	
Birkenhead, Cheshire	J. J. Whittingham and Co.

The Builder.

No. CCCCXC.

SATURDAY, JUNE 26, 1852.

MAKE-SHIFT is the present order of the day in legislation. Just enough to pacify is given, instead of the right thing,—a "lick and a promise" instead of fulfilment. Matters concerning the comfort, health, and life of the community have occupied no small share of the attention of the present Government; indeed, the principal measures that will be passed by them will have reference to these important objects. The Metropolis Water Supply Bill, the Metropolitan Burials Bill, and the Metropolitan Sewers Bill are virtually passed; but are these satisfactory to any who have given thought to the subjects? We unhesitatingly answer, No. And the great and serious misfortune is, that what is now done will have the effect of preventing for many years to come any more complete and comprehensive improvement. Ministers have manifested a *desire* to act usefully in this respect, but they and our legislators generally have feared to deal with the question in that large and complete manner which is demanded. We want water of the best quality, laid on always and everywhere, at the smallest possible cost: we require the sewage of the metropolis taken harmlessly away and economically applied; the Thames freed from pollution; and the suicidal practice of interring the dead in the midst of the living entirely prevented. Unfortunately we are not assured of obtaining any one of these crying necessities by the Bills which are about to become Acts. After an inquiry in the matter of the water companies which has not cost less than 100,000*l.*—in other words, which will lead to the transference of that sum from the pockets of the ratepayers to those of Parliamentary agents, barristers, solicitors, engineers, and others,—the main point assured is that after August 1855 (three years hence, mark), the companies are to be restricted from taking water for supplying the metropolis from the Thames below Teddington Lock! The weight of evidence is wholly against making the Thames the source of our supply. Irrespective of its present fearfully polluted state by the sewers, the enormous quantity of lime which it contains gives it a degree of hardness that makes it in a pecuniary point of view an enormous secret tax upon the community,—a tax paid on our cleanliness, our washing, our tea, our beer, and other items, amounting to hundreds of thousands of pounds per annum. Strong evidence has been given of the superiority of pure hill-top gathered waters, as urged by the Board of Health, over that from the valleys; but this has been completely ignored by Parliament.

The same view as that set forth by the Board of Health was taken 120 years ago by a leading experimentalist, Dr. Stephen Hales, in his Statical Essays.* It may be worth while to quote a passage. He says (vol. ii. p. 240),—

"Yet there are some waters which deposit no tartarine incrustations in the vessels they are boiled in: such is the water which is conveyed in a pipe for the public use of the inhabitants of Hodsdon, in Hertfordshire, which rises from a gravel, and boils up through a fine white sand, which has no incrustation in a boiler that has been used for fifteen years: and such is the water with which Mr. Serjeant Baynes's finely situated house, at Haveringhill, in Essex, is supplied with; the top of that hill, whence it flows, and on which the ancient Royal Bower stood, being gravel; whence, as also from sand, the purest spring water has been observed to flow, if it have not first passed through strata that it can dissolve. Such also is the water which his Majesty's Palace at Hampton Court is supplied with, which leaves no incrustation in the coffee-house boiler that has been in constant use for fourteen years. It has the same quality at the fountain head at Mr. Harvey's, at Comb; and it is the same with the waters which arise at North Homes, and in Old Park, which supply the Dean and Prebendaries, and other inhabitants of Canterbury. These waters come from gravelly hills, and are conveyed thence in leaden pipes, one from Comb-hill, in Surrey, and the other from a like hill about a quarter of a mile's distance from Canterbury. So that water seems not to contract any tartarine quality from gravel."

And again:—

"The Comb water is observed to be softer, and to wash linen clean with a less quantity of soap than either Thames water or the water of the river which runs across Hounslow-heath to Hampton Court. Whence it seems not improbable that the hardness of many waters, and their curdling and coagulating of soap, may be in a good measure owing to the tartarine quality with which they are impregnated."

Without insisting on the correctness of the statements of those who advocate the hill-top gathered water, it seems to us that the question should, at all events, have been set at rest by the best attainable evidence; and, if the advantages had been found to be as stated, the source pointed out should have been adopted. Individuals have learned that the most complete arrangements pay best in the long run, and are beginning to estimate the wisdom of expenditure by the amount it will return: surely with a community there is more reason for the adoption of this wise policy.

The administration of the water supply and of the sewage of the metropolis should be in the same hands: until they are so, neither can be perfect. The condition of both at this moment is a disgrace to a civilised community. "It is absolutely astonishing," says Dr. James Johnson, "that in these days of refinement, and in a metropolis whose inhabitants pride themselves on delicacy and cleanliness, a practice should obtain at which posterity will shudder if they can credit it. A time must come when the people of London will open their eyes to this scene of corruption, veiled as it is by iron pipes and stone pavements."

The last step taken in the Sewers Commission was not a wise one. The most eminent of the engineers who accepted the unpaid offices of Commissioners of Sewers, were on the point of resigning, we believe, on the occasion of the refusal of Sir Charles Wood, the last Chancellor of the Exchequer, to remove the technical difficulties to the borrowing of money, which prevented the execution of the large drainage works for the metropolis, of which the plans had been approved. The condition of things at that time was fully pointed out in the speech of Lord Ebrington at the close of the last session, on the Sewers Bill, which we have before now quoted. The Commissioners were then persuaded to remain in office. On the accession of the new Government, some annoyance was expressed at the mode in which the present Sewers Bill was brought forward, without consideration of the Commissioners' propositions. On the death of Mr. Lawes we understand that the expression of a hope was conveyed to the proper authorities that no one would be appointed chairman who would not be acceptable to the Commissioners. In this respect they appear, however, to have been as little consulted as they were upon the proposed Bill. No personal objection is felt to the chairman who has just been appointed: he is alike stranger to the Commissioners and to the works, and indeed to the law and practice on the subject. But as if their own legal secretary would not furnish sufficient law, a legal chairman is again appointed, while what was wanted on the commission was a man well versed in the subject-matter with which he would have to deal, one in whom the Commissioners could place confidence, not for his law, but for his superior powers of management and direction in an important and difficult trust, a man who would assist the Commissioners, and not one whom they may be required to assist. This is the reported position of the Commission, and the result is, from this or some other cause, that Sir William Cubitt, Mr. Robert Stephenson, Mr. Peto, and Mr. Rendel have now sent in their resignations, which have, we believe, been accepted. Who will say when the Thames is to be purified?

The Burial Act may be made useful even as it is, if it be carried out with knowledge and vigour. If we are to judge, however, from a sentence in the speech of the mover, little will be done with it. Lord John Manners said, "As it was proposed to close only such burial grounds as should be proved a public nuisance, no compensation could be demanded, and none ought to be paid. It might be objected that, as the Bill stood, the Home Secretary might close grounds as nuisances which in the eye of the common law were no nuisances at all. All he could say was, that nothing was more likely than that his right hon. friend the present Home Secretary would exercise that power in a manner to avoid such a difficulty."

If only such grounds are to be closed as are *proved* public nuisances, what with the ignorance on the subject which still exists, the wilful blindness of some, and the struggles of interested parties, the evil work will long go on. Burial within towns ought to be at once and wholly forbidden. It is an enormity which barbarian nations from the earliest times have recognised and avoided, an enormity proved, an enormity pronounced against by the people and by Parliament, and which is nevertheless still to be practised. What we are speaking of are not trifling matters: they concern a city where 156 persons die every day, and thousands die annually from preventible causes; where, during the next thirty-one years, there will be two and a quarter millions of bodies to be buried. In England and Wales there are of the male population 266,000 constantly sick; and 165,000 of these are to be found in London alone;—this London where every year 16,000 persons are shot out from the prisons on to the streets without resources, where 30,000 naked children roam on the pavements, where one out of every twenty of the inhabitants awakes without knowing where to find food or shelter! It is time that large evils were looked at with large minds.

* London, 1733.

PLATINA IN GALLOWAY.—This valuable metal has been discovered on a farm near the mouth of the Urr, parish of Buittle.—*Edinburgh Evening Post.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT an ordinary general meeting held on Monday evening, the 14th inst. Signor Achille Pulli, of Naples, was elected honorary and corresponding member. A paper was read—"On a revived manufacture of Coloured Glass used in ancient Windows," by Mr. Winston, which we give in full; and a discussion ensued in which Mr. Mocatta, Mr. Papworth, Mr. Fowler, Mr. Garling, Mr. Austin, Mr. Powell, and others took part.

On the 28th the Rev. R. Burgess, B.D. will read a paper "On the Topography of the Roman Forum and the Clivus Capitolinus;" and on that occasion Earl de Grey, president, will distribute the medals and prizes.

An extra meeting will be held July 5 to close the session, when the discussion on the decorations suitable to St. Paul's Cathedral will be resumed.

ON A REVIVED MANUFACTURE OF COLOURED GLASS USED IN ANCIENT WINDOWS.

THE point to which I have to direct attention is, "a revived manufacture of glass used in ancient windows,"—but, in order that the importance of the subject may not be underrated, I wish to make some remarks, in the first place, on the harmony observable between the design and execution of glass paintings and the quality of the material of which they are composed—a harmony which, though more remarkable at some periods than at others, may yet be observed, in a greater or less degree, in all works having any pretension to originality. It is only when the perception of the artist has become blunted, and his invention paralysed, by a habit of servile, unreflecting imitation, that *all* trace of this harmony is lost. I cannot better illustrate my meaning than by contrasting the glass paintings of the middle of the sixteenth century with those of the twelfth and thirteenth.

At this early period, when the richest, the most beautiful, and the deepest colouring in glass that we are acquainted with, was employed, we always find that the picture was both designed and executed in the simplest manner. There are no complicated groups—no atmospheric effects—hardly any effect of light and shade—and no high finish. If a group is represented, the figures all appear to be in the same plane, and to be cut out by a stiff background of deep blue or red. A landscape is rarely attempted: when this is the case, it is symbolised rather than represented by trees, buildings, or other accessories, of most mediæval cut and conventional character, which always appear, by the positiveness of their colouring, to be in the same plane as the figures, and, like them, are cut out by the aforesaid stiff background. The whole expression of the drawing is conveyed by means of strong black outlines, the effect of which is usually heightened by a simple wash of shadow in half tint, the edges of which are left hard. In short, the artists of this early time seem to have aimed at producing little else than a rich mosaic, of the most vivid and harmonious hues.

I say they *seem* to have done so,—for I am morally certain that they were really as ambitious of pictorial effect as any of their successors, and that their not having achieved it resulted rather from circumstances and want of skill than from any lack of intention. Had these men really adopted a flat style, on principle, they could hardly have failed to avoid those inconsistencies which are so obvious in their works,—such as representing a landscape at all, under such conditions,—shading the figure and giving it greater relief than the canopy *under* which it is supposed to be placed, and regulating the depth of the shading rather by the size of the figure than the intended position of the painting in the church.

Had they acted on a well understood principle, we might have expected to find some attempt made to lessen, if not obviate, the indistinctness resulting from a flat treatment, by means of a proper arrangement of the colouring; but the instances where the *entire* colouring of a group is strongly contrasted with the hue of the background, are so rare as to justify the supposition that they were accidental. I am, I confess, led by these and similar considerations irresistibly to the conclusion that the glass painters of the twelfth and thirteenth centuries, though great colourists, were not in other respects great artists; and that whatever we find good in their works is the rich legacy of antiquity—that as we undoubtedly owe to Pagan times the art of imparting these magnificent colours to glass,* so do we owe to the influence of Pagan art that style of low relief, which, corrupted by the Byzantines, and misunderstood in the ages of *feythe*, is, nevertheless, so far as it is developed in the windows of the twelfth and thirteenth centuries, so truly admirable, because so excellently well adapted to the stiff and intense colours of the period—colours so intense and unvarying in depth, as to preclude the possibility of their being made subservient to those pictorial effects which are indispensable to the satisfactory representation of a subject whose composition would rank above that of a bas-relief.

The contrast afforded by turning to a glass painting of the middle of the sixteenth century is very striking. We no longer behold a stiff mosaic depending for success almost exclusively on the richness of its colouring; but, on the contrary, a picture, brilliant, it is true, but resting its claims quite as much on its composition and general treatment as on the vivacity of its hues. Here complicated foreground groups, as well as important architectural accessories are introduced: they are delineated correctly, and highly finished. The relative distances of the various objects are preserved by means of light and shade, and the landscape background, monotonous as it may appear in comparison with that of an oil or fresco painting, recedes and disengages itself from the figures and architecture, imparting to the picture an effect of atmosphere.

The glass of which this picture is composed will be found on examination to differ widely from that used in the twelfth and thirteenth centuries. In general it is thinner in substance—it is always weaker in tint,—and on that account, if regarded simply as a vehicle for colour, would be far inferior to the older material. Yet for the purpose to which it is applied it could not be more suitable. Its pellucidness and lightness of tint are admirably calculated to display the high finish of the painting, to favour atmospheric effect, and vivid contrasts of light and shade. Nor does the employment of a material comparatively so flimsy and weak impart a corresponding flimsiness or weakness to the picture. A good specimen of cinque cento work will be found as imposing in effect as a window of the twelfth or thirteenth century. Let any one endeavour to recall to mind the glass at Chartres, and that filling the four windows of the Chapel of the Miraculous Sacrament, in Brussels cathedral. I am sure he will feel an impression that he has seen something at both places equally striking—something equally removed from flimsiness or poverty. The paradox is easily explained, when we consider that in the mosaics of the twelfth and thirteenth centuries the effect of the glass is but little aided by contrast of colour, or by shading; whereas in the pictures of the cinque cento period, not only is the colouring arranged in broader masses, which is of itself a great assistance to a poor material, but the strongest contrasts of colour and of light and shade are employed.

I have now compared the best exponent I have been able to find of a flat style of glass painting with what I believe to be a perfect exponent of the rotund or pictorial style of glass painting, and I have endeavoured to point out that, in each specimen, the quality of the glass and mode of painting it are alike different; and further, that each kind of glass, and each mode of using it, are severally calculated to act and react upon one another, so as to set both off to the greatest advantage.

It will be useful to pursue the subject further, and show that during the whole interval which elapsed between the abandonment of the flat or mosaic style, at the end of the thirteenth or middle of the fourteenth century, and the adoption of the rotund or pictorial style, which it took two centuries to perfect in the cinque cento, a certain harmony existed between the quality of the material and the mode of working it. It would be rather a matter of curiosity than of practical advantage to speculate on the causes which led to these changes in the quality of the material and the mode of working it. If I might hazard a conjecture, I should be inclined to say that it was a change in the manufacture which induced or necessitated a change in the painting, and not the reverse; because we know that from Pliny's time, downwards, the effort has always been to improve on the manufacture of glass,—that is, to render the material more pure and pellucid, and better fitted for domestic purposes, without reference to its employment in painted windows. But however this may be, each change in the manufacture, and each change in the mode of painting were, in general, contemporaneous.

There was but little change in the quality of the glass between the end of the thirteenth century and the middle of the fourteenth, if perhaps we except the deterioration of some of the colours. The deep blue appears to have lost its sapphire-like hue, with the decline of Byzantine influences, soon after the middle of the thirteenth century. And, during the same period, the principles of the flat style were subjected to scarcely any greater violation than they had already, if not always, sustained. But in the second half of the fourteenth century, and as it would appear, in this country at least, about 1380, an important change in the manufacture of the material took place. The white glass became purer, and all the coloured glass lighter in tint. Simultaneously an equally important change in the mode of painting was effected. It is true that the colouring had become broader and less mosaic, and the designs somewhat more pictorial, previously to the change in the material in 1380—and this is particularly remarkable in the glass paintings of Germany, in which country I am strongly inclined to think that the alteration in the glass manufacture originated. But the change to which I would now particularly advert, is in the execution of the painting.

Wykeham's glass, at New College Chapel, Oxford, which is one of the earliest specimens, may be referred to in illustration of it. The outlines became thinner, the shadows broader and softer, the painting altogether higher wrought and finished, and the treatment generally more pictorial. By the end of the fourteenth century, the new style of execution was established, as we see it in the east window of York Minster; but though rotund and pictorial in principle, it was not rotund or pictorial in effect, till the end of the first quarter of the sixteenth century, when the bolder practice of the cinque cento artists broke out in all its vigour. Still, though we must regard the works of this long intermediate period as inferior alike to the painted glass of the thirteenth century and the cinque cento time, having neither the depth of colour of the one, nor the pictorial power of the other; it is impossible to examine them without perceiving that their authors must have felt that the more delicate material with which they were furnished, invited, if not demanded, a more delicate mode of execution.

Again, we may trace, in all works executed since the middle of the sixteenth century down to the present time, except, indeed, the recent imitations of mediæval glass paintings, a certain degree of harmony between the quality of the material and the mode of working it. I do not intend to enter upon the comparative merits of the mode of execution adopted by the cinque cento artists, who used an enamel colour only for the purposes of shading; and of the mode of execution adopted subse-

* The truth of this will sufficiently appear on comparing the glass of the twelfth century with the specimens of Roman and Greek glass in the British Museum. So complete an identity of colour argues an identity of manufacture, which manufacture, there is good ground for believing, was handed down from Pagan times. The strong resemblance which the most superficial observer must recognise, of the twelfth and early thirteenth century draperies and figures, to those of the Greek school of art, raises a reasonable inference that the glass painters of those times, though in all probability natives of the countries in which they practised, derived their art from the Byzantines.

quently, according to which enamel colours were used more or less in substitution of glass coloured in its manufacture, though I admit I entertain a strong opinion in favour of the former,—because I know that the question is extensive enough, if gone into, to form the subject of a separate inquiry. But, apart from this consideration, we see in all the works of the Van Linges, the Prices, the Gervaises, and lastly in the modern Munich glass, a very delicate and finished style of painting, combined with the use of a material so delicate and pellucid as to appear extremely flimsy, were its thinness not disguised by the mode of painting it. In all glass paintings, therefore, of whatever period, with the single exception I have named, do we find the execution and design of the painting vary with the quality of the glass—being simple when the glass was rich in colour, and not over transparent; and proportionably more and more delicate and complicated as the glass became weaker in colour, more pellucid, and more thin in effect. And if any proof was wanting, either that these corresponding changes were intentional, or dictated by good taste and sound sense, it is amply afforded us by the modern copies of mediæval glass; and even by the devices resorted to in order to insure as much as possible the fidelity of the imitation—and, I am sorry to add, the enormous mendacity not unfrequently relied upon in support of a bad case.

The works to which I allude are copies of glass paintings of the twelfth, thirteenth, fourteenth, and fifteenth centuries. Some persons roundly assert that there exists a positive identity of effect between these copies and the originals: others seek to excuse any apparent difference by the remark that age alone is wanting to complete the identity. In dealing with these assertions, I shall assume the possibility of making exact copies of the *design* and *manipulation* of ancient glass paintings; for though I have never met with an instance of such exactness in English work, I certainly have met with it repeatedly in French. I shall, therefore, found whatever I have to urge in disproof of this alleged identity, or would-be identity, upon an examination of the nature and quality of the material of which these copies are composed.

I have discovered a simple mode of testing whether, on the one hand, glass is sufficiently opaque, so as not to appear flimsy or watery when put up in a window, unassisted by shading—according to the practice of the flat style of glass painting,—on the other, whether it is sufficiently clear to produce as brilliant an effect as the old does; as follows:—If the glass when held at arm's length from the eye, and at the distance of *more* than a yard from an object, does not permit of that object being distinctly seen through it, the glass will be sufficiently opaque. And, if when held at the same distance from the eye, and at the distance of *not* more than a yard from the object, permits of its being distinctly seen through the glass, it will be sufficiently clear and transparent. I have found this to be the case with a great many pieces of glass of the twelfth, thirteenth, and fourteenth centuries, which had been rendered clear by polishing the surface, or which were already quite clear; for it is a great mistake to suppose that all old glass has been rendered dull on the surface by exposure to the atmosphere. I have seen a good deal of glass of the twelfth and thirteenth centuries, that is as clear now as when it was first made, its surface not having been corroded in the least. But the glass of which these imitative works are made is either smooth on the surface and so pellucid or watery as, when held at arm's length, to permit of any object being perfectly seen through it, which is at the distance of 100 or even 1,000 yards, or more,—or else is artificially roughened on the surface—a practice which reduces the condition of the glass nearly to that of ground glass—for when held at arm's length, it will not permit of any object being seen distinctly through it, which is distant more than an inch from the glass.

The practice, not unfrequently resorted to by the imitators of old glass, of *antiquating* smooth surfaced glass—that is, dulling it with the enamel colour used for painting the outlines—renders it, when held at arm's length, nearly, if not quite as opaque, as rough surfaced glass; indeed, almost the only perceptible difference in this respect between rough surfaced glass and smooth surfaced glass that has been antiquated is, that the former is free from the tint necessarily imparted to the latter by the enamel colour with which it is antiquated. Thus we find that imitations of glass of the twelfth, thirteenth, or fourteenth century, if executed in smooth surfaced glass that has not been antiquated, are poor and watery, in comparison with original work of the period. And that, if executed in glass that has been antiquated, or in rough surfaced glass, they are much too opaque. In the one case, to speak popularly, the vision passes too uninterruptedly through the glass; in the other, it is stopped at the surface of the glass, instead of passing about a yard through it, as in the case of ancient work.

I might show the non-identity of modern glass with ancient, even by a reference to the difference of its colouring. The old being invariably harmonious and rich, the modern almost as invariably raw, crude, and poor in tone, a circumstance arising partly from the use of colouring materials different from those formerly employed, partly from a difference in the make of the glass. But I am content to leave the case as it stands. I cannot, however, forbear the remark that it is most amusing to find many earnest admirers of mediæval imitations, who, though apparently ignorant of the practice of roughing the surface of glass, are aware of the pernicious effect of "smudging" or "antiquating" that which is smoothly surfaced, attributing to windows on which neither of these practices has been employed, the effect of ancient ones, because, as they assert, "the glass then remains clear and pure as in ancient times." Was there ever so entire a misconception! Is flimsiness or wateriness a characteristic of ancient glass? Do we ever find the glass even of the sixteenth century as flimsy and watery as that used in the works to which they allude, as exact imitations of glass paintings of the thirteenth? Of course, we do not. I say, of course,—because recent analysis has discovered the presence of at least one constituent of old glass, which does not exist in the modern, and which, on being purposely introduced, produces that self-same effect of solidity and richness which we perceive and admire in the old.

It is now time to advert to the revived manufacture of glass, which constitutes the text of this paper. And in doing so, I must disclaim any merit that may attach to the discovery beyond having started the inquiry which led to it, and sometimes having given an opinion on the quality of the colours produced. The merit of the discovery is to be ascribed to the chemical science of my friend Mr. Medlock, of the Royal College of Chemistry, and the practical skill of Mr. Edward Green, of Messrs. Powell's glass-works in Whitefriars.

I was anxious in the autumn of 1849, to procure some blue glass like that of the twelfth century, that is to say, not a raw positive blue, such as we see in modern windows, but a soft, bright, intense blue, or rather a sort of neutralised purple. And for this purpose I submitted some twelfth century blue glass to Mr. Medlock for analysis. He completed his analysis in Easter week, 1850, and thereby determined that the colouring matter was cobalt; thus putting an end to many ingenious speculations that had been previously formed on the subject; some, I am afraid, without much reflection. The lapis lazuli theory, which has been embraced by Mr. Hendrie in his translation of Theophilus, and Mrs. Merrifield in her Ancient Practice of Painting, is indeed opposed to the testimony of Dr. Merrett in the seventeenth century, in a note by him on the Treatise of Neri, where he declares that he had ascertained by experiment the impossibility of colouring glass blue with lapis lazuli, about which there can be no doubt. Mr. Medlock intends, I know, to prosecute his inquiries on the subject of blue glass, and to analyse various specimens from the twelfth to the sixteenth century, when we know that cobalt was employed, so as to form a series, which, when connected with the analysis of Roman and Greek glass made by Sir Henry De la Beche, and others, will form a most valuable chain in the history of the manufacture. It would therefore be unbecoming in me to anticipate Mr. Medlock's Memoir by giving a more detailed statement of this analysis. I may however add, that the discovery of the true colouring matter, was but one of the beneficial results of this analysis; for in working it out practically, in which due attention was paid to the ancient receipts, the ancient art of making white and coloured glass was, in effect, revived. I say revived, for between the glass that has been already made, and the old, I can discover no perceptible difference, though I have tested it in every way that I can conceive, short of actually having a window made of it. I had hoped that it would have been subjected to this test ere now: but it will at all events be very shortly submitted to it; and as the blue in question, and indeed the rest of the new glass already made, is destined for some windows in the round part of the Temple Church, in which my friend the Rev. J. L. Petit and myself are interested, I need not say that you will all have an opportunity of judging for yourselves whether or not the experiment is successful. It is, of course, never wise to halloo till you are out of the wood, and had I foreseen the unavoidable delays that have retarded the manufacture, I should have declined addressing you at present. However, as my name was actually put down, I did not think it right to cause any fresh arrangements to be made,—more particularly as I have reasonable grounds for believing in the success of the experiment.

I have now to offer a few remarks in conclusion, which, considering the time I have already trespassed on your attention, I have condensed as much as possible. I have to appeal to you, the professors of the noblest of arts, in favour of this unhappy art of glass painting. I call it an art, because it is impossible to look at the glass at Chartres, Angers, or Brussels, without feeling that glass painting was once practised by artists. I will ask you by whom it is *now* practised in this country? for abroad it is still artistical,—and further, whose fault is it that it continues in such bad hands? It cannot be for lack of pecuniary encouragement, for I doubt not but that if all the money that has been expended on painted windows within the last twenty years were added together, it would be found to equal, if not exceed, the sums paid to Raphael or Michaelangelo. The fault lies in those who have imbibed the exaggerated and rather sentimental estimate of the middle ages which is so fashionable,—who persist in regarding those ages at a distance, which, softening down deformities, keeps mean and debasing objects out of sight, and leaves only the more noble and lofty ones conspicuous,—who suffer their feelings to be so captivated by the pleasing phantom of their imagination, as to admit neither beauty nor propriety in anything that does not remind them of the middle ages, and therefore prefer copies of mediæval work to anything that the art of the nineteenth century can invent. To such persons I have long ceased to address myself: it is no use arguing against a man's feelings, however conclusive may be the facts adduced. I therefore appeal to you who possess collectively so great an influence in these matters, whether it is enough to have improved in the manufacture of coloured glass? And here I would especially address myself to the Greeks, with whom I am connected by all my early associations, by my Pagan education. Is there any reason why painted glass should be banished from buildings in the classical style? For Palladian churches you have the cinque cento style made to your hands, a style susceptible of high artistical development, and which neither in its treatment nor in its ornaments is more severe than the architecture of the building. I advert to this circumstance, because in a neighbouring church, St. James's,

Piccadilly, mediæval influences have so far triumphed as to cause the introduction of painted glass more severe in style than the church itself,—glass which I have often heard made the theme of extravagant admiration. And for churches in the Greek style, surely it would not be difficult to form an artistically flat style: I say flat, because a flat style may be made more severe than a rotund style could be in painted glass, using the powerful and beautiful colours, whose resuscitation I have proclaimed,—and resorting to the pure models of antiquity for the forms. Recent researches have exploded the idea that weak colours only are appropriate for the decoration of Greek architecture: why not, then, use deep colours in the windows, and shame the mediævals into some sort of improvement, by associating beautiful colouring with exquisite drawing?

CHARLES WINSTON.

SMITHFIELD AGAIN IN LONDON.

IN pursuance of the provisions in the Act 14 & 15 Vict. cap. 61, which empowers the Corporation of London to provide a place for holding a cattle-market in lieu of the market now held in Smithfield, and a meat-market, with slaughter-houses, and lairs for cattle, they have agreed to purchase of Mr. C. Lee seventy-two acres of the Copenhagen Estate, Islington, for the sum of 54,000*l.* The Copenhagen Tavern is about the centre of the site.

RECENTLY published statistics serve to show that at the last census the number of occupied houses in the metropolis was 307,722, and that to supply the population which in fifty years' time it is likely may be resident here, will require an *addition* of 435,000; more than double the present number; and that while the people within the last ten years have increased 21 per cent. their dwellings have only increased 17 per cent.

Now if such statements have any value, or bear any approximation to truth, they avail before all things to prove the imperative necessity of increasing vigilance on the part of the public, and especially all in authority, to every proposed plan of improvement calculated to affect permanently the general convenience and welfare of the inhabitants of this great city.

It should be borne continually in mind that the great fight of the public is ever with close monopolies and class interests. It is these alone which have compelled us so long to subsist, and to so great an extent, on filthy water and tainted meat; to inhale all the impurities of open sewers and cesspools, overcrowded and suffocating church vaults and graveyards; to suffer from the numberless cruelties and abominations of our slaughterhouses and cattle markets; and to have the entire atmosphere polluted by dense volumes of sooty smoke and vapour, accompanied with every noxious exhalation from fever-disseminating and unwholesome trades and avocations.

Such foes are not easily routed. However discomfited for a time, they return again and again upon the least lull of public attention, and, with a tenacity of purpose and lavishness and ingenuity of resource which no temporary defeat or discouragement can entirely subdue, they resume their intrigues and labours till they finally become triumphant over all opposition.

Not to draw an example from the history of railroads, where such desperate conflicts and mighty ruin have occurred, the case of Smithfield, which is more immediately to our present purposes, furnishes the most notable and recent instance.

Condemned by universal public opinion, and, as a consequence, denounced by the entire independent press, and at length, as was fondly hoped and thought, finally defeated, it again threatens to reappear, within a very short distance of the precise locality from which it has but recently been so ignominiously driven. At the very last moment, after having recourse to every species of resistance, the City authorities, with the concurrence of the Government, undertake to carry the new measure into effect; and what are they going to do?

It must be evident, from what is stated above, that Copenhagen-fields, the site chosen for the new market, will soon be required for the erection of private dwellings, and that, in a very few years, the neighbourhood will become as thickly peopled as that of the present Smithfield itself, and that thus provision is made beforehand for the reiteration of all the old objections to the market being held in the metropolis at all, which it has cost the press and the public so much labour and so many years of agitation to get rid of. If it is now too late to prevent this, the public will at least do well to scan with the closest scrutiny all the arrangements connected with the carrying the scheme into effect. What is the use of such bodies as the Board of Health, the Sanitary Association, and the Commissioners for Metropolitan Improvements, if they do not interfere to point out, if needs be, to the Government, the objections which in all such cases it is their peculiar province to inquire into, and, if possible, prevent?

FOOTPAD.

*** We have received from some friends of Mr. Dunhill, papers showing that it was he who, in 1847, brought before the corporation and the select committee of House of Commons the advantages of Copenhagen-fields as a site for the new market, and the general outline of the scheme they have now adopted, and complaining of want of acknowledgment and consideration on the part of the Markets Committee. The committee should take this into consideration. For our own parts, however, we do not recognise the advantages of the site: we agree with the correspondent whose letter we have printed that it is too near the metropolis.

STIR IN THE SOCIETY OF ANTIQUARIES.

THE calm that has for some time prevailed in the Society of Antiquaries has been recently disturbed by a motion to reduce the admission-fee from 8*l.* 8s. to 5*l.* 5s.; and the annual subscription from 4*l.* 4s. to 2*l.* 2s.; the terms which prevailed in the society up to 1807. Mr. Bruce, the treasurer, in a letter to Lord Mahon, the president, had set forth that the onward progress of the society had been checked by the alteration at that time. The letter showed that the average number of new members admitted annually, taking the twelve years before the alteration, was 37, and of compounders, 20½; while the average number during the last twelve years was 17, and of compounders, 5½. In 1807 there were 813 members: in 1851, there were but 484. The declension has been gradual, but unintermitting. On consideration of this statement and the subject generally, the council determined on submitting a proposition to the society for altering the fee and subscription to the sums formerly payable; and on the 27th ult. this was carried at a special meeting of the members by 55 to 41. At the same time, with a view to prevent the admission of improper persons, the ballot was made more stringent; one-fifth black balls, instead of one-third as now, being sufficient to exclude. The motion was very ably opposed by Mr. Pettigrew, and that gentleman has since published a pamphlet on the subject, while Mr. Lott has given notice of a motion to rescind the resolution. We trust, however, that the society will not be led to do so. Without going the length of attributing the falling off in numbers wholly to the amount of the subscription, we are satisfied that a large number of working antiquaries in various parts of the country would join it if it were less, by whose means the works of the society would be greatly benefited. Let fitness be the test for membership rather than the ability to pay 4*l.* 4s. annually. We look at this change as the first step to great improvements in the society and increased activity. The society ought to have at least as many members now as it had in 1807, notwithstanding the increased number of similar bodies, and we have no doubt whatever that it would have if the new arrangements had fair play, and the efforts to improve were continued. The society ought to let the country hear it is alive whenever and wherever its interference can be useful: committees should be appointed to determine on the publication of papers, and illustrations where required should be of the best character: those in the last part of the *Archæologia* are far from creditable. We quite agree, too, with a suggestion from Mr. Pettigrew, that "the interests of the society would be promoted by the vice-presidents holding their seats for two years instead of a permanency."

We sincerely hope that no animosity and ill-feeling will be induced by the present discussion. Surely one gentleman may think that the efficiency of the society may be increased by reducing the subscription, and another that this will not be so, without personally quarrelling or ascribing improper motives one to the other. Those who have compounded may feel themselves personally aggrieved, but even these should regard the change as one of the chances of life, and remember that if circumstances had led the society to *increase* the sum payable, they would not have been called upon for a further contribution.

ORATORY IN THE BEAUCHAMP CHAPEL AT WARWICK.

THE picturesque oratory which we this week engrave is not only architecturally beautiful in its proportions, decoration, and general effect, but has the additional interest of containing objects which, by their appearance, associate themselves with past events. The little oratory in Beauchamp Chapel might, if divested of its contents, be looked over by many with a passing glance, but the rusty and grim-looking helmets, the ancient carved chest, and other objects like the withered garlands, portions of armour, coronets, and tattered banners sometimes met with in country churches, fix the attention and lend a charm to the architecture.

The oratory is situated on the north side of the Lady Chapel of St. Mary's at Warwick, which was founded according to the will of Richard Beauchamp, Earl of Warwick, who was in his day an eminent statesman and soldier. The oratory, which also served the purpose of a confessional, is 5 feet 6 inches above the level of the chapel: the confessional is raised somewhat higher, and communicates with the chancel of the church, where there is a grating of decorated ironwork: the aperture is shown in the engraving: the groined ceiling is richly ornamented with fan tracery and pendants. At the east end, where the helmets are now placed, was formerly the altar, with an elaborate niche on either side: these niches and some other parts of the oratory were, at the time of our visit, in a sad state of decay. The building of the Lady Chapel and oratory was commenced by the executors of Richard Beauchamp in 1439 and finished 1464, at the cost of 2,481*l.* 4s. 7d. a large sum at that time. The tomb of the founder, which is of great beauty, is situated in the chapel: this tomb is the more interesting in consequence of the contracts of the various workmen being still preserved: these are printed in Dugdale's "Warwickshire," and Britton's "Architectural Antiquities," vol. 4. There are other curious tombs in the chapel, amongst which is that of the Earl of Leicester, of the time of Queen Elizabeth, who is made one of the actors in Sir Walter Scott's novel of "Kenilworth." On the tomb of Richard Beauchamp is the following inscription:—

"Preieth devoutly for the Sowel whom god assoille of one of the moost worshipful knightes in his dayes of monhode & conning Richard Beauchamp late Eorl of Warrewik lord Despenser of Bergevenny & of mony other grete lordships whos body resteth here under this tumbe in a fulfeire vout of Stone set on the bare rooch thewhuch visited with longe siknes in the Castel of Roan therinne decessed ful cristenly the last day of April the yer of oure lord god A MCCCCXXXIX, he being at that tyme Lieutenant gen'al and governer of the Roialme of ffraunce and of the Duchie of Normandie by sufficient Autorite of our Sou'aigne lord the King Harry the vi. thewhuch body with grete deliberacon' and ful worshipful condiut Bi See And by lond was broght to Warrewik

THE ORATORY OF THE BEAUCHAMP CHAPEL AT WARWICK.



the iiii day of October the yer aboueseide and was leide with ful Solenne exequies in a feir chest made of Stone in this Chirche afore the west dore of this Chapel according to his last wille And Testament therin to reste til this Chapel by him devised i' his lief were made At thewhuche Chapel founded On the Rooch And alle the Membres therof his Executours dede fully make And Apparaille By the Auctorite of his Seide last Wille and Testament And therafter By the same Auctorite Theydide Translate, ffull worshipfully the seide Body into the vout aboueseide Honnred be god therfore"

Cork Harbour.—A tinted lithographed view of Cork Harbour, from Spy-hill, has just now been published (Day and Son), from a drawing by Mr. R. L. Stopford. It will serve as a pleasant memorial to those who may be led to this fine locality by the Industrial Exhibition there.

REASONS FOR THE COMPLETION OF THE NATIONAL MONUMENT OF SCOTLAND.*

Mr. Elmes, the English architect, in his life of Sir Christopher Wren, takes an opportunity of eulogizing the article in the *Quarterly Review*, and stigmatizing restoration "as plagiarism, and downright theft, without even enough of that ingenuity to conceal it which, among the Lacedemonians, procured pardon for a thief." Sir William Chambers, another eminent English architect, in his Treatise on the Decorative Part of Civil Architecture, indulges in a virulent attack on Stuart's Athens, expressing his decided opinion "that it should be entirely excluded from the study of the architectural student," since "Grecian structures, even in the time of Pericles and Alexander, do not deserve much notice, either for dimensions, grandeur of style, rich fancy, or elegant taste: it follows that a knowledge ought not to be collected from them, but some purer and more abundant source, which, in whatever relates to art, can be no other than the Roman antiquities yet remaining in Italy." He asserts that "the famous Parthenon," as he calls it in derision, "is inferior, both in size and beauty of architecture, to St. Martin's Church."

After exhausting every possible objection to the restoration of the Parthenon, and any attempt to execute a national decorative sculpture, the reviewers "beg leave to state distinctly that their objections are mainly gathered from the most competent judges in their behalf. That they have hardly ventured to make any remark which has not been sanctioned in substance by the sculptors, architects, and dilettanti of the southern metropolis." In short, "they confidently assert that they are the faithful organs of the general sentiment, and that the best informed artists, and lovers of art in England, oppose themselves to the scheme, because they are fairly convinced that it would

* See p. 385, *ante*.

powerfully impede the progress and cultivation of original design." They claim the Earl of Aberdeen as "one of their faithful organs," and triumphantly refer to a passage in his work in confirmation of their doctrine. It is to be regretted his lordship should have expressed any opinion that could afford a colour of support to those whose bad taste, narrow-minded bigotry, and exclusive pretensions, are sufficiently exposed by most of the public works of architecture and sculpture they have executed in the "southern metropolis" within the last half century,—works which totally disqualify them, even admitting that they are the faithful organs of the public sentiment (of which there seems reason to doubt) from being "the most competent judges of art." How the restoration of the Parthenon, as the national monument of Scotland, should powerfully impede the progress and cultivation of original design, or interfere with the adaptation of modified Greek to ordinary buildings, is a paradox too palpable and absurd to require refutation. To be consistent, the Quarterly Reviewers, along with "the best informed artists and lovers of art in England," ought "to have opposed themselves" to the construction of the Walhalla of Germany, which, as already remarked, is a Grecian temple after the Parthenon. If it be difficult, on the plea of ignorance and prejudice, to find an excuse for the perverted taste of two architects like Sir William Chambers and Mr. Elmes, what can be alleged in palliation of the paradoxes of the Quarterly Reviews and their dilettanti friends. Can we really believe these gentlemen were sincere in taking so deep an interest in our national monument? Were they and their artistic friends not rather actuated on this occasion by a slight ebullition of jealousy, lest the successful completion of the structure and decorations should eclipse the architectural glories of the southern metropolis, not excepting the Athenian St. Pancras, with its double Pandrosium, and the boasted façades of Regent-street.

Though England was the first to bring to light the treasures of Grecian art by the publication of Stuart's and Revett's works, she has been the last to benefit by them. While France and Germany have raised noble examples of the Grecian Temple on its full scale, and in all its massive grandeur and rich decoration, England has not produced one building entitled to the appellation of Grecian, either in composition, materials, dimension, or decoration. Her Anglo-Greek practice has extended no farther than attaching porticoes indiscriminately to every building, whether a church, a theatre, a palace, a club-house, or a jail,—nay, even to shop fronts, railway tunnels, markets, and fish-stalls. Nor can this excite surprise after the doctrines and principles so dogmatically inculcated by her writers and professional men:—"It is an easy matter," says Blackwood, "for the citizens of London, revelling in their superior wealth, and in possession of the seat of government, to deride the twelve columns, the fragment of a mighty undertaking, on the Calton-hill. These twelve columns, formed on the purest and chastest model, are the same benefit to the arts and the public taste which the poems of Virgil and Homer are to literature: they will exist, if not destroyed by external violence, for thousands of years, and will be admired when the meretricious piles of London are reduced to heaps of their mother clay. Even now, they are the most imposing objects of the kind in Britain. They surprise strangers more than any other edifice of the island; and if the structure is completed, by the munificence of donations and bequests, on the same scale of magnificence, it will give to the Scottish metropolis a distinction beyond what any capital of Europe can boast."*

The following passage is from an able and interesting article, on the same subject, in *Blackwood's Magazine* so far back as 1819:—

"When we earnestly wish to impress upon the public attention, therefore, the propriety of selecting the Parthenon as the model for the National Monument, we do it, not from any blind partiality for ancient art, or from any propensity to undervalue the genius of contemporary artists, but from a sober survey of the causes which have led to the eminence of art in other states, and by which the celebrity of our own literature and poetry has been created. We cannot forget that the works of antiquity were restored, and their spirit diffused over Europe, before the "Jerusalem Delivered" or the "Paradise Lost" were written. It is from a wish to obtain similar advantages for the arts in this country that we press so earnestly for the restoration of the most perfect edifice of antiquity in the National Monument. It is just because we have the highest opinion of the genius of our own artists that we would wish to give them the immense advantage of having the finest monument of ancient art continually before their eyes. It is by such habitual contemplation, more than by the hurried impression of a transient visit, that the spirit of ancient excellence is to be inhaled; and could they obtain, in this way, the advantages which the Italian artists have derived from the study of the Pantheon and the Coliseum, we have not the slightest doubt that the genius of this country would rival the architecture, as it has long done the poetry of Italy. Such a measure would be the same service to the arts in this country that the restoration of Virgil and Cicero were to the poetry and eloquence of Europe. It is not to be forgotten that, till such an edifice is erected, the influence of the magnificent ruins of Athens is as much lost towards forming the public taste in this country, as the Æneid or the Orations of Cicero would have been had they still remained undiscovered amidst the rubbish of the monastic libraries; and, were it accomplished, we are sanguine enough to imagine that the genius of Britain would make the same addition to the simplicity of the Grecian original, that the fancy of Tasso or Milton did to the poetry of Greece and Rome. But if the present opportunity be suffered to escape, it is impossible to say when an opportunity may again occur of adorning our northern metropolis with this matchless edifice, or of transferring to its inhabitants the taste which grew up in Athens round the works of Phidias. Centuries may revolve before another similar opportunity occurs; and never, perhaps, in the future history of this country, will it fall to the lot of its inhabitants to erect a building in which public feeling will be so deeply and universally interested. . . . . The influence which an ornamental edifice exercises upon the public taste is almost beyond the power of estimation. Whether it is good or bad—it must stand for centuries, and determine the taste of those who view it when the name even of its orginal author is forgotten. Of what incalculable importance then to choose well the design of an edifice from which such important effects upon the national taste must follow. . . . . The genius of Michelangelo, and Bramante, has sought in vain to deviate from the rules which the Athenian edifices have established; and at this day men of all descriptions, differing from one another in every other subject of human thought, unite in admiration of their unequalled beauties, and, forgetting the rivalries of nations, meet in the ruins of the Acropolis to do homage to that perfection of design which, for above 2,000 years, has stood unrivalled among the works of men. In suggesting, therefore, the Parthenon as the model of the National Monument, we are not presumptuously setting up our own opinion above that of our contemporaries infinitely better qualified to judge of the subject than ourselves. It is just because we distrust our own opinion, and are strongly impressed with the importance of selecting an unexceptionable model, that we make the suggestion; trusting in support of our opinion to the united suffrages of the greatest men whom the world has ever seen, and the concurring opinion of twenty centuries on the only subject, perhaps, in which perfect unanimity is to be found in the whole history of human affairs."

But, besides giving a powerful impulse to architecture and the sister arts of sculpture and painting, its completion, by commemorating the great men and warlike achievements of Scotland, will effect another national and most important object: it will resuscitate and keep alive that patriotic independence and martial spirit for which our countrymen were so distinguished, when Scotland was an independent kingdom, but which is apt to die away when united to a larger and richer kingdom like England.

The embellishment of the Scottish capital ought to be a matter of national and general interest. Nothing contributes so much to sustain the renown and prosperity of a country, to improve the taste, and elevate the character of its inhabitants, as the possession of great and distinguished monuments of art. The ruins of Athens still attract admiration from all quarters of the world. Modern Rome and the cities of Italy owe their celebrity almost entirely to their works of ancient and modern art. Had it not been for her remains of ancient grandeur, Rome herself would have irrecoverably sunk under her civil wars and accumulated disasters. It were needless to dwell on the advantages of restoring one of the most admired works of antiquity, as a standard of permanent attraction, which would survive the fluctuating fashions of the day, and remain a model of taste to future generations. In the fine arts, more especially architecture and sculpture, the models and great works are confined to certain localities, beyond which their influence is little felt.

But it must not be supposed that those who advocate the restoration of the Parthenon are so bigotted in their admiration of the pure Greek as to think it could be adapted to all kinds of buildings. The very selection of the Parthenon implies the reverse; that they think it is only suitable for those structures of national grandeur which will admit of being executed on their full scale of dimensions, and with all their requisite decorations. To apply the temple on a reduced scale to ordinary buildings is sure to terminate in failure. That it is, however, very possible to compose a mixed Greek, adapted to a certain description of modern edifices, is exemplified in the Glyptothec of Munich, with its beautiful portico, and the Museum of Berlin, with its noble colonnade of eighteen columns; to which may be added the High School of Edinburgh on the Calton Hill. In none of these buildings is the arch introduced. For the generality of public buildings and street architecture, the Roman and Italian styles are the most appropriate.

The want of a Gallery of Honour or National Monument for monumental statues and busts is beginning to be felt by the sister kingdom. Nor can the English people shut their eyes to the incongruous anomaly, if not desecration, of transforming their two great metropolitan churches of St. Paul's and Westminster Abbey into depositories of purely secular monuments of statesmen, warriors, philosophers, poets, artists, &c. huddled together without order, consistency, or propriety, and utterly destitute of all religious character—of the slightest allusions to the Christian's hope of a future life. Any stranger who should for the first time visit St. Paul's Cathedral, after observing the numerous statues and medallions, with the figures of Mars and Victory, of Neptune and Fame, with all their attendant lions, tigers, cannons, flags, and blood-stained standards, might well be excused if he supposed himself in a Pantheon of military honour, or temple dedicated to Mars. No country can boast a greater number of distinguished and illustrious men than Great Britain, but no country has done so little to honour their name or perpetuate their fame. "Why," exclaims Mr. Edwards, "are the testimonials of national gratitude delayed till their object is insensible to the glory they confer?"*

Some malicious persons there are belonging to a class opposed to everything national and patriotic, who have presumed to assert that the National Monument can be regarded in no other light than a monument dedicated to war and the horrors of war. The very reverse is the truth. Like its great prototype on the Acropolis of Athens, its original object was in reality a monument not merely in commemoration of British and Scottish achievements, including the signal victories of the British arms by sea and land in the last war, but in celebration of peace, prosperity, and independence, the consequences of the glorious and triumphant termination of a long and calamitous war, in which Great Britain fought single-handed against banded Europe for the preservation of her laws, her liberties, and her altars.

No dishonour could have attached to Scotland, any more than to England, for not raising a National Monument. But after all her pledges, meetings, and resolutions; after all her pretensions, and prospectuses for so many years, not confined to the British Islands, but

* *Blackwood's Magazine*, No. CCL.—Article on British Architecture.

* "Edwards' Administrative Economy of the Fine Arts of England."

circulated over the four quarters of the globe; after having obtained two Acts of Parliament authorizing its erection; after having actually commenced the structure, and expended upon it 15,000*l.*; after all this, it is no wonder that strangers, and our neighbours of England, should sneer at it as an emblem of our pride, presumption, and inconstancy. In short, we have raised a monument, not to the glory and honour of of our country, but to its dishonour and reproach, and that on a site so elevated and conspicuous, as to strike the eye of every stranger who visits our metropolis, whether he enters the city from the south, north, east, or west. All strangers and foreigners of taste, it is true, admire this modern ruin more than any other structure in the city. But no sooner do they learn its history, than they express their wonder and surprise that the people of Scotland, more especially those of the capital, should be so dead to all sense of national glory and patriotism—so devoid of all taste for the fine arts, as not to complete the monument. George Cleghorn.

NOTES IN THE PROVINCES.

Ipswich.—The new building for the Ipswich Grammar School is to be handed over to the head master by the mayor and corporation on the 1st July.

Gravesend.—St. James's Church, Gravesend, erected on a site at the western entrance of the town, the gift of the Earl of Darnley, was consecrated on Friday week. It contains 827 sittings, 527 free. Its total cost is 3,400*l.* towards which the Church Building Commissioners granted 300*l.* and the Church Building Society, 480*l.* A deficiency of 800*l.* still remains to be supplied by private subscriptions.

Southampton.—From an advertisement in the *Hampshire Advertiser*, it appears that the local board of health are wanting a loan of 20,000*l.* to enable them to proceed with the necessary works for the sewerage of the town.

Wilton.—It is proposed, according to the *Wilts Mirror*, to light this place with gas by pipes from Salisbury. A correspondent of the *Mirror*, however, advises the erection of a gas-work at Wilton itself, as costing less than a continuation of pipe, &c. from Salisbury.

Worcester.—The new market-house recently built has a span roof something in the style of the transept of the Crystal Palace; but as only the central portion was required to be of glass, the sides have been filled up with corrugated iron. The side aisles scarcely correspond, it is said, with the centre, and the appearance of the building, it is thought, would have been improved, if, instead of stalls down the middle of it, there had been a central aisle, as in the old house. The architect was Mr. Armstrong, of Bristol, and the contractors, Messrs. Wallburton and Walker, of London. The east front, facing the shambles, has four entrances, as well as several fish-stalls. The stalls down the middle of the building will be devoted to the sale of fruit, poultry, &c. The painting of the whole is deferred for the present.

Feckenham.—The lay-proprietor, Mr. E. V. Neale, has given orders for the rebuilding of the chancel of the parish church, which, in addition to disfigurement, is in a dilapidated and almost dangerous condition. The walls are of great thickness, but they bulge out threateningly in various places. The architect intrusted with the work is Mr. Butterfield. Such of the features of the present chancel as belong to its original conception will be copied in the new work, and particularly some characteristic lancet windows. The roof, which will be pitched a trifle more sharply than at present, will be open, with framed principals, the timbers being dressed, stained, and varnished. This will give room for an east window of the full proportionate dimensions. About one-half of the chancel will contain oaken benches, the other half will be kept clear of seats to make room for the communion table and approach to the altar rails. The floor of the chancel will be paved with encaustic tiles, interspersed with Yorkshire stone. Whilst the work is in progress the chancel arch will be bricked up. The stone to be used will be from the Inkberrow quarries, and the work is to be performed by Mr. Robinson, of Redditch, whose men have already commenced operations. A local paper suggests that the parishioners, as a next and early movement, should take down the brickwork which blocks up the arch between the nave and tower, and obstructs the view of a good window in the west side of the latter.

Dorchester.—The restoration of the old Abbey Church of Dorchester is resumed. The builder is now engaged, under the direction of the architect last named, in restoring and cleaning portions of the stone work, and in reflooring and seating that portion of the church now used for Divine service. It is also in contemplation to raise the pitch of a portion of the roof to the height of that of the eastern extremity. Great interest has been taken in the restoration of this church by the Oxford Architectural Society, under whose direction, and by whose aid the east end of the chancel roof was raised to its original height, the windows of the Sacrarium restored, and much important work effected. What is now in progress, it seems, was greatly needed.

Cheltenham.—The new Highbury Chapel for Congregationalists, in Winchomb-street, was opened on Tuesday week. It is calculated to seat 1,200 persons, including 300 school children and 100 free poor. The building is of Decorated Gothic architecture. The façade consists of three porches opening *en suite*, and thence connected with the three aisles. The roof is Queen-post, with the tie-beam fixed some distance up the principal rafters. This ceiling is divided into eight panels or compartments, intersected by Gothic ribs, and supported by pendants. The roof itself consists of timber and iron framings, the latter having been constructed and carried out by Messrs. Fox and Henderson. The ventilation connected with the roof was designed and carried out by Mr. George Freeman, and is so arranged that the denser atmospheric air cannot prevent the ascent and escape of the more rarefied air from the interior. The heating apparatus has been carried out by Mr. Mallory, and is somewhat similar to that at Cheltenham College, the object being to impart uniform heat, without dryness. The pulpit is of Riga oak, carved by Mr. Elliot, and is much larger than the pulpits recently erected in neighbouring places of worship. It is arranged with gutta percha tubes connected with pews appropriated to persons labouring under deafness. To meet the convenience of divided pews, a narrow aisle has been introduced. "The striking peculiarity of this chapel," says the *Cheltenham Free Press* in describing it, "is, that whilst it is in strict accordance with the best ecclesiastical models, there are no obstructions either to sight or sound, thus deferring to the utilitarian views of the age, rather than to the elaborate designs of pillar and other grand obstructions, so prevalent in a previous age." The interior is entirely surrounded by galleries, the eastern end being occupied as a singing gallery and organ-loft, a recess exactly adapted to the size required having been constructed for that purpose. The predilection in favour of lead lights is said to have prevented the intended use of ground plate-glass throughout the windows of the church. The whole has been carried out from the designs of Mr. S. Onley, jun. architect, without the assistance of a professional clerk of works, Mr. George Freeman having carried out the intentions of the architect. At the back of the pulpit has been placed a new organ erected by Messrs. Andrews and Foster, of Hull, and consisting of a great organ, and choir organ; the great organ being enclosed in a large swell box, producing a double effect. It contains: 1, Bourdon; 2, Tenoroon; 3, Open Diapason; 4, Viola di Gamba; 5, Stop Diapason, Bass; 6, Stop Diapason, Treble; 7, Principal; 8, 12th; 9, 15th; 10, Tierce; 11, Sesquialtra; 12, Horn; 13, Hautboy. The choir organ contains: 1, Open Diapason: 2, Stop Diapason; 3, Clarabella; 4, Principal; 5, Wald Flute; 6, 15th. In addition to which it is prepared to receive a Dulciana and Cromorn in the choir organ, and Double Open Diapason from c.c.c. 16 feet on the pedals.

Newport.—The church of Holy Trinity, recently erected, was consecrated on Tuesday in last week. It is situated in a new district formed in the district of St. Paul. The site has been given by the Tredegar Wharf Company and Sir Charles Morgan, bart. For the erection of the church, the district is mainly indebted to the exertions of Mr. S. Homfray, the principal of the firm just mentioned, who also supplied the heating apparatus and bell for the church, laid out the ground round it, and provided the iron fence railings. The style of the building is Early English, of the twelfth century. It consists of a nave, north and south aisles, a chancel, tower, and vestry. The nave is 70 feet long, 24 feet 6 inches wide, 24 feet high to the square, and 37 feet high to the ridge board of the roof. The aisles are each 70 feet long, 14 feet 6 inches wide, 24 feet high to the square, and 35 feet high to the ridge-board of the roof. The chancel is 18 feet deep and 16 feet wide, 22 feet high to the square, and 32 feet high to the ridge board of the roof. The tower is 18 feet square, and 72 feet high. There are 545 sittings, 301 free. Accommodation is also provided for 96 children. The cost of building amounted to about 2,500*l.* of which about 500*l.* remain undefrayed. The architect was Mr. J. H. Langdon.

Liscard.—On Tuesday week, the Roman Catholic Bishop of Shrewsbury laid the foundation stone of a new Catholic chapel at Liscard. The new building will be close beside the small old church. It will be 96 feet long by 45 feet wide, and be capable of containing 700 persons. The style of architecture is the Ornamented Gothic of the twelfth century. It will have a tower and steeple 120 feet high. Messrs. Eyre and Hansom, of Liverpool, are the architects.

Bridgnorth.—The mains for supplying this town with water are being laid down in the streets. The engine-house, reservoir, shafts, &c. are progressing.

Bilston.—The plans of Mr. Bidlake, of Wolverhampton, architect, have been selected for the town-hall, and those of Messrs. Ashpitel and Whichcord, of London, for the baths and wash-houses about to be erected here. The estimated cost of each building is rather more than 2,000*l.* The town-hall (which will be in the Italian style of architecture) will embrace, on the ground floor, rooms for the accommodation of the Town Commissioners, the Literary and Scientific Institution, and offices. On the first floor there will be a large room for public purposes, together with committee rooms, cloak-room, and rooms for the hall-keeper. The building will be erected on a part of the Market-place fronting Church-street. There will be an entrance into the market through a large archway in the centre of the building. The baths and washhouses (the architecture of which will also be Italian) are to be erected in Hall-street, and will consist of first and second class private baths, a plunge bath, rooms for the bath-keeper, and washhouses for the working classes.

Ashton.—Another new mill, erected by Messrs. Thomas Mason and Sons, has just been completed here so far as the building is concerned. It is 284 feet long, by 47 feet wide, and six stories high, and is uniform with the one erected some time ago by the same firm, both on land between Ashton old road, leading to Guide-bridge and the canal. Mr. Bellhouse was the architect, and Messrs. Sigley the contractors. The workmen, about fifty, engaged on the work, were treated to a dinner by the Messrs. Mason; Mr. Michael Coffey, foreman of the works, in the chair.

Lichfield.—It has been unanimously resolved at a vestry meeting in St. Mary's Church, that Mr. Gorton, builder, be instructed by the churchwardens to give an estimate of the cost of doing the repairs necessary to the tower and body of the church, and that another meeting be convened to take that estimate into consideration.

Doncaster.—The first stone of a new gas tank was laid on Monday week at the corporation gas works.

Blackburn.—It is believed that the local Peel Monument Committee will resolve on

erecting baths and washhouses as a suitable fulfilment of their official purpose; and that the additional subscriptions necessary will be forthcoming.

Wigan.—The plans of the public hall, furnished by Mr. Lane, of Manchester, architect, have been approved of at a meeting on Tuesday in last week in the town-hall. The structure, it is calculated, will cost from 2,500*l.* to 3,000*l.* The site, it would appear, will be in King-street, measuring 783 square yards, with frontage of 53 feet, and depth to wall of grammar school 121 feet; cost about 500*l.* About 3,250 shares of 1*l.* each have already been taken, and 1,000 more are to be issued.——Plans for a new Independent Chapel at West Houghton have been prepared by Mr. Richard Aughton, jun. of Preston, builder, and approved of. That gentleman, says a local paper, was also the successful competitor for the contract? The chief stone was laid on Wednesday week. The site is adjacent to the old chapel, which is to be converted into a school-house. The new chapel will be in the Gothic style, and calculated to accommodate about 700 people, and will cost about 1,400*l.* towards which about 1,000*l.* have already been contributed.

Arbroath.—A number of improvements and alterations in various of the shops and premises in the High-street of this town have recently been made, including the clearing away of outside stairs, an old nuisance of a very general order in Scotland, though usually connected with the complete subdivision of houses for separate families so well carried out there.——The Episcopal congregation of Arbroath are talking of erecting a place of worship for themselves.——A correspondent of the *Arbroath Guide*, under the name of "Christopher Wren Tertius," has some jocular strictures on Church Architecture in Arbroath. "Free Ladyloan Church," he says, "boldly invites public observation with exactly that degree of modesty which we usually find in persons dressed out in garish cast-off finery. It has evidently been set down in its present site with the utmost precipitation, all unsuspicious of the mere possibility that the eminence on which it stands could ever become converted into the street of a town. The awkwardness of its situation strikingly contrasts with the tact evinced in the plan and collocation of the Roman Catholic chapel adjacent, which is as much superior to it in external appearance as it is palpably inferior to the Presbyterian chapel in its internal arrangements. The interior of Free Ladyloan certainly tends somewhat to mitigate the repugnance with which the outside can scarcely fail to inspire the beholder. If those unfortunates (a pretty large number, I reckon) who are exposed to the fire shot darted through the gaping western window on Sabbath afternoons are perfectly satisfied with their lot, it is not for us to grumble, or stir them up to discontent or sedition against their rulers: we only hope their ocular nerves are a little stronger than ours. If common report hold good, the church has acquired more *éclat* from the mechanism of the precentor's desk than that displayed in the pulpit."

Inverness.—Operations for the erection of the new bridge have been commenced by Messrs. Hutchins and Co. who have opened the contract by walling off a large enclosure for the workmen.

Llangristiolys, Anglesea.—The parish church having been restored, or rather rebuilt, was re-opened last week. The whole except the west and east walls was razed within 3 feet of the ground. A perpendicular window in the latter was restored, and this, with a stone arch dividing the nave from the chancel, and the stone work of the inner and outer doorways of the south porch, restored, are the only portions of the old church remaining. The roofs are open, stained, and varnished. The benches are open, and have moulded ends. The robing-room is a moulded and carved wooden inclosure, at the north-west angle of the nave, lighted by a window in the north wall. Mr. Henry Kennedy was the architect; and Mr. Ebenezer Thomas the contractor.

TRINITY-SCHOOL, READING.

THIS school and teacher's residence, now nearly completed, adjoins Trinity Church, Reading: it is intended for 100 children, and has an entrance-porch, class-room, and room for bonnets. The residence contains sitting-room, kitchen, and scullery, and three bedrooms. The whole of the buildings are of faced-flint with Bath stone dressings. The bell-turret, which also serves as a ventilator, is of oak, with a gilded cross for the termination. The school has an open timber roof, framed with curved braces, collar, &c. and covered with slates: it is lined with ashlar to the underside of windows. The porch is roofed with Bath stone, supported on stone-ribs.

As will be seen, the style of the building is Early English. The expense, including fences and fittings, &c. complete for occupation, will be 900*l.* The architect is Mr. John Billing. Messrs. Wells, of Reading, are the builders.

REFERENCES.

A School, 20 feet by 40 feet.
B Class-room, 10 feet by 12 feet.
C Sitting-room (Mistress), 12 feet by 15 feet.
D Kitchen, 10 feet by 12 feet.
E Scullery, 10 feet by 5 feet 9 inches.
F Washing and Bonnets.
H Porch.
I W. C.
K W. C. (Mistress)

EXCAVATIONS AND ANTIQUITIES ON THE VIA APPIA, ROME.*

THE minister of public works, Signor Jacobini, induced by the discoveries of masterpieces of art, that had been made, from time to time, on the site of the Via Appia near Rome, determined to make methodical and scientifically conducted excavations on and adjoining to that road. Pius IX. approved of the project, and the works were begun in December, 1850, by some 150 labourers, at the fourth mile-stone from the Porta Capena, in the direction of Albano. * * * The first appearance on visiting the spot is nowise inviting,—newly turned up ground between dead walls, with two other lines of stones between them, standing some centimeters above the level, and forming a kind of stone avenue—that is all. Yet this avenue, stretching away in a right line as far as the eye can reach, is somewhat striking. On approaching, however, the immediate scene of operation, every step adds to our astonishment. The uncovered graves, at first few, appear more and more, closer and closer, and at last seem even to cover one another, till they range thick together in the view, like houses in a street, and another Pompeii seems to be before us. * * * The present excavations include the level of the street and the monuments immediately adjoining—in all a regular breadth of 22 metres. Investigation beyond this limit is reserved for a later time. At first the fragments of sculpture were divided, when found, into two classes: those of any worth were placed in a neighbouring magazine for further investigations: the others were left on the spot. But subsequently a better system has been followed. Each monument, as laid open, is marked with a number, and every piece recognised as belonging to it was marked with the same mark. Then, when possible, a restoration of the whole monument is attempted with the remaining fragments. * * * The remains consist chiefly of three classes,—temples, tombs, and ustrina (places for burning the dead),—the first and last more rare, the second innumerable. * * * Of the early times of the Republic mention should be made of the tombs with very well preserved capitals of various orders, the entablature and ornaments of *excellent workmanship*, generally in Peperin or Travertine stone, which were discovered at the base of the larger buildings. * * * A peculiar kind of tomb of this epoch is seen in those which are circular in plan, full of earth, and apparently terminated in a tumulus, on which trees were planted. Their style of construction, the size of the blocks, &c. call forcibly to mind the Etruscan type. Of the end of the republic, the time of Augustine, and that of the decline, there are many remains. Some have several orders, and are encased with the most varied marble ornaments: others are constructed with the "opus reticulatum," and others betray the period of the decline in their construction and ornament. The entablature of a lofty building, in white marble, of especially excellent workmanship, was fortunately brought to light. So also, a round tomb has afforded admirable fragments of Greek marble, which lead to the expectation that the whole can be again perfectly restored. So much for the architectural remains, most of which are of value, at any rate for the history of the art, if they are not remarkable for their workmanship."

The letter then goes on to describe the statues, mostly draped and headless, which have been found in connection with the monuments which they adorned. Many of them have been held worthy of transport to the museum of the Vatican. Marble vessels, containing the ashes, and many altars in Greek style, sculptured with figures of men and animals in various forms, have also been found. The inscriptions on the base of the monuments are numerous, and afford a rich field of speculation for the lover of palæography, to whom they present many novel combinations of characters. The characters of the old republican times, cut in *Albano* stone, betray the most archaic forms: they improve in later times, cut in *Travertine*; and in the latest period of the republic and the most favourable epoch of the arts are seen, correct and beautiful, engraved in *marble*, till they ultimately degenerate with the art in its decline.

Besides these funeral monuments, other objects connected with building have been brought to light. The villa of the Quintitieri, with its splendid entrance, the bases of the columns *in situ*, the shafts fallen down alongside; near it a nymphæum, superior to any hitherto discovered among the remains of antiquity. The excavations as yet extend for a length of about three miles: it is proposed to continue them next to Monte Albano, then to the old town Bovilla, which operations will altogether form a length of *eleven miles*. Fancy all this done, and all possible restorations made! It will be a school for antiquaries, historians, palæographists, and artists, such as the Eternal City alone can produce!*

* The following extracts from a letter from Rome, obligingly translated from the *Allgemeine Bauzeitung*, by Mr. C. C. Nelson, further elucidate the communication we recently published, from Mr. Tite.

THEORY OF THE TIDES.

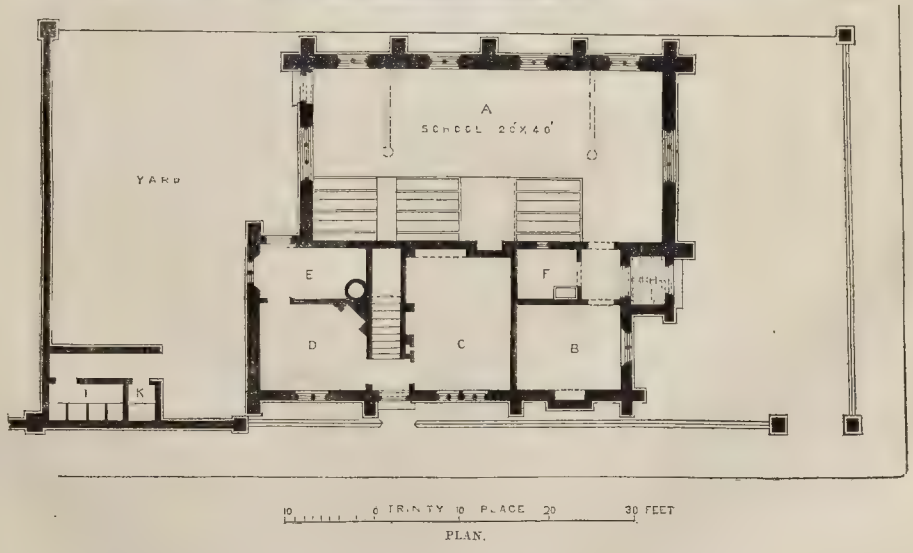
THE paper signed "W. Adolph," which appeared in THE BUILDER, disputing the received opinion in all the text-books on the subject, calls forth observations on the asserted anomalies of the question. The diagram he gives represents the theory, but, of course, it is very exaggerated, because it would be impossible in a drawing to show the extreme delicacy of the tidal wave, compared to the size of the earth: it can only be imagined, not delineated: thus, assuming a globe the size of the dome of St. Paul's, with a diameter of 120 feet, as a model of the earth, and taking a tidal elevation of 20 feet, by a common rule of arithmetic this tidal wave would on such a scale occupy but a 27th part of the thickness of a bank-note (of 300 to the inch). This observation is made rather to show the considerate bounty of the Creator in making such an arrangement, because if the tidal elevations were of great amount, the best land next the rivers and much of the coast would be spoilt, useless, or inconvenienced. The objection to the difference of the action of the moon at St. Helena and at Land's End is founded on an erroneous idea, for "W. Adolph" appears to have overlooked causes produced by the centrifugal motion which, near the equator, raises the water 13 miles high; therefore, it must be expected that the common tidal wave cannot in such situations exhibit much effect.

This applies to "W. Adolph's" other objections to the torrid zone. A very conclusive account is given on the subject in question in Partington's Natural and Experimental Philosophy, pp. 393 and 394. T. HIGGS.

* A lithographic view of the excavations accompanies the letter-press in the original.

TRINITY SCHOOL, READING.—MR. JOHN BILLING, ARCHITECT.





10 0 TRINITY 10 PLACE 20 30 FEET

PLAN.

SIGHTS AND SCENERY.

The Haymarket Theatre.—Comedy and farce are in full vogue here, and appear to command the success they merit. The last novelty, "The Foundling," from the pen of Mr. Buckstone, a lively and interesting piece, introducing some good acting on the part of Mr. Keeley, Mrs. Fitzwilliam, the author, &c. does not admit of much display in the way of scenery. There is a drawing-room scene which is very complete in its appointments.

The Princess's Theatre.—Many years ago, when the green curtain was an imposing mystery and the ring of the prompter's bell made our eyes open and heart beat, there was, we remember, a dramatic version of Lord Byron's alarming tale, "The Vampire," but it was not assisted either by the acting or the stage effects which are bestowed on the drama on the same subject now being acted at the Princess's. Mr. Bourcicault sustains the principal part very efficiently. The scenery entitles Mr. Gordon to very great praise. The "Village of Raby Peveryl," in the first drama, and the same spot after a lapse of 200 improving years, in the third, are charmingly painted. There is a very cleverly-painted interior, "Alan Raby's Bedchamber," in the same period, which specially deserves mention. We should question, however, the propriety of the light employed in the scene in which the resuscitation of the evil disposed gentleman takes place,—"The Peaks of Snowdon,"—as somewhat marring what would otherwise be a fine presentation of moon-struck mountain scenery. It may be a local peculiarity, but it has clearly more the effect of the sun, and that one of the hottest, than of the soft rays of the moon.

Rosherville Gardens.—Neither a finer scene nor a prettier sight can be found than these gardens just now. Accident led us there a week ago, and though at that time the constellation Aquarius, whatever astronomers may say to the contrary, must have been in the *des*-cendant, there were sufficient intervals of sun-light to judge of them. They are laid out with great taste, and the pains bestowed on their maintenance give ample returns. Nature and art are very happily joined.

FOREIGN ARTISTICAL INTELLIGENCE.

Annual Meeting of German Architects and Civil Engineers.—This annual gathering, resembling those held in this country, but consisting of the profession of the whole of Germany, has been just held at Brunswick. The society visited the several churches of that ancient capital of the Guelphs, whence the members were conveyed by a gratuitous train to Wolfenbüttel to view the new town church and the library. The number of the members regularly inscribed amounts to 216, amongst whom there are 102 foreign architects and engineers; considerably more than in any previous meeting. The different branches of the Brunswick ministry, as well as the civic authorities, were fully represented in the interesting meetings of the associations, where important topics of general interest were discussed.

The Monument of Rembrandt.—The city of Amsterdam, including the population from the king downwards, has been kept in a pleasant excitement by the inauguration of the monument of the great Dutch artist. The bronze statue of Rembrandt, including the plinth, which are cast in one piece, measures 15 Amsterdam feet, and is a work of M. Royer's. The figure expresses quiet and repose, resting on the right leg, the left stepping forth, by which an easy natural posture has been achieved. The arms are placed crossways, so that the left grasps the cloak, hanging down from the shoulder, while the right holds the *crayon*. The costume is in accordance with the time of Rembrandt, and the under-garment displays a full, vigorous form, hinting at the artist's sound healthfulness. The postament is rather simple, and consists of grit. On the front the name of the great artist is inscribed. On the rear we read: "*Hulde van het Nogelschlacht!* Anno, 1852." The king was present at the inauguration, when the president of the Haag Art Commission spoke to his Majesty as follows:—"But this statue does not alone speak to us of art, which never can progress *isolately* with any nation: it speaks to us of times when our people could develop themselves widely in state and church, in science and art, although in the turmoils of strife and contention." The King on replying called forth a *Hoezee!* to the prosperity of the country. An art-festival in the park exhibited a fine display of decorations and pictured emblems and symbols.

Monument to Johannes Müller, the Historian.—This personage, who died as one of the ministers of King Jerome of Westphalia, reposed hitherto under a scanty slab of stone in the churchyard of Cassel. King Ludwig of Bavaria has now a suitable monument erected to the memory of his friend. It represents the entrance to an antique temple, where two marble statues (History and Criticism) are placed. Above is the bust of Müller, executed in life size. The inscription (in German) runs thus: "Sepulchre of J. de Müller, born at Shaffhouse in 1752, died at Cassel in 1809. What Thucydides was to Hellas, and Tacitus to Rome, this was he to his native land. This monument was erected by King Ludwig I. of Bavaria, the admirer of his historical works." The humble stone which had hitherto marked the place has been embodied in the new structure.

Düsseldorf.—The programme of this year's spring festival of *artists* has been published. It comprises the combination of several old cycles of traditions into one pageant, exhibiting a variety of decorations and costume. The procession will start from the seat of the artists' *locale* (Malkasten) to the Grafenberg, one of the finest sights near that fair Rhine city.

MASONS' PROVIDENT INSTITUTION.

THE increasing success of this meritorious institution was marked and stimulated by a public dinner on Thursday, the 17th, in the Freemasons' Hall. To enable the working members of the trade to participate in the festival, tickets were issued to them at five shillings each; whilst such of the patrons and supporters of the society as preferred another course were indulged with wines, &c. and a seat at the chairman's table, on the usual terms of such meetings. In the whole a body of more than 100 persons were assembled, in the utmost cordiality and good will; and we cannot doubt that as promoting a more friendly intercourse between the employers and the employed, the meeting will be the precursor of many others of a similar kind.

Lord Robert Grosvenor, M.P. had engaged to take the chair, but was unfortunately prevented doing so by the fact that three important public measures (the Water Supply Bill, the Sewers Bill, and the Interments Bill) demanded his attendance in the House of Commons; and other members of Parliament were absent from the same cause. The chair was, however, ably filled by Mr. William Freeman, treasurer of the Society, who was supported by Mr. R. Westmacott, R.A. Mr. Behnes, Mr. Soward, Mr. Russell Freeman, Mr. C. H. Smith, Messrs. Martin and Wood, Mr. Mather, Mr. M'Swiney, Mr. Farley, and other friends of the Institution.

The loyalty of the meeting was warmly elicited by the Chairman in proposing the introductory toasts; and he then proceeded to give "Prosperity to the Masons' Provident Institution." The necessity of such an association, he observed, was obvious; and, although circumstances had deprived it for a few years past of that *éclat* which many similar bodies had obtained, that was no cause for discouragement. Other institutions, which now boasted of their almshouses and lists of pensioners, and were in a flourishing condition, had been kept for a long time in a similar state of infancy and inefficiency. Without alluding further to the past, all the differences which had existed were now dissipated; and the members of the society were considerably on the increase. If they exerted themselves, they would secure even more support from their employers and others interested in their welfare than they had yet received, but his great desire was that the institution should be self-supporting. A body of men so capable as the masons of providing for the sustenance of themselves and their families, ought to be independent of every other class in the community in the promotion of a benevolent object immediately concerning themselves. He remembered the time when he was associated with working masons, and was taught the use of the tool in the same way as it was understood by them; and he looked back to that time with peculiar satisfaction. Adverting to the casualties and dangers to which their trade exposed them, he urged upon the members the merits of this society, and the importance of advocating them; and concluded with giving "Prosperity to the Institution."

Mr. Soward, as a friend of the chairman of fifty years' standing, and as a very old mason, representing the fifth generation of his name in the trade, acknowledged the toast on behalf of masons generally. The improved management of the institution would render it beneficial to the trade at large.

The Chairman reminded the meeting that Mr. Tite, their president, had aided them in the time of need, and if he had been in England and in good health, would have presided on that occasion. They would all regret the cause of his leaving England, and rejoice to hear of the re-establishment of his health, and of his intended return by easy journeys. The tide having thus turned in his favour, there could not be a better time to express the good feeling they all entertained towards him, and their best wishes for his perfect recovery and speedy return.

In reply to the toast, "The Vice-Presidents,"

Mr. C. H. Smith returned thanks, and said that, feeling himself to be "thorough bred" in the trade, he always felt peculiar pleasure in attending the meetings of the society; and so far as his means went, his services in its behalf might always be relied on.

Mr. Westmacott, R.A. proposed the health of the Chairman. Lord Robert Grosvenor was a nobleman who dignified his rank by his talents, and by his readiness to aid all classes of his fellow-countrymen. He had not deserted them on this occasion without a satisfactory cause; for the supply of water was a most important measure. His lordship's absence had thrown some cold water on their chairman, but none at all upon the meeting, in consequence of the Chairman's able conduct of the proceedings. Mr. Freeman was well known and respected by them all; and for himself he had the greatest pleasure in attending such a meeting. If, as a Royal Academician and a sculptor, he was the head of the masons, he knew not where he should look for hands unless to such a company as the present. Looking at the admirable workmanship of the ecclesiastical and other ancient edifices of England, it was a source of pride to feel that there had been great names among the British masons of the olden times. In proposing the "Army and Navy," the chairman had referred to the splendid club-houses, by erecting which these classes had benefited the masons. He (Mr. Westmacott) prayed that the army and the navy might only be called upon to give them an opportunity of erecting as many of these splendid palaces as they could find room for: he should be very glad to see swords turned into chisels. The able advocacy of the institution by the chairman deserved their gratitude. As he had said, it ought to be self-supporting, and it would then be a source of pride to every member. Every time they met to carry out the high object they had in view, they would stand a step higher in public opinion.

The Chairman, in returning his thanks, said, in the hope of meeting Lord Robert Grosvenor, he had been prepared to mention a circumstance which might have interested him. His lordship had once inquired of him as to the site of Peterborough House, Millbank, in which he was born; but which, in the many changes in that neighbourhood, had been swept away. He (the Chairman) found that that house had stood on the site of the stone-yard now occupied by his friend Mr. Chadwick; and that gentleman, he was happy to add, had forwarded him five guineas as a contribution to the funds of the institution. He was gratified by the thanks of the meeting, and by the presence of the many old friends around him. In such friendship there was much to be thankful for, and the power to promote a benevolent object was one of a man's highest privileges.

A numerous list of subscriptions was then read, comprising the following amounts:—Lord Robert Grosvenor, 10*l.* 10s.; Mr. James Tulloch, F.R.S. 10*l.* 10s.; Mr. R. Westmacott, R.A. 5*l.* 5s.; Mr. Sidney Smirke, R.A. 5*l.* 5s.; Mr. Chadwick, 5*l.* 5s.; Mr. J. Russell Freeman, 5*l.* 5s.; Mr. Thomas Freeman, 5*l.* 5s.; Mr. C. H. Smith, 3*l.* 3s.; Mr. G. Myers, 3*l.* 3s.; Mr. John Foote, 3*l.* 3s.; Mr. Samuel Nowell, 2*l.* 2s.; Mr. William Harrison, 2*l.* 2s.; Mr. Soward, 2*l.* 2s.; Mr. Farley, 2*l.* 2s.; Mr. E. Farrer, 2*l.* 2s.; and many others.

The health of Mr. Whitehead, the Secretary, being given, he adverted to the difficulties (almost

disheartening) which the society had encountered, and to its now increasing and steady progress. He also referred to the presence in the room of two pensioners, who were in receipt of weekly allowances from the funds,—the one, an infirm mason, upwards of seventy years of age; the other, aged forty, afflicted with paralysis in both arms. He trusted that, supported by the trade, the society would flourish, and that they might enjoy many more such festivals as the present.

The Chairman then proposed "The Press," in connection with the health of the Editor of THE BUILDER. He adverted in flattering terms to the efforts of that paper in diffusing information, and promoting the interests of the working classes, and kindly expressed regret at the accident which kept the Editor from them on that occasion.

ARCHITECTURAL INSTITUTE OF SCOTLAND.

ON the 11th the Scottish Institute visited Stirling and the neighbourhood, and examined the Gothic building comprising the East and West churches, Dunblane, Doune Castle, &c. One of the objects of the meeting was to entertain the Hon. Secretary at dinner, in token of his services, and about a hundred persons sat down to partake of it, with Sheriff Gordon in the chair. Sheriff Bell, in the course of some remarks, said:—The architect ought to possess the painter's eye, the sculptor's hand, and the mathematician's mind, for if our mountains and hills and valleys be the poetry of the country, architecture is the poetry of mighty cities. In thinking of the graces of a great city, it is not its rows of streets, it is its public buildings we think of. If we mention London,—St. Paul's, Westminster Abbey, the Houses of Parliament, start up before the mind's eye; if we speak of Paris,—the Louvre and Notre Dame appear distinctly before us; and these are the features that, in all great cities, give the associations to the city. But without going to cities,—even in the country, what more beautiful than the garden temple, or the hill dotted with villas, or the palace in the stately park? I can conceive of a city so meagre, mean, and paltry in its buildings, that it is impossible to imagine that the minds of the inhabitants of that town are not mean and paltry; but the moment we see such a city as Rome, with its numberless towers and palaces, we feel that the inhabitants of that city must have been men of majestic minds.

The "Institute of British Architects" was one of the toasts. Amongst the architects and artists present were Mr. Rhind, Mr. Peddie, Mr. Rochead, Mr. Cousin, Mr. Ballantyne, Mr. D. R. Hay, Mr. Handyside Ritchie, &c. &c.

ELECTRO-TELEGRAPHIC PROGRESS.

THE following statement respecting the contest before the Committee of the House of Commons appears in the *Daily News*:—The British Electric Telegraph Company have proved signally successful in their struggle against the combined opposition of no less than twenty-seven railway companies, besides the old Electric Telegraph Company. The preamble of their Bill was proved on Wednesday morning, and all the clauses were likewise gone through, with the exception of five or six, which were reserved for discussion. We understand, however, that the company have assented to the offer of the railway companies, who express themselves willing to waive all opposition to the Bill in the House of Lords, provided these clauses are made subject to an amicable arrangement. This result is most satisfactory, as it is another step towards the establishment of a system of cheap and efficient telegraphic communication, which could never be attained so long as the entire telegraphic wires of the country were under the exclusive control of a single monopolist company. [It is to be seen yet, however, whether, as in some instances, the result be not an "amalgamation" that would constitute a still more monstrous monopoly than ever. The Legislature ought to look to such possibilities of "amalgamation," and prevent its evil consequences in such cases as this, *if they can.*] The chief objects proposed by the Bill of the British Electric Telegraph Company, it will be remembered, are the limited liability of the shareholders [which may present an obstacle to future "amalgamation"], and the power of compulsorily laying down their wires over any railway in the kingdom.

The arrangements pending between the Electric Telegraph Company, the Astronomer Royal, and the South-Eastern Railway, for the establishment and transmission throughout London and the provinces of mean Greenwich or uniform time, being completed, the construction of apparatus to carry out the object was commenced by Mr. Edwin Clark, the company's engineer, upon the dome of the company's west-end station, opposite Hungerford Market. A scaffolding was first erected on the top of the cupola, built under the direction of Mr. Sandys, the constructor of the apparatus, designed by Mr. Clark. This scaffolding was 30 feet high, the total height at which the apparatus stands being about 110 feet above the level of the Thames. The apparatus consists of a quadrangular hollow shaft or pillar of wood 38 feet high, and 8 feet in circumference, formed of three sections. The first section was fixed by the workmen into the floor of the room underneath the dome, and thence carried through and joined on to the second section, and the third, the latter of which was then passed through the centre of a large globe or ball, intended, by means of sympathetic electrical action, to fall every day simultaneously with the well-known ball on the top of Greenwich Observatory, between which and the Strand the electric wires have been completed for the purpose. The ball is nearly 6 feet high, and 16 feet in circumference. It is formed of zinc, painted black, with a broad white belt diametered about it, making it look something like a ringed Saturn. The shaft is continued a few feet above the ball, and at the extremity is a bright gilded weather vane, with "E. T. C." on the arms. The apparatus is provided with an air cylinder in connection with the telegraphic wires between London and Greenwich, and when the ball at Greenwich falls, an instantaneous shock of electricity will be communicated along them, and this acting on an electrical trigger connected with the ball in the Strand, will cause it to fall simultaneously with that at Greenwich. The cost of carrying out this new chronometrical machine is estimated at 1,000*l.*

The Morse line of telegraph between Washington and New York has just declared a quarterly dividend at the rate of twelve per cent. per annum, although it is subjected to active competition, and adopts a scale of charges which, as compared with those in England, are merely fractional.

The *Albany Evening Journal* purposes to introduce a new word into the vocabulary, the object of which is to avoid the necessity of using two words when one will answer. The word referred to is *telegram*, to be used instead of "telegraph despatch," or of "telegraphic communication." To telegraph, it is explained, is to write from a distance. The telegram is the writing itself, executed from a distance. Monogram, &c. it is added, are words formed upon the same analogy and in good acceptation. The House line in their communications, are recommended to use the word *teletypes*, as they are *printed*, not written.

ENORMOUS PLANK.—On Tuesday there was at the Bridgewater Canal-yard, Chester-road, Manchester, an enormous plank, which had been brought from Liverpool by the canal. Its dimensions are—length, 144 feet; breadth, 20 inches; and thickness, 6 inches throughout. It is of a species of wood known as gum wood, or African oak, and was imported from Africa into Liverpool during last summer. The tree from which this plank has been sawn must have been of a gigantic height, probably not much less than 300 feet.

LONDON WALL.—A correspondent informs us that in digging out the ground for some buildings in George-street, Tower-hill, he has laid bare the foundations of the old Roman wall, consisting of massive masonry.

IRELAND FOR THE ENGLISH.

WE are glad to find that a stream of visitors is setting in towards the sister island; and the reports from some who have been there are likely to increase it. They are unanimous in their admiration of the scenery, and acknowledgment of the cordiality they found.

About 1,300 persons have crossed from Holyhead to Kingstown, by the Chester and Holyhead Company's express-boat, during the last fortnight. The two mail-boats have also brought over large numbers within the same period. Nearly 400 "tourist tickets" have been issued since the system came into operation. The holders are chiefly from London, Liverpool, and Manchester; but there have also been visitors from all the other towns at which these tickets are issued.

The Irish Exhibition.—A Cork correspondent of the Dublin *News Letter* says,—"Those who come to the regatta in July will have the best view of the Exhibition, for then all the articles will have been arranged, labelled, ticketed, catalogued, and classified. A second exhibition is, in point of fact, about being added to the first. Public spirit has been aroused—private and national enterprise has been stimulated, and the consequence is, that the Exhibition will be a much finer one than could have been expected. The carpenters are busily at work erecting an additional building, 150 feet long, 25 feet high, and as many broad, leading from the eastern court into the ball-room. There must be somewhat about 300 packages unpacked. Those who have seen the Crystal Palace may be indisposed to look at anything Irish: indeed, this feeling has prevailed more with Irishmen than with those of England. There are those who sneer at the products of the land that gave them birth, and from which they derive their means of existence, and forget that it is less laudable to patronise and praise the manufactures of a prosperous nation than to prop up, encourage, and sustain the infantine and struggling arts and manufactures of our own country. As Mr. Barry, in a very clever ode relative to the Exhibition, has written—

> 'We boast not of wealth of foreign lands,
> But what our own fair island yields:
> The produce of her teeming fields,
> The labours of her children's hands,
> The tissues of her loom,
> The varied marbles of her hills
> The ores that pave her pebbly rills,
> May here find room.'"

It is said that Mr. Dargan has made an offer to the committee of the Royal Dublin Society to expend 10,000*l.* or, if necessary, 20,000*l.* in the erection of a building in connection with, or upon, their grounds, for the purposes of a grand National Exhibition, the profits incidental to the admission of the public to be derived by him, and the articles and products exhibited to comprise those of native growth, cultivation, and workmanship, and, in addition to these, such foreign products as may be available and productive in Ireland.

Notices of Books.

A Theory of the Negative Sign; in which, from Principles general and new in application, the Algebra of Positive and Negative Quantities is simply and logically deduced. By HENRY B. BROWNING, St. John's College, Cambridge, author of an "Algebra of Ratios," &c. Samuel Sharp, Stamford: 1852.

THE object of this little work is to inculcate clear and correct notions of the affection and use of the negative sign in algebra, and the mode of applying it in a train of reasoning. Those who have previously acquired some knowledge of the subject from other elementary works, will readily assent to the principles here employed; but we suspect that those who come unprepared will not so readily overcome the obstacles that present themselves in the separation of the quantities to be operated upon; nevertheless, we consider the motive for which the system has been drawn up a good one, for it is of the utmost importance to the students of algebra, that they

should clearly perceive the import of the signs positive and negative, and be impressed with a full confidence of their use in a process of reasoning.

The principles here adopted are rigorous in the highest degree, and the mode of applying them is interestingly novel; but we cannot accord assent to the confused appearance of the pages, for it is our firm conviction that a succinct system of ordering the steps of operation greatly facilitates the acquisition of the subject, and gives the reader a taste for accurate arrangement. We, however, recommend the work to the students of algebra as being well adapted to the purpose for which it is intended, namely, showing the use and application of the positive and negative signs.

Elementary Practical Geometry. London: Groombridge and Sons, 1852.

As the author of this useful little manual states in his announcement, it is one intended for the young workman, or for pupils in schools where *theoretical* geometry is not taught. It explains the more simple facts and operations in that science, which every person ought to know, in a manner essentially *practical*, most of the workings out being in accordance with the system currently recognised as the "rule of thumb." *Ex. gra.*—For drawing an ellipse, "stick two pins upright into paper on a board, a distance apart. Tie one end of a stout thread to each pin, but let the thread be very loose. Cut a notch as near as possible to the point of a pencil; put the thread into that notch, and mark round with the pencil, always keeping it upright, and the thread stretched. The less loose the thread is, the narrower the ellipse will be." This, however, alone would give a meaner notion of the book than it deserves.

Miscellanea.

British Mutual Life Assurance Society.—The report, read at the annual meeting of this Society on the 22nd, showed that during the past year the business transacted has exceeded that of any previous year, 261 policies having been issued, assuring 44,108*l.* 15s. Since the accounts were made up, 73 more policies have been issued, assuring 14,095*l.* 10s. making the gross total assured since the commencement of the Society, 258,244*l.* 4s. In addition to these, there are now 27 proposals for assurances, amounting to 7,599*l.* which have either been accepted and are not yet completed, or are under consideration. The deaths during the year have been but three, involving claims amounting to 600*l.* which were immediately admitted and paid; and it may be here worthy of remark, that of these three claims one was a case in which the assurance was effected to secure the repayment of a debt, and that, in the other two instances, the benefits resulted to the widows and orphans of the assured, and at a cost only of about 4*l.* 6s. 8d. per cent. upon the amount they received. It is an interesting fact that while the amount received upon policies which have become claims, and those which have been allowed to lapse is 3,887*l.* 10s. 11d. the claims paid, up to the date of these accounts, amount only to 3,498*l.* 19s. The subscription loan classes have been very successful. About forty of these classes are now in full operation: many thousands of pounds have been subscribed and lent out to deserving persons, as far as the directors are capable of judging, who have been greatly benefited by the advances they have obtained, while only a surprisingly trifling amount of loss by bad debts has been incurred. While a channel has thus been provided for the extension of business, in the shape of new policies, the Society has been enabled materially to aid the operations of the classes by way of loans, and it is believed that satisfaction has been given to all who have connected themselves with them.

Wages at Devonport Dockyard.—The smiths in the dockyard, whose pay was reduced by the late Board of Admiralty from 4s. 4d. to 3s. 6d. a day, have, by order of the present Board, had their original pay restored to them.

A "Commercial Credit Mutual Assurance Society."—A society for mutual assurance against bad debts is now in operation in the City. It is said to be based on principles similar to those which have already been in operation for some years in Paris. The society gives to the assured the full benefit of all the premiums; thus differing from a proprietary society raising a capital, and giving to shareholders, instead of the assured, all the profit arising therefrom. A reserved fund, however, is to be accumulated to a certain amount wherewith to aid assured in times of commercial pressure, and a premium fund for the reduction of future premiums to the previously assured. Any excess, every five years, is to be divided proportionably amongst the assured. The practical rules of the society are said to have been laid down with a view, amongst other purposes, to prevent fraud or improper speculation on the part of the assured, to restrict individual rights to mutual advantage, and to afford the assured information as to the commercial stability of traders throughout the United Kingdom.

Memphis and Nimrud.—At the Syro-Egyptian Society, on the 8th inst. a letter was read from Mr. Harris, of Alexandria, with an account of the French excavations in the neighbourhood of Memphis. There had been opened a gallery, tunnelled into the hills, 2,000 feet long, with cells on each side, each cell containing a huge granite sarcophagus of one of the sacred bulls. There were thirty of these great sarcophagi. Mr. Sharpe gave an account of Mr. Harris's new work on the standards of the Egyptian towns, containing the curious discovery of the list of towns contributing to the cost of each temple. Some of the standards Mr. Harris has been able to identify with the names of the towns. They are all arranged in geographical order, from Nubia to Memphis, and Sais in the Delta. Mr. Ainsworth read a paper by Dr. Grotefend, "On the Plan and Destination of the Edifices of Nimrud, according to the Specifications in Mr. Layard's Work." Dr. Grotefend's two papers entered largely into details concerning the destination of the various edifices and apartments of Nimrud, and developed the mythology of the Assyrians from a primeval worship of the starry hosts, with their golden chariots and their leaders, to Baal, the leader of the most perfect chariot, imaged in the well-known circles which are so variously modified.

A Revolving Wardrobe, says a contemporary, has been made by Mr. Johnston, of Gloucester. It can be made to contain any number of hooks from twelve upwards, on each of which a dress of any kind can be hung: by pulling a cord the whole of these revolve, so that the particular dress required can be at once removed without disturbing the others. Underneath is a space for hat or bandboxes, &c. which also revolves with the hooks. This seems to be just an adaptation of the idea of a revolving desk for business papers, &c. such as appeared at the International Exhibition.

Astronomical Observatory and Museum.—I take the liberty of suggesting to the enterprising class who read your journal, the propriety of supplying, what I have long thought to be a very great and remarkable want, among the public buildings of so renowned a mercantile country, viz. an astronomical observatory and museum, where that wonderful science might not only be taught and illustrated, but also practically pursued. I should think that Government would not refuse to contribute to the erection of such a building, or a site for it in one of our public parks, out of the reach of the vibration of passing carriages, or on Primrose-hill, if the passing of the railway trains through the tunnel there should not render that situation ineligible. They might even be disposed to found a college of astronomy, and in course of time it might become the custom of captains of merchant vessels to pass an examination there before they obtained the command of a ship of any consequence. Such an institution would do honour also to Liverpool and Bristol, and to others of our great seaport towns.

John Perceval.

Inauguration of the Wellington Statue.—The colossal statue of the duke, weighing about twelve tons, having been safely removed from Mr. Steel's foundry, and deposited and fixed on its pedestal in front of the Register House, Edinburgh, was inaugurated with great ceremonial, and in the presence of a multitude of people, on Friday last. The uncovering was somewhat appropriately accompanied not only by the firing of the Castle guns, but by thunder and lightning. The bronze of the statue, for the present, retains its natural bright colour, Mr. Steel preferring the slower tarnish of natural influences to the more rapid and blackening agencies of chemistry. The pedestal is of Aberdeen granite, and was designed by Mr. Bryce, architect. The removal was effected under the practical superintendence of Mr. James Gowans. The day of inauguration was a complete holiday in Edinburgh, and the inauguration was graced by a grand masonic and general procession, with military music and other holiday accompaniments.

The Metropolitan Association for Improving the Dwellings of the Industrious Classes has held its annual meeting at Willis's Rooms. Sir Ralph Howard presided. The Earl of Carlisle, Lord Robert Grosvenor, Viscount Ebrington, Earl Fitzwilliam, and several ladies of distinction, were present. The Chairman stated a number of facts which went to show that the affairs of the association are becoming remunerative, even in a pecuniary point of view. The gross rent from the buildings in Old Pancras-road have yielded a net balance, after deducting expenses, of 773*l.* 1s. 9d. being 19*l.* 12s. 4d. more than last year. The family dwellings in Albert-street Mile-end New Town, have yielded a similar balance of 523*l.* 4s. 11d. The chambers for single men, in the same street, have not answered so well, the net return being 137*l.* 2s. From the Soho Chambers the association derived a surplus available for interest on capital of 340*l.* 19s. 1d.; from the houses in Pleasant-row, 108*l.* 15s. 7d.; from those in Pelham-street, 134*l.* 19s. 10d.; and from those in Guy-street, Borough, 36*l.* 10s. The report speaks favourably of the progress made by the Ramsgate and Brighton branches of the association, and expresses regret that other towns have not availed themselves of the benefit which the association offers. The directors mean to confine their efforts for the present to providing dwellings for families.

Explosion at the Oxford Baths and Washhouses.—The jury on the inquest have given a verdict of accidental death, in which they say, "We are unanimously of opinion that the hot-water cistern should have been an open instead of an enclosed vessel, and that the escapement pipe and valve were too small for the purposes intended, and ineffectual in their operation. Having examined the building, we express our opinion, that its erection had been satisfactorily completed, and the foundations were found after the accident to be in a perfect state. The jury cannot separate without earnestly recommending to the committee that in the restoration of the baths and wash-houses they should adopt measures to reconstruct the machinery in accordance with the system adopted in many similar institutions in other parts of this kingdom."

City Improvements: Medal presented to Mr. R. L. Jones.—Several of the more influential members of the Corporation of London have presented to Mr. Richard Lambert Jones a gold medal, as a testimonial of their gratitude for the exertions made by him in introducing into the City of London a variety of improvements by which the city has been advanced, art encouraged, and health and commerce promoted.

Improvement of Holy Trinity, Rotherhithe.—The committee for improving this church having waited on Mr. Peter Rolt, the contractor, for a subscription towards the purchase of an organ, he offered at once to erect one at his own cost, and present it to the church, as a proof of the kindly feeling that he entertained towards the inhabitants of the district, with the greater part of whom he had been acquainted from his childhood.

THE NEW HOUSES OF PARLIAMENT.—The public will hear with some surprise probably, that Mr. Grissell, who has been engaged for so many years on the New Houses of Parliament, and is indeed identified with them as the builder, has lost the appointment. Tenders were obtained from Messrs. W. Cubitt and Co. Kelk, Jay, and others, which ranged, we believe, from more than 180,000*l.* to 153,000*l.*! and the tender of the last-named gentleman at the lowest of the sums will probably be accepted. Mr. Grissell declined to tender.

SAINT WILFRID'S NEEDLE, where, according to Burton, "they used to try maids whether they were honest," is not a stone, but a narrow passage in the crypt beneath the central tower of Ripon Minster. This crypt is of Saxon workmanship, and is probably either a part of the original church built by Saint Wilfrid, or "the new work," which, according to Leland—

"Odo, Archebishop of Cantewarbyri . . . causid to be edified, wher the Minstre now is."

This passage is said to have been used as a place of ordeal through which maidens of suspected honesty were caused to pass,—a feat which none but a virgin could accomplish.—K. P. D. E.—*Notes and Queries.*

LETTING OF METROPOLITAN ROADS.—A residue of lots left over to enable the commissioners to lower the rents of the Exhibition year, as clamorously required by the old lessees and others, have just been let by auction; when, according to the *Morning Advertiser*, they realized, on the average, rents considerably higher than those of that year! The chairman, Earl of Lonsdale, put up in one lot the first and second districts, comprising the Kensington, Brentford, and Isleworth roads, at 15,450*l.* (old rent 15,890*l.*) Mr. Lewis Levy (of the Stock Exchange, and head of a toll contracting firm) bid at once 15,600*l.* and after a spirited contest, his lordship knocked the lot down to Lewis Levy, for 16,530*l.* The tenth district (City-road), was put in first at 3,150*l.* (old rent 3,200*l.*) but from violent complaints that this sum was much too exorbitant, his lordship consented to put it up without reserve, at 3,000*l.* and the lot let for 3,240*l.* to the old lessee, Mr. J. T. Bolton. The last lot the New North-road, put up at 650*l.* (old rent 780*l.*) produced 830*l.* During the whole of the letting, adds the *Advertiser*, the recriminations of all the contending parties were boisterous and continuous.

VENTILATION OF THE HOUSE OF COMMONS.—On the 15th inst. in the House, Mr. Hindley asked the Chief Commissioner of Works what course the Government intended to pursue in reference to the report and recommendation of the committee on the ventilation and lighting of the house; and whether Dr. Reid is to be restored to the position he occupied before 1846, and to have the charge of ventilating and lighting the house and its appurtenances under the supervision of the Chief Commissioner of Works, assisted by a committee of observation, to be appointed annually by the House, in order to report their opinion as to the way in which the management is conducted? Lord John Manners replied that the opinion of the Government was that the recommendation of the committee was a wise and prudent one, and he believed they had every disposition to carry that recommendation into effect. With regard to the appointment of some competent person, he was not at present in a position to state who the person was likely to be: at the same time they were of opinion that the system of ventilation suggested by Dr. Reid had not received that amount of fair play which would enable the House to judge of it properly. It would be unjust to Dr. Reid to refer to the matter without saying so much in his behalf.

SEWER INVERT BLOCKS.—In THE BUILDER of the 12th inst. you published an engraving of Doulton's Registered Sewer Invert Block, but no mention is made of prices. I suggested nearly six years ago, to the Corporation of Chester, sewer blocks of similar construction, but the great expense attending them was the obstacle to their introduction.—B. BAYLIS.

THE OXFORD ARCHITECTURAL SOCIETY.—A meeting of this society was held in the Society's Rooms, Holywell, on Wednesday week. A description of the churches in each of the places visited lately during an excursion, namely, Didcot, Stamford, Baulking, Uffington, Sparsholt, and Childrey, was read by Mr. Parker. The Rev. J. E. Millard, Magdalen College, read some notes of a visit to some of the principal towns of France,—viz. Abbeville, Amiens, Beauvais, Paris, Rouen, Caen, Bayeaux, St. Lo, and Cotance. The Rev. O. Gordon, of Christ Church, called the attention of the Society to a project for the improvement of the buildings of Oxford in 1773. The great object of the author of the proposal seemed to be to disengage and throw open the University buildings. The paper was received by the audience with manifestations of great amusement. The thirteenth annual meeting of the Society was to be held on Monday last, when a paper was to be read by the Rev. William Sewell, B.D. Exeter College, Vice-President, on "The Application of Plato's Theory of the Beautiful to Gothic Architecture."

GRAND MODEL OF EUROPE.—It has been proposed by the Abbé Moigno, a scientific writer of some note, to establish in the Bois de Boulogne, at the gates of Paris, a model in relief of Europe, with all its towns, cities, rivers, lakes, railways, mountains, and forests. This singular model would occupy several acres. The expense of forming it would, it is admitted, be enormous; but that, the Abbé contends, is an unimportant consideration, compared to the instruction it would afford not only to youth, but to people of all ages and professions, and to the striking addition it would prove to the curiosities of the *grande ville.—Literary Gazette.*

DRAINAGE OF CARDIFF.—A difference of opinion on the subject of pipe drainage has arisen at Cardiff in consequence of the recent discussion at the Institution of Civil Engineers, and conflicting facts and reports urged on either side of the question; the result of all which, so far as regards Cardiff, is the risk of its being left without any drainage at all.

SETTING OUT LAND.—Mr. James Wylson, in connection with the National Freehold Land Society, has published a very useful Table, shewing the required length of a plot of land of any given width, from 1 foot to 100 feet, to contain an acre or any aliquot part, or showing what part of an acre is contained in any given lot embraced by these limits.

KING'S COLLEGE HOSPITAL.—The first stone of the new building was laid on the 17th. It will occupy a site bounded by Portugal-street, Carey-street, Grange-court, and St. Clement's-lane, including the disused burial-ground of St. Clement's parish. Mr. Bellamy is the architect; Messrs. Holland the builders. We may give some particulars hereafter.

ELECTRICITY IN WHALE CAPTURE.—The whales, it appears, are about to be astonished not a little by a new Yankee contrivance, whereby the labour and risks of long chase in their capture will be superseded by more rapid manœuvres. The *New Bedford* (U.S.) *Mercury* gives an account of some experiments in illustration. "Every whale," it says, "at the moment of being struck by the harpoon, is rendered powerless, as by a stroke of lightning, and, therefore, his subsequent escape or loss, except by sinking, is wholly impracticable; and the process of lancing and securing him is entirely unattended with danger. The electricity is conveyed from an electro-galvanic battery in the boat, by means of a metallic wire attached to the harpoon, and so arranged as to reconduct the electric current from the whale through the sea to the machine. The machine itself is enclosed in a strong chest weighing about 360 lbs. and occupying a space in the boat of about 3½ feet long by 2 feet in width, and the same in height. It is capable of throwing into the body of the whale eight tremendous strokes of electricity in a second, or 950 strokes in a minute, paralyzing in an instant the muscles of the whale, and depriving it of all power of motion, if not actually of life."

CEMENT CONCRETE HOUSES.—A correspondent says, at East Cowes, Isle of Wight, the gravel on the spot has been advantageously turned to account, by building a pair of cottage villas entirely of concrete, composed of one part of Francis's Medina Cement mixed with six parts of coarse gravel, and two of hoggin or coarse sand. The walls are carried up, as well as the chimneys, by fixing two or three boards vertically, and filling in the concrete between, about 12 to 14 inches thick, by which method, in consequence of the quick setting of the cement, the walls are carried up and the boards shifted within three or four hours after the wall is built. Even the arches are all formed with it, and no bricks are used. This cement, which is manufactured on the island by Messrs. Francis, is largely used in the works at Dover Harbour.

TENDERS

For Congregational Church, Rochester, Kent: Mr. Tarring, architect. Quantities furnished.

Clements and Son	£4,215	10	0
Robins and Sons	4,093	3	1
Walter and Sutton	3,897	17	0
Myers	3,468	0	0
Naylor	3,406	10	0
Brass and Son	3,356	0	0
Harris and Co.	3,329	0	0
Hopkins and Son	3,124	0	0
Foord and Sons	3,027	0	0

For finishing thirteen fourth-rate houses, Brake-road, Dalston: Mr. Tatlock, surveyor.

Groome	£1,465	0	0
Hockin	1,148	0	0
Park	1,020	0	0
Dent and Co. (accepted)	987	0	0
Warren	650	0	0!

For finishing seven houses at Poplar, for Mr. Lynes.

Carter	£1,610	0	0
Chapman	1,575	0	0
Hilton and Jones	1,552	0	0
Harmer	1,480	0	0
Dent and Co.	1,470	0	0
Pormer	1,427	0	0

For the reconstruction of a carcase for an intended public-house at the corner of Hornsey-road and Seven Sisters'-road: Mr. Septimus Hoskins, architect.

Norris, Camden Town	£1,465	0	0
Richards, ditto	1,286	0	0
Scott and Cornwall, Shoreditch	1,119	0	0
Radford, Camd. Town (accepted)	1,075	0	0

For a new police station at Reigate, Surrey, for the magistrates of the county, under the direction of Mr. Lapidge. Quantities not furnished.

Bachelor, Betchworth	£1,598	0	0
Loe, Guildford	1,567	0	0
Reeves, Reigate	1,560	0	0
Loe, Chertsey	1,542	10	0
Thornton, Reigate	1,535	0	0

For a Mansion for Mr. Douglas Jerrold, at Barnes, Surrey. Mr. T. Allom, architect.

Airs	£1,710	0	0
Carter and Ellis	1,477	0	0
Mills (Egham)	1,382	0	0

TO CORRESPONDENTS.

"Q. E. D." (MS. seems still incomplete: the folios are marked 1, 2, 3, 4, 9, and 10. Plan is engraved). "E. H." (thanks for kind offer), "W. A. P." "C. J." "R. H. D." (see last No.), "Unsuccessful" (under our mark), "T. P." "W. P." "G. T. J." (will appear), "W. M. B." (ditto), "C. L." (thanks), "J. B." City, "B. B." "O. P. E." "L. C. H." "J. D. P." (we have before now mentioned it), "R. E." "W. M." "Mr. B." "B. A." "W. J." (it is contrary to our custom to point out books. Apply to an architect), "T—s." (we might commit injustice by answering the question on an *ex parte* statement), "T. C. H." (the patentee of the electric light would doubtless undertake it), "No Architect," "Mr. M." "W. M." "G. L." "T. D." "J. H." "P. B." (in Vol. V. p. 196 of THE BUILDER will be found an article on the proper construction of lightning conductors. There are various other notices, to which we have not time to refer: see, however, p. 307 of the current volume, on the Influence of Magnetised Steel at the Point of a Conductor), "T. N." (under our mark), "R. E." (we do not know of any account of the houses in question).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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½-inch ditto	13	0		½-inch ditto	12	6

140 feet run of 9-inch boards to the square, and 180 feet run of 7-inch battens to ditto.

Timber, Planks, Deals, Battens, Scantling, Sash-sills, &c. at equally low prices.

TERMS CASH. Saint Pancras Sawing, Planing, and Moulding Mills Cambridge street, Old Saint Pancras-road, close to the Goods Terminus of the Great Northern Railway.

BRITISH ASSURANCE COMPANY,

2, King-street, Cheapside.

Chairman—SYDNEY SMIRKE, Esq. R.A.

The rates for both Fire and Life Assurance are as low as can with safety be taken. The premiums for Life Assurance made payable to suit the convenience of the assured. Prospectuses and all particulars may be had at the head office, or of any of the agents. JOHN REDDISH, Manager

THE WESTMINSTER and GENERAL LIFE

OFFICE, at the WESTMINSTER FIRE OFFICE, 97, King-street, Covent Garden, London.

TRUSTEES.

George Dodd, esq. M.P. Colonel W. H. Meyrick.
Geo. Mercer Henderson, esq. Joseph Wm. Thrupp, esq.

The rates of premium for assurances, either participating or not participating in the profits of the Association, are as low as is consistent with security.

The additions made to the sums assured by policies which have participated in the three divisions of profit declared in 1843, 1847, and 1852, have averaged one-half of the premiums paid on them.

Every restrictive condition of assurance, not absolutely necessary for the security of the office, has been withdrawn from the policies.

Every facility offered to persons about to effect assurances on lives, and any information that may be required on the subject of life assurance, can be obtained on application at the office.

W. M. BROWNE, Actuary.

Agents required in the principal country towns.

MERCHANT'S & TRADESMAN'S MUTUAL

LIFE ASSURANCE SOCIETY, 5, Chatham-place, Blackfriars, London, and all the principal towns in the kingdom.

TRUSTEES.

John Macgregor, esq. M.P. David Fergusson, esq.
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ADVANTAGES OFFERED BY THIS SOCIETY.

Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

NON-FORFEITURE OF POLICIES.

Assurers unable, or who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.

Loans granted on personal and other securities, in connection with life assurance.

The directors, being desirous of extending the agencies in and round the metropolis and throughout the provinces, are ready to receive applications from influential and active persons, accompanied with a reference. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

CLERICAL, MEDICAL, and GENERAL LIFE

ASSURANCE SOCIETY.

Persons of all ages, and in every station, may assure with this Society, and the assured can reside in any part of Europe, the Holy Land, Egypt, Madeira, the Cape, Australia, New Zealand, and in most parts of North and South America, without extra charge.

FIFTH DIVISION OF PROFITS.

The FIFTH BONUS was declared in January last, and the amount varied with the different ages, from 24½ to 55 per cent. on the premiums paid, during the last five years; or from 1l. to 2l. 10s. per cent. per annum on the sums assured.

The small share of profit divisible in future among the shareholders being now provided for, without intrenching on the amount made by the regular business, the Assured will hereafter derive all the benefits obtainable from a Mutual Office, with, at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital thus combining, in the same office, all the advantages of both systems.

A copy of the last report, setting forth full particulars, with a prospectus, can now be obtained of any of the Society's agents, or by addressing a line to

GEO. H. PINCKARD, Resident Secretary.

99, Great Russell-street, Bloomsbury, London.

PHŒNIX FIRE ASSURANCE COMPANY,

Lombard street, and Charing-cross, London.

Established in 1782.

TRUSTEES AND DIRECTORS.

SIR ROBERT HARRY INGLIS, Bart. M.P.

Decimus Burton, esq. James Horne, esq.
Octavius Edward Coope, esq. John Dorrien Magens, esq.
William Cotton, esq. J. Masterman, esq. M.P.
William Davis, esq. John Petty Muspratt, esq.
George Arthur Fuller, esq. Richard Price, esq.
Emanuel Goodhart, esq. George Henry Repton, esq.
James A. Gordon, esq. Benjamin Shaw, esq.
Henry Grace, esq. Charles Hampden Turner, esq.
Joseph Owen Harris, esq. Matthew Whitbread, esq.
Kirkman Daniel Hodgson, esq. Thomas Wilson, esq.
Thomas Hodgson, esq.

ASSISTANT DIRECTOR—Thomas Richter, esq.

AUDITORS.

John Davis, esq. John Hodgson, esq.
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SECRETARIES.

Wilmer Harris, esq. George William Lovell, esq.

DIRECTORS.

ARCHITECT AND SURVEYOR—John Shaw, Esq.

SOLICITORS.—Messrs. Dawes and Sons, Angel-court.

Insurances against Loss by Fire are effected by the PHŒNIX COMPANY upon every description of Property, in every part of the World, on the most favourable Terms.

Persons insuring with the PHŒNIX COMPANY are not liable to make good the losses of others, as is the case in some offices.

Insurances with this Company expiring at Midsummer must be renewed within Fifteen days thereafter, or they will become void.

Receipts are now ready at the principal offices, Lombard street and Charing cross, and with the re-pective Agents throughout the United Kingdom.

PROVIDENT LIFE OFFICE, 50, REGENT-

STREET; CITY BRANCH: 2, ROYAL EXCHANGE BUILDINGS. Established 1806.

Invested Capital, £1,311,761.

Annual Income, £153,000. Bonuses Declared, £743,000.

Claims paid since the establishment of the Office, £3,067,738.

PRESIDENT.

The Right Honourable Earl GREY.

DIRECTORS.

William Henry Stone, esq. Chairman.
Henry B. Alexander, esq. Deputy-Chairman.

Henry Bicknore Churchill, esq. Benjamin Oliviera, esq. F.R.S.
George Dacre, esq. William Ostler, esq.
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Sir Richard D. King, bart. George Round, esq.
The Hon. Arthur Kinnaird, M.P. The Rev. James Sherman.
Thomas Maugham, esq. Frederick Squire, esq.
J. A. Beaumont, esq. Managing Director.

PHYSICIAN John Maclean, M.D. F.S.S. 29, Upper Montague-street, Montague-square.

Nineteen-twentieths of the profits are divided among the insured.

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£. s. d.	£. s. d.
1806	2,500	79 10 10 extinguished.	1,922 2 6
1811	1,000	32 19 0 ditto	231 17 8
1818	1,000	44 18 10 ditto	114 18 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
521	1807	900	982 13 1	1,882 13 1
1174	1810	1,200	1,160 5 6	2,360 5 6
3392	1830	5,000	3,358 17 8	8,358 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

REDUCED PRICES.—EDWARD SIMMS

(late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1½ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

PREPARED FLOORING.—ALFRED

ROSLING begs to call the attention of Builders and Consumers generally to his STOCK of BOARDS, prepared in the best possible manner, and fit for present use; their superiority to the floor-boards generally sold being sufficiently evinced by the greatly increased demand. A. ROSLING is in a position to offer every description of Baltic and other deals imported into this country at the lowest possible price consistent with fair trading; and begs to solicit the orders of those who have not as yet favoured him, feeling assured he can offer them advantages which they will appreciate. Southwark-bridge Wharf, Bankside.

T. ADAMS, MAHOGANY and TIMBER

MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD, Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 500 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A. continues to offer all the advantages as stated in his previous advertisements.

TO BUILDERS AND OTHERS.

SEASONED WOODS, by the Patent Desiccating

Process, FOR SALE, at E. J. FULLER'S Depôt, 27, Wharf-road, City-road.

ENGLISH and FOREIGN TIMBER and

DEALS, of any length and scantling.

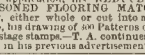
Oak and Ash, from 3s. 6d. to 3l. per foot cube; Sash Sills, 3d.

1 inch Yellow or White Batten Floor boards, prepared, 12s. 6d. to 14s. 6d. per square. 1 inch ditto, 16s. to 17s. 6d. per square.

Yellow Deals, from 2s. 9d. to 4s. each. Plank, from 21l. per hundred.

Dantzig Timber, from 52s. 6d. per load, and all other descriptions at equally low prices for cash.

Apply to Mr. MAY, 90, Leadenhall-street.

MUIR'S PATENT  PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANKS, DEALS,

and BATTENS, &c., sawn on the most approved principle; Boards, &c., prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING

COMPANY, TIMBER WHARF,
SAWING, PLANING, AND MOULDING MILLS,
Belvedere-road, Lambeth, near Waterloo bridge,

are prepared to supply timber and deals, &c. cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c. from the company, will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, &c. with the accuracy and despatch which must insure satisfaction.

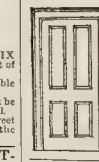
The moulding list, containing nearly 300 diagrams, with prices attached, may be had at the office, or shall be forwarded on receipt of six postage stamps (the amount of the postage thereon).

LAWRENCE and SON, Carpenters and Sash

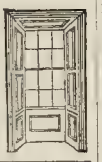
Makers, REMOVED to No. 1, Brook-street, New-road, near Tottenham Court-road.

SANDS and EMERY, ROBERT-STREET,

BEDFORD ROW.



Sashes and Frames, Shop Fronts, Doors, and all other kinds of Joiner's Work supplied on the Lowest possible Scale of Prices. Wainscot and Mahogany Work done in the best manner, and French Polished; Shop and Office Fittings on the shortest notice; Glazed and Polished Goods securely Packed for the Country.



By inclosing a postage stamp, a full List of Prices will be returned.

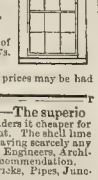
COLLAN KELLY and SON, Sash, Shop Front,

and Door Makers to the Trade, beg to inform their customers and the public generally that they are now prepared to supply their goods lower than any other house in the Trade.

2, ARTHUR-STREET, and NEW OXFORD-STREET, and COAL-YARD, DRURY-LANE, BLOOMSBURY.



C. K. and Son have a quantity of 4-framed square doors on stock at 7s. each.



N.B. By inclosing a postage stamp, a full list of prices may be had by post.

GREAVES'S BLUE LIAS LIME.—The superio

manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction continues to be given to Engineers, Architects, and Contractors, of the above, is its best recommendation.

Orbs, Canning, and Co's Blue Vitrified Bricks, Pipes, Junctions, Bends, and Traps.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS CEMENTS of the best quality.

SECONDS, TAVIES, STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

GREY-STONE LIME.—HALL, BROTHERS,

Mersthan Lime Works, near Reigate, beg to offer to Builders and others a list of their prices for Cash on delivery.

Grey-Stone Lime	6s. 0d.	per Yard, or 22 Bushels.	
Ditto, for Manure.....	4s. 0d.	ditto	ditto
Ditto, Ashes	1s. 6d.	ditto	ditto
Black ditto	3s. 0d.	ditto	ditto

In not less than Six Yard quantities, and put on the Railway for all goods stations on the London and Brighton and South-Eastern Railways, or lines connected with them. A fresh supply, hot from the kilns daily, at the Bricklayers' Arms and Croydon Stations, and delivered to all parts.

Price, for Cash on delivery: 7s. per yard at the stations or works; 8s. per yard delivered within five miles; in not less than 3 yard quantities. Booking, 2s. per yard; 1s. per yard off, if paid monthly. Collecting charged for. The quality is warranted to be the best.—Address, Mersthan, near Reigate, Croydon; or Youl's place, Old Kent road.

THOMAS FREEN and CO. LIME BURNERS,

Wouldham-on-the-Medway. Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal-road, Kingsland-road; Queen's Wharf, Great Cambridge-street, Hoxgerstons; or King's Wharf, New Wharf-road, Battle-bridge. N.B. Laths, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c. &c.

PARIAN CEMENT for internal use, to be

PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

GEORGE and THOMAS EARLE,

CEMENT MANUFACTURERS, HULL.
Light and Dark equal to any made.
Also, Manufacturers of PLASTER, MASTIC,
Importers of MARBLE and PIZZOLANA.
Dealers in Slates, Slabs, Hair, Whiting, &c.

ROMAN and OTHER CEMENTS,

Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

ATKINSON'S CEMENT, so long known and

esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank street, Westminster; and Seed-street, Liverpool.

KEENE'S and PARIAN CEMENTS and

FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because

the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is unaffected by frost. As a mortar to brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seed-street, Liverpool.

PORTLAND CEMENT, in Casks of Four

Imperial Bushels QUANTITY NOT WEIGHT, BEING THE STANDARD—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

PORTLAND CEMENT.—The difficulty of

procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharf in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT.—JAMES WESTON,

having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT WORKS, NORTH-

FLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured. Orders received at the Works, and at Great Scotland-yard, Whitehall.

March, 1852.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES

RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality a desideratum never before attained in Portland Cements. It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

MEDINA (ROMAN) CEMENT.—The

material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and harden under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the eastern pier of the Suspension Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The incontrovertible evidence of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. FLUDER, American Wharf.

PERMANENT STUCCO WASH,

WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, specimens, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 23, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA,

CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

The Builder.

No. CCCCXCI.

SATURDAY, JULY 3, 1852.

NO proof need be given to establish the truth of the assertion, that the furniture and decoration of our houses require improvement, an improvement which becomes the more difficult, inasmuch as our children, brought up amidst vagaries of the vilest taste, are reconciled by habit to ugliness and incongruity. The evil thus perpetuates itself. It is impossible to deny that a movement in a right direction has been going on for some time; but in these matters we are so greatly dependent on others that little has been effected. We cannot select proper hangings or furniture, if there be only bad to choose from: the manufacturer cannot produce good designs if the public will buy only the bad. The third lecture delivered at Marlborough House, by Mr. Owen Jones, was devoted to an examination of this subject, and we will endeavour to give our readers the substance of the discourse, interspersing such objections or remarks as may occur to us. They will, therefore, consider that it is the lecturer who is speaking, excepting where otherwise pointed out. Nothing is more common, said he, with reference to the difficulty just now alluded to, than when you go to an upholsterer's, and ask to see a carpet or other article of furniture, for the upholsterer to say to his assistant, "Bring me down No. 90, Lord A.'s carpet;" and if you object that it does not appear to you to possess any especial recommendation for good taste, he will reply: "I assure you it is most fashionable. It is Lord A.'s own design, and we have laid it down at this part and that part; and only yesterday it was chosen by Lady Emily B." These arguments are generally conclusive with customers who may not have any decided opinion of their own; or, on the contrary, a very strong one, and end by choosing something considerably worse. So the original error of Lord A. is perpetuated, and gives birth to abortions still more monstrous; and the next time Lady Emily B. has to choose, she has to choose a little lower down the scale, which she has herself helped to make sliding.

Mr. Babbage suggests, in his "Bridgewater Treatise," that as every word we utter causes certain vibrations in the air, which can never stop, but are continued through all eternity, it might possibly be one of the torments of the wicked in that place which is said to be reserved for them hereafter, that their sense of hearing should be so sharpened, that all the wicked words they had ever uttered might be continually sounding in their ears. It would be useful if Lord A. and Lady B. and all who follow after them, would act in future as if some such fact were possible with regard to sight. We should be very glad if they would act as if they might be condemned hereafter to have a Great Exhibition of their own of all the works of their choice and their unhappy results. Let them at least remember, that the evil which men do lives after them. A man may do as much harm to society, by building a house in bad taste, decorating a shop with unsightly sign-boards, and filling its windows with productions vicious in form and colour, as by openly violating some at least of the laws which society has established for regulating the morals.

Children born in an age of ugliness like the present cannot hope to have their instincts quickened for the beautiful, but, on the contrary, the natural instinct will be extinguished, and will no longer be born with them.

We can each do much towards at least putting our own house in order. Reform should begin in your nurseries: all those hideous papers which decorate your nursery-walls, and those ungainly toys which serve to amuse your children, but educate them downwards, must at once be banished. The moral influences received in childhood are well known as the most lasting: many men through life have but little more of faith than the remnant of what they gained upon their mother's knees, which the friction of their school days and after-life may enfeeble, but can never thoroughly eradicate.

Instead of endless repetitions of views of the Crystal Palace, men and horses standing on each other's heads, steamers floating on each other's masts, all over your nursery walls, we will ask of you to take care that none but pure forms shall be permitted to enter within those walls where the rising generation (to whom the future destinies of this great country will one day be committed) are born and bred. And when your children descend to your drawing-room take care (if not for yourselves, at least for them), that the influence thus happily commenced may be continued; so that although you cannot control the evil influences of ungainly forms, which their daily walks in the streets may give, you may prepare for them a shield to guard them, and they may daily return to their own homes with a growing sense of beauty and refinement.

Let us here mention, in a parenthesis, without making the lecturer responsible for the statement, that we have found the children of the Sovereign at nine in the morning at the Museum of Practical Art; and on another occasion, at the same hour, amidst the Elgin marbles,—not the only wise hint to the mothers of England to be found in the highest place. Accustom your children to find beauty in goodness and goodness in beauty.

The lecturer then spoke of the paper stainer. The art has been very much neglected in this country, and, indeed, is but little better in France, at least, as exhibited in its productions which are imported into this country. They exhibit the same vicious principles which are to be found everywhere in those of our own manufacture, but are much more perfect in execution, so that we have a false principle under the most pleasing guise: we have vice under the mask of virtue, but only the more hideous on that account. He maintained that one of the first principles to be attended to in adorning the walls of an apartment is, that nothing should disturb their flatness; yet it is very difficult to find a paper that does not in some way violate this rule: they are either large masses of conventional foliage in high apparent relief, surrounding masses of unbroken colour, or representations of flowers, fruits, and ribbons, twisted into the most unwarrantable of positions. Nothing is more common than to find strawberries and cherries, or other equally impossible combinations, growing on the same stalk; and although great pains are taken to make the flowers and fruits as much like nature as the paper-stainer's art can make them, it only increases the inconsistency. Strawberries do not grow on walls, but on the ground; and although roses may be trained over walls, they are not endless representations of the same bunches, nor are they interlaced with satin ribbons.

All direct representations of natural objects in paper-hangings should be avoided; firstly, because it places these objects in unseemly positions; secondly, because it is customary in almost every apartment to suspend on the walls pictures, engravings, or other ornamental works, and therefore the paper should serve as a background, and nothing on it should be obtrusive or advancing to the eye.

Diaper patterns in self tints are safest for this purpose; but when varieties of colours are used, the Oriental rule of so interweaving the form and colour that they may present a neutralized bloom when viewed at a distance, should never be departed from.

The prevailing colours of the walls of rooms hung with printed paper should, of course, vary with the character of the room and the aspect. Halls and staircases look well hung with green, because the eye on entering a house is generally fatigued by the strong glare of daylight, and the green is the most refreshing. Studies and dining-rooms look well with dull reds in diapers or flocks, which may be enriched with gold: these form good back-grounds for engravings or pictures; but the reds or greens must never be positive colours, but low-toned and broken, so as not disagreeably to impinge upon the eye. In drawing-rooms, where the papers have to do more towards furnishing and beautifying a room, they may be more gay: almost any tone and shade of colour heightened with gold may be used, provided always that the colours are so arranged, and the forms so interwoven, that a perfect balance be obtained, and the eye never attracted to any one portion. Instead of floral-patterned papers for bed-rooms we should choose a paper of very low-toned secondaries or tertiaries, and on it we would suspend a fine engraving from the old masters, or other work of art, as perfect as our means would allow: this would enliven the room and furnish contemplation for the mind when feverish or restless.

In treating of the house painter, the lecturer showed himself tolerant in respect of imitations of woods and marbles, maintaining as a proposition *that they are allowable only when the employment of the thing imitated would not have been inconsistent.*

The upholsterers exercise more influence, both for good and evil, over the taste of the present day than any other persons. Unhappily the furnishing of our houses has been handed over to them by those whose duty it is to make this question their own. The architect has abandoned, to inferior and unguided hands that which was his especial province.

The first and most important rule in the selection of furniture is that it should be fit for the object to which it is applied: that which is appropriate in a mansion would be misplaced in a cottage.

The use in all cases should define the form. All ornamentation should grow out of and never interfere with the general form. There

should be no ornaments constructed or added on with no reason for their existence but caprice or a desire on the part of the upholsterer to give the customer as much wood as possible for his money.

All ornamentation in direct imitation of nature, such as elaborate carvings of bunches of fruits, birds, or flowers, Mr. Jones thinks, should be avoided, because, as in paper-hangings, they place these objects in unseemly positions; and, moreover, direct imitation of nature in a material not her own, can never give lasting satisfaction. A bunch of fruit or the feathers of a bird carved in wood on a piece of furniture may attract for an instant from the sense of difficulty vanquished, but can give no permanent pleasure, such as we derive from an idealized representation.

Light woods will admit of more carving than dark woods, which should be more simple, and depend more on general form and outline.

The same rule holds good with chimney-pieces. A chimney-piece in statuary marble admits of a much higher amount of ornamentation than chimney-pieces in dark or strongly veined marbles.

As to curtains, it is a general custom to make the curtains the same colour as the covering of the furniture, but this is not necessary, and it may sometimes be advisable not to do so, viz. when the amount of colour produced by the curtains and furniture together would give too much of that particular colour. As a general rule the covering of the furniture should be of a darker tone than the curtains,—this because the curtains are seen against the light,—and have the colour still further deepened by shade in the folds, whilst the furniture receives the light more directly, and would consequently be too prominent.

When the walls are rich and elaborate in pattern the curtains should be more simple: when the walls are quiet and retiring the curtains may be more rich.

The patterns of curtains should be such as will not suffer by being folded, and at the same time will look well when drawn: all shaded patterns, or patterns with strongly marked horizontal lines, are therefore inconsistent, as are also groups of natural flowers, which must be broken by the folds.

Diaper patterns, on the principle of the Chinese silks, are safest, or plain colours of velvets, which hang in large and rich folds.

With the lecturer's utter condemnation of floral patterns, whether on walls, hangings, or furniture, we are unable wholly to agree. We do not recognise so strongly as he does "the inconsistency of sitting on (the representations of) nosegays and inoffensive puppy dogs," however disinclined we may be to scrunch the realities. Floral patterns have been grossly abused, but we cannot afford to deny them to the hand of taste and knowledge for proper application.

On entering a man's house a visitor should be impressed with the station, and in some measure with the taste and character, of the occupant. A mean or neglected hall will impress a visitor more unfavourably if the rest of the house is grand and luxurious. The interest should be in a regularly ascending scale from the hall to the study, from the study to the dining-room, and from this to the drawing-room. Never make all your show, like Richardson's at the fair, on the outside.

These transitions, like all changes of form or of colour, must be gradual—there must be no sudden jumps.

Halls and staircases, as we have said, should be cool and refreshing, and with no simulated grandeur in the shamming of costly marbles, which the whole fortune of the occupant would not purchase. The dining-room should be so arranged as not to appear too hot in summer, nor too cold in winter; but as our winters unfortunately are longer than the summers, it is safer to lean to the warm side.

To his injunction "never convert your dining-rooms into picture-galleries, but if you are rich enough build one for the purpose," we demur. Those who are not rich enough to build a gallery must not deny themselves the advantage of contemplating works of art.

The walls should be quiet and subdued. The ceilings of dining-rooms may be more elaborately decorated than any other portion of the room, as your guests will at table have more convenience for examining them.

The study should be what its name implies, but as it is the master's own room, we may leave him to do what he likes with it, and only hope he will not make it a *growlery*.

The decoration of drawing-rooms admits of such infinite variety, that it is difficult to do more than give some general rules for producing a harmonious effect.

The general tone to be given to the room depends largely on the fortune of the occupier, the quantity of light, and the aspect. It may either be given by the walls, or curtains and furniture.

Whenever colour is used in masses, it must be broken either in shade or in light. You may have large masses of pale blue, because the white in the blue helps to give repose to the eye: so you may have large masses of purple red, as shade here gives the same repose; but pure blue or pure red must be used in very small quantities.

The recognition of the law that three parts of yellow will neutralise five parts of red and eight parts of blue, will be of essential value in bringing the whole together. The walls of drawing-rooms, whether hung with satin or with paper, should be flat. Elaborate panel papers, such as are now the fashion, should be avoided from their violation of this rule.

Painted walls, unless painted by a Raphael, which they never are, rarely can be so arranged as to afford permanent pleasure. We think it best to adopt plain elegant diapers formed in panels if the arrangement of the room permits it, with margins of plain colour in paint separated by gold mouldings. The ceilings and cornices may be elaborately ornamented, allowing always blue and white, or *pale blue*, largely to *predominate*.

Of carpets, the modest Kidderminster rarely goes wrong, because it cannot: it has to deal with but two colours, and consequently much mischief is beyond its reach. The Brussels carpet, which deals with five colours, is more mischievous. The tapestry carpets, where the colours are still more numerous, is vicious in the extreme; whilst the recent invention of printed carpets, with no bounds to its ambition, has become positively criminal.

We cannot, however, give more space to the subject now, interesting and important as it is, and ably as it was treated, further than to say that what we want is, that every man, and woman too, should have the eye so educated that they may see correctly, and the mind so informed that they may distinguish good from bad. An ignorant public fill the manufacturer's stores with bad designs, and these in their turn serve to keep the rising generation in the same state of error and confusion.

ARCHITECTURE CONSIDERED AS EVIDENCE OF SOCIETY.

How frequently do we hear the assertion made that the architecture of the present age is deficient in style, is wanting in character; that it possesses no general or peculiar principle whereby to characterise it in after times. But is this assertion true? Does it arise from thoughtful conviction, from well-directed contemplation, or is it merely the remark of individuals unpossessed of either observation, perception, or reflection?

The subjoined observations may perhaps tend to show what degree of credibility may be attached to the assertion, and whether its basis is firm or unsound; for how often do we find a subject which on analysation presents only a mass of rottenness and falsehood, covered with the veil of apparent truth; how often is a deep-laid scheme of villany and depravity sealed with the external impress of candour only the more easily to deceive its victim, the more fatally and surely to hurl him to destruction; in short, as the great bard of humanity has it—

"There is no art
To read the mind's construction in the face."

Nor should we be prepared to admit a seeming truth upon so slight an authority or without a due and careful examination. We, therefore, propose, in order to put the question in its broadest light, and the more fully to investigate it, to subdivide the history of architecture into a series of types or ages, giving, as far as we are capable, a slight sketch of each individual type as connected with the social and moral attributes and condition of its epoch, and to endeavour to trace thereby the advance of each successive period, begging indulgence at the same time for the unavoidable generalisation which the nature of the subject and want of space alike demand.

In the primitive ages of architecture, when the increasing intelligence of man had implanted in him the desire to advance his condition, and to extend the sphere of his comforts; when his intellectual development, rude, but true to the nature of its gift, and in accordance with the view of its Divine Giver, progressive and onwards in its tendency, urged him to seek some habitation more secure and suitable to his condition than the imperfect shelter which the gloomy recesses of some rocky cavern, or the hollowed bosom of an aged tree could afford; the habitation he then constructed, composed probably of branches interlaced and besmeared with mud and clay to guard him more effectually from the inclemency of the weather, though rude to a degree, and perhaps little more comfortable than his primitive abode, was still in advance of that, a marked sign of extended intellect, and concomitant increasing desire, a progressive forward step, since it rendered him independent to a certain extent of locality, taught him to rely more on his own power and ingenuity, and less on accidental effects; rendered him less the creature of circumstances, and more their creator; taught him to make use of the noble though undeveloped faculties with which he had been gifted, and to make nature in some repects subservient to his requirements. In this homely branch-built, mud-bedaubed hut, constructed alike in the earlier ages of the world, as by untutored savages of wild and uncivilised regions of our own day, from the exercise and influence of similar conditions resulting in similar effects;—in this simple abode, the combined effect of primitive necessity and ingenuity, rearing its rude form in some lonely glen or on some dreary wild of the then thinly-populated earth, according as its locality offered advantages for the chase, the sole means of subsistence of a race of beings yet barely emerging from the depths of barbarism and

degradation;—in this rude domicile of the savage is there no significance—is there no peculiar attribute to mark its character, no type to denote that of its occupants? Does it pass away and leave no sign? It does pass away, but in the absoluteness of its oblivion leaves most firmly marked the impress of its nature. It recalls the roving savage subsisting on what the chance of the chase may produce, thinking only of the day's requirements, providing not for the necessities of the morrow. It recalls days of danger and uncertainty and peril—times when the insecurity of property led men to be disregardful of its accumulation; a wild, lawless state of society, but yet an advancing one, such as at present exists amongst the savages of Polynesia;—yes, it has passed away, but it has left a sign, though anomalous it be, oblivion records distinctly this primitive age of architecture. Let us pass on.

The attributes of the second age differ but little from those we have just described, and, with the exception of the acquisition of property, society had not much advanced: still, however, there was an onward step, although, from its peculiar condition, there is but little for us to mark its progress. The possession of flocks and herds required a greater amount of locomotion than the previous state of society had necessitated: this wandering from place to place in search of food for their living property (man not having yet advanced sufficiently to provide for his wants and that of his flocks by the cultivation of the soil), led naturally to the adoption of a species of architecture fitted to their predial mode of life, a habitation that could be removed as often as necessity should dictate; consequently we see this purpose answered by the adoption of tents, which, being removable at pleasure, ensured to the wanderers a covering wherever they should choose to fix their temporary residence. The Arabs of to-day, as those of the time of Ishmael, show perhaps this state of society more forcibly than any other, though possibly these, hemmed in by the halo of centuries of civilisation, have felt in some degree its benign influence. But even in this wandering state of existence have we no prevailing style to mark the architecture of the age? Is there nothing to distinguish it from the last?—to point out to the wayfarer on the dim track of the past the then existing condition of society? Does not the moveable habitation denote plainly its use? Does it not clearly define the character of the wanderer whom it served to cover? Does not the tent he owned for his sole home proclaim at once his nomadic existence? Is it not typical of his roving, yet pastoral habits? Yes, it cannot be denied, the tent of the wandering herdsman of that day characterises distinctly this second age of architecture: though in substance the nomad's home exists no more, we still can see its sign as we trace in the dark mirror of the past the wild traits of the tentman's nature.

New visions greet our eyes: the age of nomad architecture is past: the tent of the wanderer is changed: once more the home of mankind is fixed. But how vast is now the change. Faintly and slowly rise before us the dim outlines of congregated habitations: the abode of man in a new sphere of existence, an existence still in obedience to the laws of his creation—progressive, developing. The first faint rays of civilisation have now fairly dawned above the social horizon. Property accumulated shows in its effects its powers and purposes. The aggregate abode of man was now a city,—yes, a city. And what a host of reflections crowd over the thoughtful mind at the announcement. No more the poor dependent on chance, no more claiming his attachment to a locality according to the supply of food, and eking out a subsistence barely more than precarious. No! Man's godlike intellect had now begun to declare its right to render the forces of nature subservient to him, and to summon her to his aid as occasion should require. Commerce had now begun to exert her civilizing influence on him, to extend his faculties, to open new paths for the development of his resources, to increase the sphere of his requirements, and consequently to elevate his enjoyments. Man had now become gregarious, and commixture with his fellow man had been beneficial to his nature, and enlarged the circle of his utilities and powers. He had become conscious of a nobler existence, and his works bore the impress of that consciousness. But when we picture to ourselves the now urban abode of man, we must not admit the present as the foreground of our mental tableau. No proud towers, no vaulted domes, no high-lifted columns, no splendid palaces of pomp and wealth and power marked the city of that day; but lowly and humble as it was, undeniably it was a vast advance in the moral history of man; an era of incalculable importance to his future condition and welfare: lowly and humble though it were, it had marked the commencement of an epoch of rapid development, an episode of mighty importance to the future, and of which the posterity of all time was to reap the benefit—the Hegira of civilisation, from whence the chronology of humanity could date: but lowly and humble it was not long to remain. No.

We have said the era of development had begun, and that man's faculties had spread their wings for their universal flight: his destiny lay before him: it remained for him to wing his course towards its fulfilment, to answer the purposes of his creation in contributing his quota to the happiness of his species. Nor does he belie his nature: gradually we see arise on every side significant tokens of advancing prosperity: stately edifices begin to rear their heads proudly above the crowd of meaner dwellings: grand, stern, and gloomy, their crude unhewn masses bore the aspect of that day's humanty, hitherto a block that had received but the few first rough touches of the sculptor's chisel: we read in their rude and simple beauty and massive majesty, their significance, chronicled as it is in records of imperishable granite. As examples of this period of architecture, or, as we have called it, the urban age, we may cite the gigantic monuments of Egypt, her pyramids and propylions, her temples and her tombs. And though the name and lineage of the kingly founders of those mighty structures,—

> "——— Egypt's boast,
> Those lofty pyramids which high in air
> Rear their aspiring heads
> To distant times and Memphian pride
> A lasting monument,"

may have passed away, though ages since decay has done its work on all that remained of their mortality, yet on each stone of these edifices is graven in deep cut characters, on the one side kingly arrogance and pride and power, on the reverse, abject submission, despotism, and degradation. Again, we might cite as further examples the recent discoveries in Mexico, Central America, and Yucatan, where similar monuments have been found to exist, and bearing the impress of a condition of society resembling in its broader features that which we have just described, although doubtless of considerably later date. In the deep recesses of the gloomy forests, far from the traces of human habitation, rarely trodden by human foot, where all around is deathlike silence, save when the deepening shades of night draw the conger and jackal from their lair, to waken the dismal echoes with unearthly howls, and the murmurings of myriads of insects and reptiles fill the still, heavy air, entombed in these primeval solitudes, the traveller, as he pursues his lonely way, is startled as these records of the past burst suddenly on his view in these trackless woods, and awaken in his mind memories of a mighty nation now passed away.

And thus it is the same, whether we regard the mighty monuments of Memphis and Thebes, or the ruined temples of Palenque and Uxmal; the same whether on the parched plains of Egypt, or embowered in the sombre gloom of the forests of Central America, reason leads us to similar conclusions: though the nations who reared them are long passed away, they have left behind them, petrified, as it were, the workings of their minds—enduring records of creed, character, and condition—stone facts and silent histories. Reader, has this third age of architecture left no character behind it, no lamp of light to guide us in the dim obscurity of the past? We pause, and pass to classic Greece.

We have pointed out the specific characters and distinctive attributes of the three preceding ages of the art, and have seen that each successive stage was in advance of the last: we have marked the intellect of man pursuing the "even tenor of its way;" majestic alike in sunshine and in storm, still pressing onwards to the goal of its mighty career. We are arrived at the fourth age of architecture, and pause on the song-immortalised soil of Greece to mark a mightier civilisation than had hitherto existed.

It is not our purpose here to enter into an elaborate description of the minuter details of this grand distinctive period of the art, but we will content ourselves with a few observations on its more general features, taking cognisance at the same time of its particular development, whilst we endeavour to convey an adequate idea of its character as connected with the social condition of its era, and to bring it to bear on the object we have in view of demonstrating, as far as we are capable, the simultaneous advance of architecture with the extension of the intellect of mankind. At the same time we must not blind ourselves to the fact that times of architectural and social retrogression have occurred; but we again repeat that it is here our aim to deal with the generalities of both rather than with the individualities of either.

From all that can be gleaned on the subject we will regard it as a fact, that the principles of Greek architecture were borrowed from Egypt, and the closer our investigations we shall probably be the more confirmed in our views that this surmise is correct, and that from the "cradle of civilisation" were gathered the ideas which ultimately led to the realization of the sublimest architectural conceptions which have ever entered the mind of man, and the remains of which, as long as they endure, must ever call into action the noblest feelings of our admiration whilst there exists within us a spark of appreciation and regard for that which is sublime and pure and beautiful. As in the land of its origin the architecture of Greece probably owes its massive grandeur to that necessity for security which exists in all the earlier periods of society: this distinctive feature of massiveness remained throughout every stage of its development, until its decline, when a foreign stock was grafted upon it, from which time it gradually assumed a more florid character, and Greece no longer boasted of a school that could be called essentially her own. And now let us dwell for a moment on those attributes of beauty for which she has gained so lasting a renown, let us mark the massiveness and purity of her structures, their grandeur and sublimity, and then let us ask ourselves if these convey no ideas of her social condition at that day, if they record no history of the past, if they call up no memories and associations, and lead us from that which was to that which is, aye, and even open the vista of futurity to our imagination.

Turn to the Parthenon—

> "The pile
> Whose beauty well may claim
> Homage from taste and challenge endless fame."

Gaze on its noble, stern serenity,—its severe and sublime proportions. Does no feeling arise in the mind of him who conceived and designed so grand an object? Was his soul a stranger to the nobler aspirations of our nature, and did it not swell with generous pride at its own grand conceptions and lofty inspirations? And there it stands, seemingly an eternal tribute of gratitude to Him who had endowed its designer with a mind capable of such wonderful conceptions.

But not the Parthenon alone is it that stamps this fourth age of architecture with the impress of a majesty no succeeding age has possessed: many other examples might be cited, but all bearing the same mark of exquisite chasteness, purity, and grandeur,—all tending alike to convey the idea of a mighty development of the mind and of a vast social amelioration. Man's first necessities provided for, a breathing time had been allowed, and in the interval the

"ministry of the beautiful" had touched upon the finer chords of his nature, and by its influence had brought forth the brighter and nobler faculties of his soul and given higher aims to his existence. His physical wants supplied, the unfettered genius of his soul declared herself in all her majesty, and stamped upon his works that originality of thought and conception of which every branch of art and literature in the early stages of its advance, bears so striking an impress, "portraying," as the eloquent Allison says in his able essay on three master-minds of the earlier ages of the arts, "what they severally felt, undisturbed by fear, unswayed by example, unsolicitous for fame, they were unconscious of excellence, and each pursued fearlessly the path of his great career."

The majesty of architecture had now reached its climax: simplicity and refinement, purity and grandeur, qualities possessed by the highest degrees of excellence alone, were the distinctive attributes of the fourth age, and may well confer upon it the title of the age of architectural refinement. For a while let us carry our imagination to the shores of the Piræus, and silently reflect on all the glorious histories and events recalled by the noble monuments of antiquity around us, where each sculptured stone is pregnant with some mighty record of the past, where every mouldering pile bears silent testimony to the great and honoured dead whose names are hallowed by the veneration of centuries, and where the very soil beneath our feet is

"Haunted, holy ground."

Unenviable and dull, indeed, must be the feelings of him in whose mind is not awakened the spirit of the past by the old memories and associations these classic shores recal. The exquisite marbles of the sculptor Phidias; the stern, manly eloquence of Demosthenes; the noble intrepidity of Themistocles; sage, statesman, sculptor, warrior, poet, philosopher, and all, mingle in one mighty unity to give undying interest to the land. Again, we ask, does not this fourth age of architecture typify distinctly the social character of its epoch, and are not the records of that period in unison with its architectural features? We feel we cannot but answer in the affirmative, and we believe we have not erred in denominating it the period of architectural refinement; and is the era unmarked by any corresponding extension of the mind of man, by any advance in his social and moral position, or do his noble works in this age bear no testimony to his general progress, to the ennoblement of his nature, to the onward course which was ordained for him at his creation? Let the reader decide: we fear not for the result.

And now how great the change, how mournful, silent, desolate,

"Her cities waste, her mountains stern and lone!"

Arts and empire alike passed from her soil, her sons the by-word and reproach of nations. The age of classic, refined, Greek architecture has departed; but her sacred mantle, fallen on other lands, still retains some portions of its virtues. Great truths are ever the same, and whether they be the manifestations of religion, of art, or of science, they remain ever one and unchangeable under all circumstances and conditions: they are the bright lights which God has implanted in our nature to guide us on to happiness and lead us to all the perfection of which our nature is capable. They are, says Cowper,—

"The lights *we* walk by, kindled from above."

The love of that which is pure, and holy, and beautiful, is the acknowledgment of a great and noble truth, the silent soul-felt tribute of our spirit to Him who is the creator of all that is good and lovely, awakening the better and higher feelings of our nature, and teaching us to regard the welfare of every sentient being as essential to our own. The spirit of truth which breathed itself over the divine creations of the purest Greek art, was of a nature calculated to kindle the loftiest emotions, and to instil itself into every generous mind. It is this spirit of truth which has proved its surest safeguard and buckler against the ravages to which all that is mean and insignificant has successively fallen a prey; it is this spirit of truth which has ever held a silent sway over our nature, and which ruthless time itself has acknowledged and spared.

But the destiny of Greek grandeur now approached its accomplishment: she had enunciated mighty truths: it remained for them to take root and spread on other soils; to widen and extend their civilizing and ennobling influences. Torn by internal dissension and civil strife, Greece at length fell a prey to the all-conquering powers of Rome; but, conquered, subdued, and prostrate, her proud victors could not fail to acknowledge and to imitate her great and glorious truths.*

W. M. B.

* To be continued.

NOTES IN THE PROVINCES.

Horspath (Oxfordshire).—The church of this place was reopened on 24th ult. by the Bishop of Oxford. The greater portion of this church has been restored, and a new north transept added. It is in the Early English style. Mr. Edward G. Bruton, of Oxford, is the architect, and Mr. Cowley the builder.

Faringdon.—On Saturday week, during a heavy thunderstorm, the lightning struck the steeple of the church at Shellingford, near Faringdon, and completely split it in two. Part of the steeple, falling on the roof, forced its way through into the body of the church, and thereby did great damage to the edifice. There was no lightning conductor, as is generally the case in such circumstances, and now it will cost the expense of many lightning conductors to replace what the outlay of one such simple apparatus would have in all probability saved. It is said that a single fire sometimes causes a run upon the insurance offices: we hope that this "accident" will help to create a run forthwith upon lightning conductors. In the present instance the want even of a little paint to cover the metal-work of the vane is believed to have promoted the mischief.

Margate.—At a recent meeting of the Local Board of Health, a letter from Mr. Caveler, the surveyor of the pier company, was read by the clerk, to the effect that the plan and estimates were sent to the Board, but that the cost of construction considerably exceeded the original estimate, and altogether would amount to about 15,000*l.* The directors, it was said, must open the erection of the intended jetty to public competition, and the clerk proposed the formation of a committee of the Board to consider the plans and estimates, and all questions connected with them. The formation of such a committee was agreed to.

Bridgwater.—Since the presentation of the painted window to St. Mary's Church by the mayor, Mr. T. Ford, other gentlemen and ladies have promised also to place memorial windows in this church. A portion of the window in the west end of the south aisle is given by the pence of the poor who frequent the church. It is executed by Warrington, and the subject chosen is appropriately an illustration of the parable of the widow's mite. An effort is being made to procure a stained glass window for the chancel of Trinity Church, subscriptions for which have been raising for some time past, and a portion of the window has been put in with what money has been raised. From what we have ourselves heard of the portion done, we are quite prepared to quote the local papers, which complain of "the injudicious and hasty manner in which the part of the work done is executed, especially that part of it intended, we imagine, to represent the descent of a dove, but which partakes far too much of the appearance of the flight of a barn-door fowl. We hope this will be again taken out, and the design altered, the original of which we believe was bad, and ought not to have been copied from by the manufacturer."

Hay.—The High-street and Castle-street of this town, it appears, have assumed quite a new aspect of late, by help of the architect and the plate-glass manufacturer. Further improvements in these and other streets are spoken of.

Dudley.—A row of houses built on the Pensnett Chase, at Dudley, over the pit workings of the British Iron Company, have suddenly given way, in consequence of the ground, as it is technically called, "crowning in;" and the general opinion in the neighbourhood is that other misfortunes of a similar nature will occur.

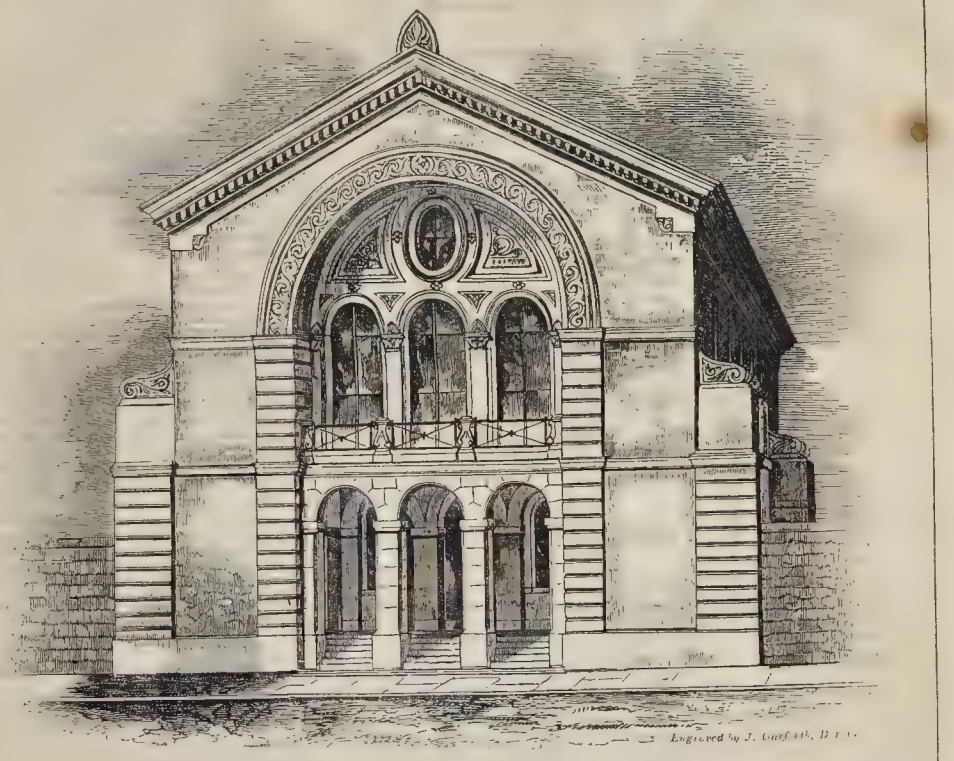
Manchester.—The lightning, in a recent thunderstorm, has done serious injury to one of the Old Quay Company's warehouses, adjoining the Irwell, in Water-street. From an adjoining building rises the engine chimney, a square pyramidal erection of brick, of considerable height. The lightning struck this chimney, cutting off diagonally from north to south about 10 or 12 yards of the upper par of it, of which portions fell through the roo of the Victoria warehouse, breaking one principal beam, and through the flooring of the uppermost floor. Other portions fell upon the roof of the engine and boiler house, breaking its beams and rafters. There seems to have been a considerable projectile force from north to south; and the chimney thus struck is within a band or belt along the southern part of Manchester, along which, it is a curious fact, noticed by the local *Guardian*, that most of the serious injuries to life and buildings in this town have been caused by lightning during the last twenty years. This belt includes the Northumberland Arms Inn, on the Stretford-road, and the school and other places struck last summer, near the Chester-road, Hulme, as well as the cottages in Silver-street, in former years, and the warehouse of the Bridgewater Trust, near the viaduct, last year. Such a fact is well worthy of close investigation, as a discovery of the reasons or causes predisposing a locality to electric shocks might be of great importance in reference to the selection of sites for elevated structures such as spires and chimneys.

Carlisle.—The foundation-stone of a new bridge across the Caldew, connecting the Borough Mill Field with Denton Holme, was to be laid on Saturday last by the mayor. This bridge is to be built by subscription, at a cost of about 3,400*l.* It will be composed of three elliptical arches, 36 feet span each, and 32 feet between the parapets. The arches are expected to be turned in course of the year and the road to be opened early in 1853. Denton Holme, according to the local *Journal*, will by that time be studded with houses, as several streets have been projected, and some are already laid out. The vale of the Caldew, by these and other improvements, will be opened out for villa sites. Hitherto the value of Denton Holme has been about 150*l.* an acre, and it is said that already, for a site at the south end of the bridge, an offer has been made of 9*s.* a yard, or at the rate of 2,160*l.* an acre. One of the chief promoters of these improvements is the mayor, Mr. Nelson, who set out in life as a journeyman mason.

Glasgow.—Building, we observe, says the *Glasgow Herald*, is going on briskly all over the city and suburbs, both to provide dwelling-house accommodation, and an extension of the business establishments of the city. A stately three-story house, on the south side of Argyll-street, near the head of Jamaica-street, is in course of removal, and on its site will be erected, we learn, a fine structure for one of the most extensive of our wholesale houses, in what is termed the country trade. It has also been arranged to build up the whole of the vacant ground in Howard-street. Plate glass in a unique form will be employed in these Howard-street shops and warehouses, to an extent never before adopted in Glasgow. Under these circumstances, the resident masons are fully employed, and we are informed that additional hands would readily obtain work.

A ROMAN RAILWAY.—It is said that the surveys for the construction of a railway between Civita Vecchia and Rome are completed; that a company has been formed; and that it has already lodged the caution-money.

TEMPERANCE HALL, CURZON-STREET, DERBY.—Mr. H. J. Stevens, Architect.



THE DERBY TEMPERANCE HALL.

The ceremonial stone of this building was laid on the 3rd inst. by Lawrence Heyworth, esq. M.P. for Derby, and above we give a view of it. It was designed by Mr. H. J. Stevens, and will be erected by Messrs. Bradbury and Humphreys, contractors. The work is being superintended gratuitously by Mr. Wale.

The external dimensions will be 85 feet by 49 feet. The height to top of the pediment is 60 feet. It will consist of two stories, the sub-story comprising a lecture-room, 60 feet by 22 feet; a club-room, 39 feet by 22 feet; reading-room, 20 feet by 22 feet; ante-room, 20 feet by 10 feet; kitchen, &c.; four turret staircases, by which ingress and egress will be facilitated from the sub-story to the galleries and large hall, which will extend over the whole of the sub-story, and which, together with galleries supported by cantilevers, will seat 1,000 persons, and will upon particular occasions accommodate 1,500. The roof will be open-timbered. The whole cost of the edifice, including site, fittings, &c. will be upwards of 2,400*l.*

Portsmouth Savings' Bank Competition.—Sixteen designs were submitted to the trustees and directors for the Portsmouth and Portsea Bank for Savings, and they selected one bearing the motto "Sober colour," found to be by Mr. A. F. Livesay, of Portsmouth. The design by Mr. Philip Lee, jun. was spoken well of. A competitor complains the plans were returned *three days after they were sent*, so that only one meeting of the directors could have taken place to decide on the respective merits of sixteen designs.

BUILDING MEMORANDA IN IRELAND.

A new "iron" factory has recently been erected in the county Leitrim. Upwards of 600 persons are at present receiving constant employment therefrom. A steamer laden with machinery for the works in progress has lately arrived. Two large smelting furnaces and an engine house for a hot blast are in course of erection, and it is expected that from 5,000 to 6,000 tons of iron will be annually turned out from each furnace.

The Limerick floating docks in progress from the designs of Mr. Barry D. Gibbons, engineer to the harbour commissioners of the Board of Public Works, are expected to be opened on the 1st Nov. The entrance is 70 feet in width, and will admit of the largest Atlantic steamers passing through it. The dock gates, which are to be hung in August, are being constructed by Messrs. Mallet, of Dublin, and weigh from 70 to 80 tons.

In this city a new flax mill and concerns are in course of erection at the North Strand, and an expenditure of 80,000*l.* will be incurred: when completed the factory will afford employment to 6,000 persons.

New Schools are to be erected at Derry by the Christian Brothers. The site selected is on the grounds of the new cathedral. A sum of 300*l.* has been already collected.

The "Church of the Poor," near Crookhaven, is to be built by subscription, an English gentleman, Mr. John Ainsworth, having contributed 125*l.*

At Downhill, on the Derry and Coleraine Railway, a large number of men are engaged in forming the tunnel and laying the permanent rails. On the completion of this portion, the line to Coleraine will be proceeded with immediately. By this line a communication will be opened with a very thriving town, and it will form the last link of an almost continuous railway from the extreme northern and southern points of Ireland *per* the eastern coast.

A new Roman Catholic church is to be erected by the Augustinian Friars in the town of Galway. The drawings are in course of preparation by Mr. John J. Lyons, architect. The building is designed to accommodate 2,000 persons, and will consist of a nave 120 feet in length, with side aisles, chancel, sacristy, baptistery, &c. Style, Gothic; roof of open framed work; tower at north-west gable; exterior of rubble masonry, with chiseled limestone dressings. The amount of expenditure will probably be between 3,000*l.* and 4,000*l.*

Extensive alterations and additions are being made to the workhouse of the Babrothery Union, according to the drawings of the Poor-law Commissioners' architect.

The grand jury of the county Armagh have advertised for tenders for the building of a new wing to Armagh gaol, according to plans by Mr. Boyd, architect.

The foundation-stone of a new Presbyterian (Unitarian) church has been recently laid at Hill-street in Newry. It is designed to accommodate about 500 persons, and the expenditure will probably be 1,700*l.*

Arrangements are being made for the construction of a line of submarine telegraph between Portpatrick and Donaghadee.

Suburban Artisan Schools.—The president and committee of this institution intend to hold a *soirée* in connection with it on the 6th inst. at University College, London. To those who have not seen it, the Flaxman Gallery there will be an additional attraction.

A PLAN CONSIDERED AND ALTERED.



ACCORDING to promise, I now send some remarks on the plan of the new mansion in Kensington Palace Gardens, and accompany them with a drawing that shows a portion of it somewhat differently shaped out, and, as I conceive, materially improved, although that is what I must leave others to decide. The insertion of them may induce increased attention to the highly important matter of plan,—which is all the more deserving of study, because the opportunities of applying it are comparatively of every-day occurrence—not merely in building, but in adding to or altering what is already built.*

To begin at the beginning, then; what strikes me as being, if not a positive inconvenience, a want of convenience, *in limine*,—is an obvious want of shelter at the entrance. There is an ascent up to it of no fewer than twelve steps (some of which might as well have been got out within the hall), and no kind of porch either externally or internally; wherefore, I apprehend, it will now be found necessary on every occasion of an evening party—at least in bad weather, to have recourse to the *fussy* expedient of erecting an ugly temporary awning, in order to obtain the shelter which, if it be actually required, might be far more commodiously provided, once for all, by means of a carriage-porch, for which desirable appendage (unobtainable in a street or other uninterrupted row of houses) the site of the mansion in question affords sufficient space.

Passing over what I should term the objectionableness of putting two such rooms as a library and dining-room, for both of which a certain degree of privacy is desirable, into immediate connection with the entrance-hall, I proceed to consider the dining-room itself; and there we surely detect inconsistencies and want of contrivance. In the first place, the multiplicity of windows is extravagant: one side of the room is entirely occupied by them; and, as if that were not sufficient, there are two others at the end opposite the entrance, with the fire-place between them! So much of window would be quite disproportionate in almost any room, more especially than in one appropriated exclusively as a dining-room, it being the very one which least of all requires a maximum of window light, and that, for the plain common-sense reason that, with the exception of about two months out of twelve, it is the custom now, as it was with the Romans,* to dine in the evening. Nevertheless, in the plan here spoken of, there are more windows in the dining-room than in any of the other apartments. An immoderate proportion of aperture or window surface; and although such does not seem to be the general opinion there, immoderation, faulty *nimiety* in that respect as well as in other matters, is apt to produce a certain air of chilly discomfort and unpleasant exposedness. However, not to dwell too long upon this single point, I will proceed to notice what I cannot help calling a special defect in the present case.

In laying out a mansion of this description care should be taken to secure at least the same degree of commodiousness and completeness, which is to be met with in some preceding instances. In the present one, there are none of those appendages which go towards constituting a complete dining-room, viz. a separate entrance for servants, a serving-room with a *lift* in it, a retiring closet, and a staircase immediately from the kitchen offices. Besides the want of accommodation of that kind, and some of it was thought of and actually provided full a century ago, we here miss that distinctive and eminently characteristic feature—that architectural *sine qua non*, a sideboard alcove. However costly it may be in itself, a sideboard is a mere piece of furniture, which may be placed in any room, but does not therefore decidedly stamp the character of the room, as being specially devised for the purpose to which it happens to be applied; whereas an alcove not only produces positive character, but may be made to produce striking effect also.

Now it will perhaps be said, at least thought, "All this is mighty fine; but talking and doing are quite different things, and you see that a recess of the kind could not be formed in the room you are speaking of." It is, indeed, too late now; but that it might have been accomplished by some modification of that part of the plan will, I think, be conceded after looking at my altered version of it; and it will perhaps be allowed that, if I do censure freely, I do not, as is frequently the case, find fault without being able to show *how* the alleged faults could have been avoided. At any rate, the annexed cut makes evident the possibility of not only forming a recess for a sideboard, but in such manner, too, as to correspond with the window recess or bay on the opposite side of the room, whereby is obtained what, desirable as it is, is either not understood or seldom attended to, namely, *balance* or correspondence of arrangement. Facing a bay between two windows, there would be a recess between two doors, from which a general symmetry would result that would be all the more pleasing, because accompanied with some diversity also. Even the mere getting rid of the two windows at the further end of the room, and the projecting break for the fire-place, would of itself be a material improvement, by substituting repose for that crowded and squeezed-up appearance which must now prevail, in direct contrast, too, to the opposite end, where the only feature is the door from the entrance-hall. Within the sideboard alcove is a door (placed so as to be out of sight of company seated at table), by which servants could freely pass to and fro; and although the adjoining serving-room is somewhat smaller than could be wished, it is better than no accommodation of the kind, and would possess that most convenient apparatus for the railroad transit of dishes from the culinary regions, a *lift*. According to the actual plan, on the contrary, dinner cannot be served up except through what is called the "staircase saloon;" nor can servants gain access to the dining-room by any other way.

As I have not yet discovered the means of putting a quart into a pint measure, I have been obliged, in order to secure the above-mentioned accommodation, to remove the waiting-room, and place it next the inner hall and staircase, like which it would be lighted through its ceiling. So situated, it would serve the additional purpose of a small gallery through which company might pass on proceeding to dinner, instead of going again into the entrance-hall. To this alteration the objection, no doubt, will be, that the "staircase saloon," as it is called, would be destroyed. That that inner vestibule would be reduced in space, is not to be denied; but for a vestibule it would still be of sufficient size; quite as much, indeed, as to be in keeping with the rest of the plan; whereas, at present, it injudiciously makes too much promise, and causes the drawing-rooms to look small in comparison. Should it be said that such is also the case in very many other large mansions, where the hall, though only a room of passage, is made the most spacious and notable part of the interior, my reply is, why then adopt such defective arrangement—such mode of architectural non-sequitur and anti-climax?

Quid dignum tanto feret hic promissor hirtu?

Without being inordinately large in comparison with the rooms, to which it is merely the approach, a vestibule may surely be rendered sufficiently striking, and to exhibit decided effect; more strictly architectural, indeed, than can be done in other rooms where upholsterer and decorator are generally allowed to play the first fiddle uncontrolled by architect, and directed by no other standard of taste than that which happens to be dictated by the freakish "Cynthia of the minute," hight Fashion. I find I am getting satirical!

To come back, then, to the plan as here shown, it will perhaps be admitted that if there be curtailment of the lower part of the staircase or inner vestibule, there is some architectural improvement also. Instead of the wide folding-doors of the hall and picture-gallery coming in at the corners of a square, the effect of which must be excruciating to any architectural eye,—did I say excruciating? I believe I did: and if the reader considers the expression too weak, I leave him to find a stronger and more appropriate one,—the altered plan, on the contrary, brings those doors into a central situation; and although the so-called "saloon" is reduced to the dimensions of a modest vestibule, more of effect than would thereby be lost might be ob-

* We insert our correspondent's remarks on this ground alone, and not with the view of casting any reflections on those engaged on the building noticed, who may have adopted the best arrangements to meet special requirements. We prefer, indeed, that the observations should be considered as applying to an abstract plan such as we gave rather than to the house of any particular individual.—ED.

* There can be no doubt, that the Latin word *Cœna* would be better interpreted by the English one, "dinner" than by "supper." Its etymon distinctly points out the exact correspondence it bears to the modern dinner, it being the *κοινη* or common, *i. e.* social meal, at which the family and guests assemble together in common.

THE POWER OF HEAT IN PROPELLING SHIPS.

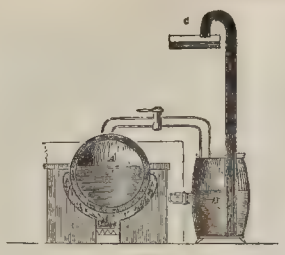


Fig. 1.

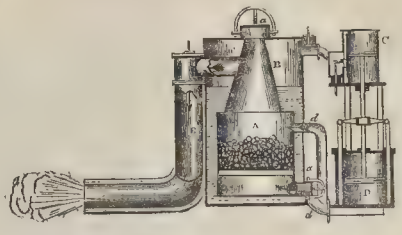


Fig. 3



Fig. 2.

tained by filling in the compartment of the wall which faces the lower flight of the stairs with looking-glass—in such manner, perhaps, as to produce the appearance of an openwork carved screen.

Having now gone over that part of the plan which the annexed cut shows remodelled, I will bring these remarks to a close by merely observing in addition, that what is called the "picture gallery" seems to be very little suited to such purpose, there being so many windows and large folding-doors as to leave but small space on the walls for pictures. A capital room for a gallery of the kind might be easily formed by erecting another wing, corresponding with the conservatory,—that is, in plan and size, but lighted from its ceiling. Even were its exterior quite bare, that would not matter where there is no beauty to mar: besides, screening by planting out would sufficiently cut it from the rest of that garden front. Such addition to the plan would be attended with material improvement internally, as there would then be a superior suite of reception rooms, with a conservatory at one end, and a picture gallery (serving occasionally as a ball-room) at the other. Q. E. D.

A Carriage porch.
B Hall.
C Dining-room.
d Sideboard alcove.
E Serving-room.
f Lift.
G Corridor and waiting-room.
h h Screen filled in with looking-glass.

THE POWER OF HEAT IN PROPELLING SHIPS.

Steam, as we lately reminded our readers, is but one way of using the power of heat in marine or other propulsion. Another mode we at same time noted as at present on trial at New York,* namely, by means of air as the instrument. Even air or gaseous products, however, may be used as an instrument of power in more ways than one. In the case under notice atmospheric air was used much as steam has been, along with pistons, cylinders, shafts, and other pieces of machinery. But another mode of using air and other gaseous matter in marine propulsion, almost without machinery at all, has been suggested, a mode which has been compared to the principle on which a rocket may be made to move spontaneously through water, or which we may regard, in some measure, as a sort of artificial wind, only issuing from the bowels of the ship, and rushing out immediately into and against the adjoining water, in place of issuing through the air and impinging on the sails attached to a ship.

We shall not express any very decided opinion on this proposed mode of propulsion; but the main idea is at least correct, that a rushing powerful wind, issuing like a gale or burricane in miniature from behind a ship, and instantly striking against the water in which she floats, will have a reactive power of propulsion on the ship itself. That it *will* do so with practical efficacy or sufficient power, the projector, Mr. Alexander Gordon, is very sanguine. We will let him speak for himself, and add such illustrations as may be necessary to enable our readers fully to understand the author's project:—

The proposers of hot-air engines have taken the steam-engine, subsequent to the discoveries of Newcomen, as their model, whilst I propose to show that they should have reverted at once to the engines of Savery and of Papin; that they should be referred to the Marquis of Worcester's scantlings; and even to the smokejack of Hieronymus Cardan in 1557; and that ships may be propelled by the simple application of the *hot products of combustion rushing at high velocity from close furnaces fixed in the ship, against and below the water*, instead of employing steam-engines acting upon the water by means of paddle wheels or screws; the blow being given to the water by the hot air rushing out against the water at the rate of 1,330 feet per second, if required, instead of the blow given, as in the case of a steam engine, by wooden or iron paddles, at the rate of only 20 feet per second.

The Marquis of Worcester employed the pressure of steam in A to act at once and directly upon the water in B, which he desired to force up to C (see Fig. 1). Savery, also, used steam in direct connection with the water. Denis Papin improved on these by interposing a loose floating piston between the steam and the water to be moved.

Now, had any of these inventors used (instead of steam) the hot products of combustion from a close furnace, the steam-engine would not now be the only available, inanimate, artificial power in use for such purposes as raising water, and for locomotion and navigation.

Endeavours have been made to propel vessels by the rushing out of common air from a state of compression: these have failed because air has first to be compressed by a steam-engine, and then compressed air requires a long time *to regain its thermal equilibrium* by taking back heat from the water.

It is shown that 15 lbs. pressure on a steam-engine piston is obtained by 8 lbs. of fuel, and that 15 lbs. pressure of hot air can be had for 2·68 lbs. or only one-third of the quantity of fuel.

It appears that in a marine steam-engine one half of all the heat produced (1000°—500) is lost by rushing off at the top of the chimney; and it has been satisfactorily shown by the Woolwich Dynamometer, that of the other half of the heat, which does not escape at the top of the chimney, nearly forty per cent. is absorbed by the air-pump, the friction, radiation, &c. &c.; so that only thirty per cent. of the heat generated in the furnaces is practically available for impelling the ship.

My invention bears resemblance to the action of a rocket in water. It is a mild rocket without the explosive mixture. It is the rushing out of air *charged with heat*, which expands on the instant of liberation.

An experiment has been made as follows:—Into a boat, 26 feet long and 4½ feet broad (see Fig. 2), I fitted a close furnace or retort, A, and a common small forge bellows, B. The close furnace being opened at top and at bottom, an intense fire was got up: the bonnets at top and at bottom were then luted and fitted tight. Each stroke of the lower portion of the bellows passed air through the close fire, and the hot products of combusion rushed out against the water by the pipe, C. [We do not think that Mr. Gordon's illustration here gives a very forcible idea of the mode in which the hot air will rush out at a high pressure or velocity against the water: Fig. 2 gives a better idea of it.] The discharge-pipe was 3 inches in diameter, and was immersed 12 inches. Each stroke of the portable forge bellows sent cold air into the close furnace. The appropriation of oxygen to support combustion was immediate; and the heating of all the aëriform body, which passed off under water, was equally so. The products of combustion, almost altogether aëriform, but also occasionally mixed with smoke, dust, and ashes, rushed out under and against the water at a very high velocity (at a temperature of 800° or 900°), and impelled the boat in her course: the fire, with one man to blow it, did the work of two men rowing.

Fig. 3 explains the principle upon which I would construct the close furnace, for sixty-horse power, as an auxiliary for a large ship, or full power for a smaller ship:—

A is a section of one or two close furnaces, the fire inside being supported by the atmospheric air, forced in at either or both of the pipes *d d*, so as to be blown either through the fire or over it, as more or less power (*i.e.* intensity of fire) is required. The furnaces to be opened once in two hours, and supplied with additional fuel by the upper close door, or bonnet, *a*; the blast of air being for the occasion turned off from the furnace which is to be opened. B B are boilers, which surround the close furnaces. The water taking up the transmitted heat affords steam to drive the simplest form of steam-engine, C. The air-pump,

* A correspondent says on this subject,—"Whatever may be the go-ahead propensities of brother Jonathan, it is a decided fact that 'caloric engines,' like the 'reaping machine,' is an invention of the Britishers. Thirty years ago the Messrs. Stirling were trying experiments upon them in the Dundee or East Foundry, Dundee, and they superseded steam not only in their own establishment, but also in the Chapelshade Flaxspinning Mills, Dundee."

D, is worked by the engine, C. The fires in the close furnaces are thus kept in activity, and under complete control, and the products of combustion are allowed to rush out at a high velocity under the bilges of the ship, at a temperature of from 500° to 1000°; the discharge-pipe when inside, or in contact with the ship, being surrounded by a non-conducting medium. When the products of combustion have attained the temperature of 500°, their tendency is to rush out even against a pressure of 15 lbs. per square inch; and when liberated, they do rush out at the rate of 1,332 feet per second, each of such hot blasts through 1 foot area of discharge-pipe under water giving an impulsive action equal to 4,173 lbs. *These discharged products cannot condense as steam would, and they cannot escape through the water without giving the full extent of their impact, and thus propelling the vessel.* I do not yet venture to determine whether a high velocity of discharge from a small area, or a lower velocity of discharge from a larger area, will be found the best in practice.

THE EARL OF KILMOREY'S NEW MANSION, ST. MARGARET'S, ISLEWORTH.

IN the beautiful park on the banks of the Thames, between Richmond and Isleworth, formerly belonging to the Marquis of Ailsa, a mansion has been recently erected for the Earl of Kilmorey, under the superintendence of Mr. Lewis Vulliamy, architect. A few weeks ago, floating pleasantly on the Thames, in an afternoon to be remembered, we came suddenly upon it, and were surprised by its size and extent. Our readers have here a view of it.

The building is faced with a light-coloured brick, and has red brick quoins and dressings. The cornices, balustrades, architraves, &c. of windows, the basement story, and the portico, are of Portland stone and Portland cement.

The principal parts of the domestic offices are in the basement story; but the kitchen is in a detached building of an octagon form.

On the entrance front is a Doric portico, approached by a flight of stone steps; opening from this is the entrance-hall, 50 feet by 25 feet. In the centre of the hall is a broad flight of nine steps, rising to the level of the principal story. Each end of the hall, right and left, will be decorated with sculpture. At the top of the steps, and entered from the hall, is an octagon vestibule, 14 feet diameter, in the centre of the principal suite of rooms which lie along the garden front; and beyond the vestibule is the conservatory, which projects in the centre of the garden front. On the right and left of the vestibule are ante-rooms, size, 17 feet by 16 feet 6 inches each, fitted up with bookcases; from these the dining-room and drawing-room are approached, the dining-room being on the right hand, and the drawing-room on the left; each of these is 35 feet by 22 feet. Beyond these, and terminating the suite, are the gentleman's study at one end and the lady's boudoir at the other; size of each, 13 feet 6 inches by 22 feet 6 inches. On the left of the entrance-hall is the principal staircase, and on the opposite side a room to be used as a museum of antiquities.

The dimensions of the block of the building are 154 feet 6 inches by 57 feet 6 inches; and the cost, as contracted for by Messrs. W. Cubitt and Co. is 16,920*l.*

Do you know the neighbourhood, reader? It is full of pleasant places and interesting recollections. At Richmond, where Thompson "sang the seasons and their change," Queen Elizabeth died, and Charles the First made the Park. It was formerly called Sheen, or shining:—

"Say, shall we ascend thy hill, delightful Sheen?"

And if the philologers be right in giving the same root to "shining" and "beauty," we need no other reason for the title. Henry the Seventh changed the name when he rebuilt the palace. In the church here, Thompson, the poet, and Kean, the actor, were buried. At Kew, Sir Peter Lely lived, and Gainsborough lies. At Barn Elms we are reminded of Fonson, and the Kit Kat Club; and if we continue on to Putney, we may remember that there was born Gibbon, the historian of the Roman Fall.

DRAINAGE OF HIGHGATE.

RECENTLY two poor laundresses were summoned before Messrs. Chester, Warner, and Herring, magistrates, at the Highgate Petty Sessions, by Mr. Bird, the road surveyor, for allowing soap-suds and other filth to accumulate on and about their habitations in a place called Swaine's-lane, near the Highgate Cemetery. The defendants severally admitted the charge; but excused themselves on the ground that there was no convenience wherein to deposit the matters in question.

Mr. Herring was very unwilling to punish the defendants: the parish officials were at fault, and were not in court with clean hands.

Complainant said there was neither money nor power to make a drain.

Mr. Chester said that was all nonsense. He exonerated the complainant, individually, from blame, but the parish authorities were utterly regardless of the comforts of the ratepayers. As to want of authority to form a drain, it was a mere subterfuge, for the law was imperative on a surveyor to "scour, cleanse, and keep clean all open drains and gutters in a public highway, and see to a proper drainage." The vestry (St. Pancras) were ever at war with the legitimate interests of the inhabitants at large, and the chief surveyor had not done his duty. Should a nuisance over which the authorities had control come near his (the chairman's) abode, he would soon see whether the law was not strong enough to teach them a lesson. The defendants had been guilty of an offence against the law, and as the court was bound to convict, it would do so in the penalty of 1s. and costs instead of 40s.

SITE OF NEW CATTLE MARKET.

To the public the selection of a good site for a new cattle-market is of the highest importance. Agreeing entirely in your observations respecting the contemplated selection of Copenhagen-fields, allow me to suggest publicly, through THE BUILDER, a situation which I have, in private, mentioned in several quarters, some months since. I allude to the East Ham Level, opposite Woolwich, a locality which, in my opinion, is superior to every other situation, having the *ready-made* and three-fold advantage of approach by river, railway, and road. For the Level is bounded on its south margin by the Thames, which bears all the traffic from Holland and Scotland past the very spot; the North Woolwich Railway terminates in the Level itself; and the Ilford and Barking roads, the great highways from the Eastern Counties, form the northern boundary. The Level contains between three and four thousand acres of fine pasture land, some hundreds of which might be procured at less cost than the seventy-two acres in Copenhagen-fields, the price of which, 700*l.* per acre, is, in truth, a building speculation sum,—a fact which speaks for itself as to the unfitness of the selection of this site, which, not being three miles from Smithfield, is contrary to stipulation, an objection alone sufficient to condemn the choice.*

The North Woolwich Railway is already in part, and may be easily altogether, connected with all the railways north of the Thames, and that noble highway would connect the East Ham Level with the railways on its south bank, affording also a cheap mode of transit, by ferry, already provided, to the supply of animals from Kent, and thus there would be no excuse for a single animal being driven through the streets of London in future.

There would be no occasion for an expensive outlay in such a locality, whilst its very position affords every facility for the carriage of building materials; and the vicinity of the river will give the market, free of charge, an inexhaustible supply of water for flushing and cleansing purposes, to say nothing of the opportunity of preserving and removing the manure. One great inconvenience of a cattle-market with limited resources arises from the necessity of driving off the unsold cattle, to be brought again, perhaps from a great distance, on a subsequent market-day. To obviate this, the situation should be able to command a large extent of pasturage, and to foreign beasts a week's feeding in fresh meadows after a sea voyage would prove highly beneficial.

Looking at a map of London and its neighbourhood, it appears to me that the locality I have ventured to suggest is without a rival in its many (and possessing water-frontage unequalled) advantages, whilst the access to it is already provided for in various modes of rapid conveyance, and that, at all events, for an eastern, if not for a central, market, no situation can be more desirable in respect of economy, convenience, salubrity, and freedom from nuisance. GEORGE RUSSELL FRENCH.

* We have received four other letters to this same effect, but apprehend that their writers are in error in supposing that the Act for Removal of Smithfield Market contains a stipulation that will prevent the adoption of Copenhagen Fields as the site for the new market. It may be formed in any situation that may appear to the commissioners convenient for the purpose, provided it be approved by one of her Majesty's principal Secretaries of State. The misapprehension has probably arisen from the concluding paragraph of clause x. which says:—"And no new market for the sale of cattle or horses shall be opened in the city of London or Westminster, or the borough of Southwark, or at any place distant less than seven miles in a straight line from St. Paul's Cathedral, in the city of London." But the commencement of the clause sets forth the opening previously of the markets provided under this Act.—ED.

TO HARDEN TAR.

IN reply to your correspondent who asks respecting "tar," pitch, in the proportion of 3 lbs. to one gallon of tar, boiled together, will make the tar set quite hard and quick.

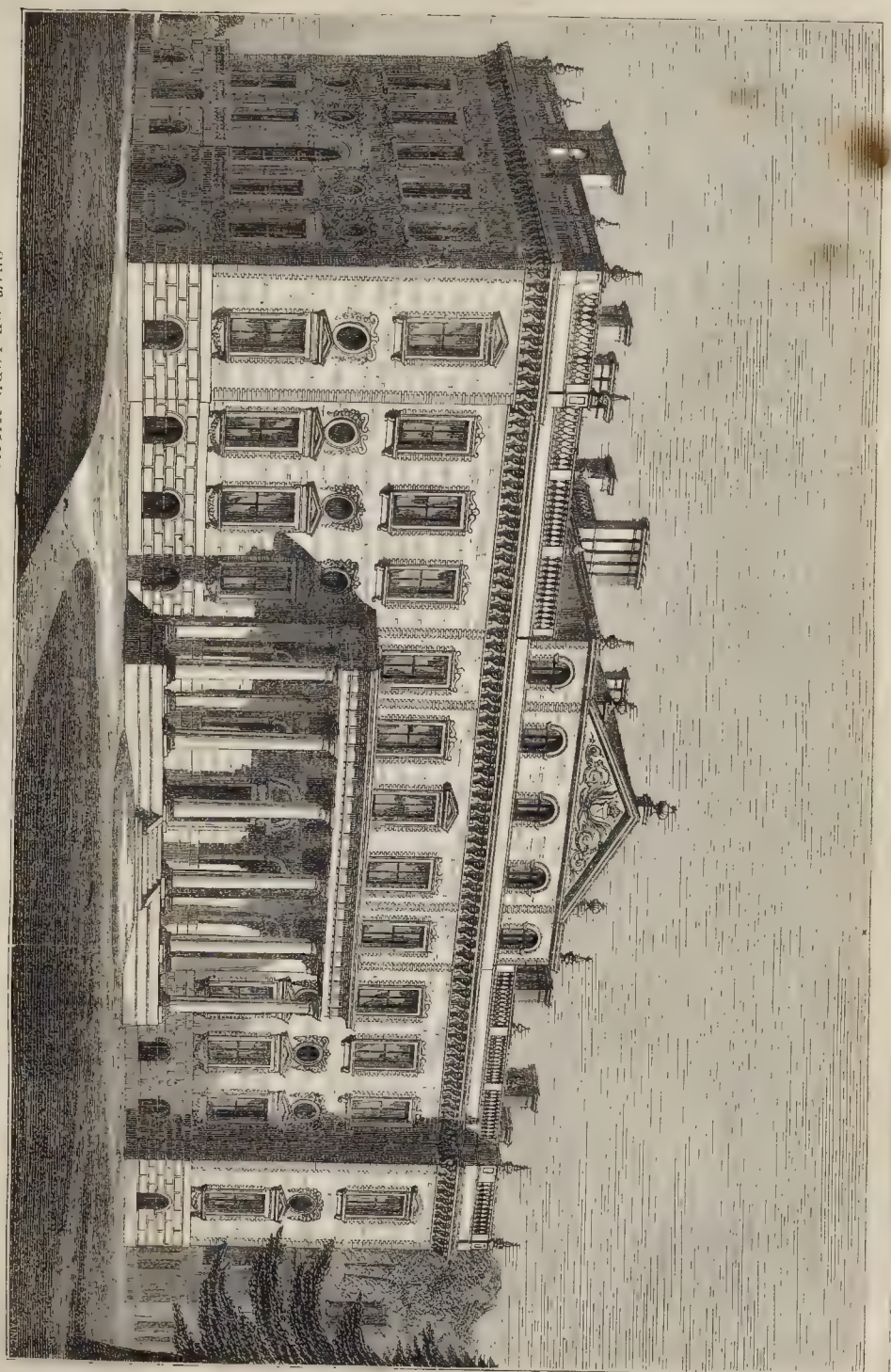
G. O.

To one gallon of Stockholm tar, put one pint of good old boiled oil, and, when heated nearly to boiling, add 2 lbs. of litharge and a ¼ lb. of white copperas, well stirring the whole together over the fire until it becomes properly mixed. The natural colour of the tar is not materially altered by the incorporating of the driers; and, if colour is not an object, a small quantity of pure Venetian red, added and mixed with the litharge at the same time, will be found to improve it. This proportion of the ingredients is applicable to new work; but if to be applied to work, either wood or canvas, that has been covered before, 1½ lb. of litharge, and half the quantity of copperas, will be sufficient: too much of the driers may cause cracks, and, if on canvas, its flexibility may be lessened by the same cause. Z. Z.

DISFIGUREMENT OF THE ROYAL EXCHANGE.

INTERFERENCE WITH ARCHITECTS' WORKS.

AFTER an absence of many months on the continent in search of health, I returned to London only a few days since. On passing the Royal Exchange, I was greatly grieved to see the works in progress for bringing forward the shop-fronts on the south side and south-east corner of that building. As, however, I had delivered over the edifice to my employers, the Joint Grand Gresham Committee, on its completion, and its management and control rested entirely with that body and their surveyor, I felt I had no right to occupy the public with my regrets, whether personal or professional. Some of my friends, however, have drawn my attention to a paragraph in your valuable paper of the 22nd ult. referring to a previous communication of the 22nd May, in which your correspondent desires to know by whose sanction these changes have been made, or, in his own words, "to fix the laches on some one, as poor Mr. Nobody is often the wrong doer." To preserve silence after this question is thus asked, would imply that the alterations had, at least, been made with my sanction; and to prevent this erroneous conclusion, I beg you to permit me to say, that in a letter I addressed to the committee from Pisa on the 3rd January of this year, I protested most strongly against the proposed changes, and adduced such reasons as I hoped would have satisfied that body that they ought not to be made. I never received any answer whatever to this appeal, but I was informed that the commissioners applied subsequently to my friend Mr. Cockerell to undertake the work, but that that gentleman, finding that the change was contrary to my strongly expressed opinion, declined to interfere. WILLIAM TITE.



SEAT OF LORD KILMOREY, ST. MARGARET'S, ISLEWORTH.—Mr. Lewis Vulliamy, Architect.



THE ST. JAMES'S, WESTMINSTER, PAROCHIAL INDUSTRIAL SCHOOLS.

The parish officers of St. James's, Westminster, following the example set by the North Surrey School Union in endeavouring to ameliorate and improve the condition of their pauper children, have erected from the designs of Mr. C. Lee, architect, extensive buildings for the accommodation of 200 children on Battersea-common, Surrey.

The site, which was granted by the Right Hon. the Earl Spencer, contains 20 acres of land, on which it is intended to employ the boys, and thus educate them in agricultural work instead of making them all shoemakers or tailors, as is now the practice in London workhouses.

This establishment was opened on the 22nd inst. The buildings contain school and class rooms for boys, girls, and infants, dormitories, infirmary, domestic offices, apartments for the officers, laundry, washhouse, shops, playgrounds, and all the appurtenant accommodation to ensure the full working efficacy of the establishment, which is to be strictly industrial, the girls performing all the cooking, washing, and other domestic work.

SOCIETY FOR IMPROVING THE CONDITION OF THE LABOURING CLASSES.

The eighth annual meeting of this useful society was held on Saturday week, at the Freemasons' Tavern, the Earl of Shaftesbury in the chair. The chairman congratulated the meeting on the very favourable report which the committee had to present to them, although there was little of novelty to record beyond the fact of a continued degree of success. They had exhausted the field of experiment, and entered on that of certainty. The establishment of improved dwellings for the poorer classes was proved to be a remunerative speculation, and the society did not act on an eleemosynary principle. It had had many imitators in different parts of the kingdom, on the continent of Europe, and in the United States. It had imitators in this metropolis, and he heartily wished them God speed; but he might remark, that this society was, to a great extent, the originator and parent of other societies; and that from experiments which this society had instituted they had been encouraged to go on. He said this without any feeling of rivalry, but he thought he had a right to claim this small amount of praise, though other societies had attempted to ignore their prior claim. Their great object was to show in what way the large masses of the people might be benefitted at the smallest possible expense. They proposed in the ensuing year to look out some of the most filthy alleys and portions of the metropolis which were now the sources of loathsome disease and vice, and to see at how small an expense they could ventilate and drain them, and to make thoroughfares where there were now blind alleys or courts. This might be done in some cases at a moderate expense. If they only materially benefitted forty or fifty families, they would achieve a great object.

The report, which was read by the secretary, Mr. Wood, stated that the allotment system was being rapidly extended in various parts of the country. With regard to lodging-houses, the society had within the last year completed and opened the Thanksgiving lodging-house, in Portpool-lane, which provided accommodation for twenty families, and 138 single females, who were only charged 1s. per week. There was also accommodation for thirty-four persons to wash at a time. The George-street lodging-house left a net profit of 30*l.*; the Greek-street lodging-house, a profit of 36*l*; the Charles-street, 193*l.*; the Streatham-street, 442*l.*; and the Bagnigge-wells lodging-house, 308*l.* The City of London had advanced no less a sum than 42,467*l.* for the erection of model houses in the city. In Chelsea, St. George's Hanover-square, St. James's, Westminster; and in Leeds, Ramsgate, and Windsor, under the patronage of her Majesty, model lodging-houses had been erected, in every instance with the most satisfactory results. The property now belonging to the society amounted in value to 30,000*l.* which was encumbered with about 15,000*l.* of debt.

The meeting was also addressed by Mr. Montagu Gore, M.P.; Mr. Mechi, of Tiptree; the Rev. R. Burgess, rector of Chelsea; Dr. Southwood Smith; Mr. Slaney, M.P.; and other gentlemen; and the report, together with various appropriate resolutions, unanimously agreed to.

RECOVERY OF CHARGES BY LAND-AGENTS AND SURVEYORS.

HUNT *v.* CRUTCHLEY.

An action was tried before Mr. Baron Parke, in the Court of Exchequer of Pleas, at Guildhall, on the 1st June in the result of which estate agents and surveyors are interested.

The plaintiff, who is an estate agent, claimed about 45*l.* of the defendant, who is a retired builder. It appeared that the defendant had some land to let on building lease in the neighbourhood of the goods station of the London and North-Western Railway, in Camden-town, and that he employed the plaintiff to let it for him. The plaintiff advertised the ground for letting, set up a board on the land, and eventually a builder took the land on a building lease, agreeing to pay a ground-rent of 22*l.* 1s. a-year for ninety-nine years. It was proved on the trial that there was a small shed on the land, which was sold by the plaintiff's instrumentality to the same builder, who gave 5*l.* for it. The plaintiff claimed a commission for letting the land, 22*l.* 1s. being one year's full ground-rent, and he claimed 5s. for selling the shed, being 5 per cent. on the value of it. The plaintiff also claimed certain sums for his trouble and expenses relative to the building of the houses on the land, and also some other charges for attempting to let or sell a house at Broxbourne for the defendant. But the principal point in dispute between the parties was whether the plaintiff was entitled to a year's ground-rent for letting the land at Camden-town on building lease, no special agreement having been made on the subject. The plaintiff failed to establish the other items of his demand.

The defendant paid 10*l.* into Court, and contended that that sum was as much as the plaintiff was entitled to. On the trial witnesses were called by the plaintiff, who proved that one year's full ground rent is the usual commission for letting land on building lease in the absence of any express agreement on the subject.

The defendant called witnesses to prove that such commission is not usual, and that in fact such a charge is exorbitant.

The learned judge who tried the cause, summed up the evidence, and the jury gave a verdict for the plaintiff for 12*l.* 6s. in addition to the 10*l.* paid into Court, thus establishing the custom that the commission due to a surveyor or estate agent for letting land on building lease is one year's ground rent, and that 5*l.* per cent. on the proceeds of the shed was the proper amount of his commission for selling the same.

Plaintiff's attorneys, Messrs. Miller and Horn, 78, King William-street, City.

Defendant's attorneys, Messrs. Stokes, Hollingsworth, and Co. Gresham-street, City.

THE ARCHITECTURAL ASSOCIATION.

At a meeting of the Association, held June 25th (being the last meeting of the session), the following gentlemen were elected as office-bearers for the ensuing session:—

President, Mr. J. D. Wyatt; vice-president, Mr. J. Edmeston; treasurer, Mr. Charles Gray; secretaries, Messrs. Alfred Bailey and Arthur Cates; committee, Messrs. J. K. Colling, G. Truefitt, J. P. Seddon, C. C. Creeke, Thomas Hill, Arthur Allom, J. T. Irvine, R. W. Billings, V. T. Horder, G. R. Clarke; honorary solicitor, Mr. Francis Truefitt; auditors, Messrs. W. J. Worthington and J. W. C. Williams; registrar, Mr. Arthur Billing; curators, Messrs. G. Lufkin, W. Kerby, S. Hewitt, R. Burt.

The Class of Design will meet on Friday, July 2nd. Subject for sketch, "The Entrance to a Railway Tunnel."

The St. Alban's Architectural and Archæological Society.—At a recent meeting of this society the annual report of the committee was read, in which a review of the progress of the society since its establishment, seven years since, was given, and the members congratulated on the course of usefulness through which it had passed, and on its present position and prospects.

ARCHITECTS' PRIZES AND COMMITTEES' LIBERALITY.

The Aberdare Market Company have offered to architects, through our advertising columns, what they have the bravery to call "a prize of forty pounds" for a design for a market and slaughter-houses, not to cost more than 4,000*l.*; with which they require a specification and all the working drawings! And they expressly say, "The usual architect's commission is not intended to be paid, either in addition to this premium or otherwise." A pretty prize forsooth! They know what the usual architect's commission is—that, for what they require, supposing they do not also expect the "fortunate competitor" to superintend the work, which is not clear, a hundred pounds would be a moderate charge; and yet they offer the remote chance of obtaining for it not the half of this sum, as a prize to be competed for by the profession. This is really too bad. Those who compete for it deserve no better prize.

Notices of Books.

The Engineers' and Contractors' Pocket-Book for the Years 1852 *and* 1853. Weale, High Holborn.

The contents of this pocket-volume are so varied and so numerous that a mere list of them would occupy not far short of a page. We shall run over a few of its more prominent subjects, intimating at the same time that the almanac and other ephemeral items constitute but a very small portion of the whole mass of the work, which is likely to be as useful in 1863 as in 1853. The tabular information is very varied and full, comprising all that relates to weights and measures, coins, values, strengths, &c. &c. ever likely to be needed by the engineer or contractor, together with an epitome of mensuration itself. The other subjects also are frequently accompanied by tables. Among these subjects are articles or chapters on lime, mortar, cements, concrete, &c.; on stones, woods, sewers and sewage manures, pipes, and hydrants; bar and plate iron, cast iron pipes, columns, posts, girders, binders, &c.; on flooring, roofs, and strength of constructive materials; on motion of wheels, &c.; on resistance, &c. of ropes; traction of carriages; windmills; on hydrodynamics, including hydrostatics and hydraulics, water-wheels, turbine, overshot, &c.; on effects of heat; lineal expansion of metals, boilers, furnaces, chimneys, fuel, composition of different coals, steam, steam-engines, and steamers; on saw mills; pile-driving; flour-mills; bridges and viaducts of brick, stone, iron, and wood; iron roofs; bricklaying, well-sinking, limestones; masonry; carpentry; zinc in house building; slating; docks—*cum multis aliis.*

Richmondshire; its ancient Lords and Edifices: a Concise Guide to the Localities of Interest to the Tourist and Antiquary; with short Notices of memorable Men. By Mr. W. Hylton Longstaffe. G. Bell, Fleet-street. 1852.

The Richmond of Yorkshire, like that of our own metropolitan vicinity, presents a fine field for healthful excursion. It is regarded as "the fairest spot on one of the lovliest streams which Yorkshire can produce amid her thousand rivulets." Its neighbourhood, too, is full of interesting archæological and historical associations. Here was the chosen family seat of the "king maker" himself, the Neville of Nevilles; as well as that of the Marmions, the Scropes, the Richmonds, and Fitzhughs. The castle of Richmond is an interesting ruin of a fortress of great strength. The Abbey of St. Agatha, Hornby Castle, Snape Castle, Jerveaux Abbey, Bolton Castle, Arthur's oven, and numerous other records of times of old here attract the attention of the tourist.

The present little work is none the worse for the modest pretensions of its author. Chiefly indebted to previous writers, he has made intelligent use of his authorities in the production of an interesting and amusing volume, even apart from its merits as a mere guide; and considerable personal observation and re-

search, besides that of friends, are said to have been brought to bear upon its descriptive details.

We may quote a few remarks as to the "Black-dike," and the origin of the name of Richmond, as a specimen of the author's style:—

"It is possible that both 'Old Richmond' and the Richmond on the Swale have derived their name from the ancient dike, or Richemound. The dike is thought to have served as a boundary or defence, and from the names on its course it evidently was used sooner or later as a road. At Stanwick it quite environs the place, as if the fortification of a British village.* The Roman road, or Watling-street, running nearly parallel, is now the great thoroughfare. But doctors disagree, and some suppose the Stanwick mounds at least to be nothing more than the park enclosures of some early Richmond Earl. This 'Black dike,' or 'Scots-dike,' is traced from Scotland. The character of the work in Northumberland, as described by the Rev. J. Collingwood Bruce, in his elegant work on the Roman Wall, differs materially from that in Yorkshire. There, the great embankment is on the east side, and no stones, or such only as were derived from the cutting, have been used in its formation. But near Richmond, a portion where the surface has been broken discloses a sort of rubble formation, as if the chippings from the squared stones of a hundred palaces had all been huddled into this strange compound of mysteries.

We are fond of fathering dateless dikes and mounds on the Danes and Scots: our Saxon sires preferred their demi-gods. Watling-street was 'the street of the sons of king Wœtla,' who, not content with a mania for roads on earth, carried it to the Halls of Odin; and constructed the milky way, which Chaucer roundly calls the Watling-street. Erman lives in his Ermine-street. Ricken is a German word for a hero. Thus we have two Ryche-mounds on the Black Dike, and Rychedike near Newmarket; parallel in both instances with the Giants' hedge of Cornwall. So too, there is the Wreckendie in Durham, portion of the Rickenilde-street, 'the road of ancient heroes.'—*'There were giants in the earth in those days—mighty men of old—men of renown.'*

'Tradition! oh, tradition! thou of the seraph tongue,
The ark that links two ages, the ancient and the young.'"

The book is illustrated by several engravings, and is otherwise well got up.

Before closing it we may note a circumstance mentioned by the author, and which in these days of metal-digging activity may be of some interest,—namely, that in the vicinity of Richmond there were anciently copper and lead mines.

"Copper," says the author, "has been worked to a considerable extent at Middleton-Tyas, and I have seen plans of similar mining operations on the Allan manors of Barton. The machinery was however of a rude description in former days, and the end of the Barton copper mines, at all events, was that the excavators were drowned out. It is strange that no attempt to reach the ore has suggested itself in the present day. At Richmond the copper and lead mines of Whitcliffe have, from time immemorial, been leased by the Corporation to various persons, up to the present century, but they are discontinued for lack of ore. In the reign of Edward IV. a company with Richard, Duke of Gloucester at their head, had a grant from the king of a mine of copper near the very city of Richmond."

* Leland was greatly struck by these "divers hillethes cast up by hand, and many ditches, whereof some be filled with water. . . . . The ditches and hills were a camp of men of war, except men might think they were of ruins of some old town."

The Traveller's Library.
Longman and Co. 1852.

THIS excellent serial issue is rapidly progressing. We have here, "Sketches in Canada and Rambles among the Red Men;" by Mrs. Jameson, in two parts; being a reprint of the most amusing and interesting chapters of her elegant book, "Winter Studies and Summer Rambles in Canada," now out of print;—"Brittany and the Bible; with Remarks on the French People and their Affairs; by I. Hope," a portion of which appeared in the *Church of England Magazine;* and "The Natural History of Creation; by T. Lindley Kemp," a little brochure containing some wholesome knowledge to sight-seeing, surface-dwelling travellers, on the inward depths and mysteries of their own wonderful nature, of which,—and it is a strange circumstance in the history of the rapidly advancing science of outward things,—so few ever think,—a circumstance, indeed, quite unaccountable, except on physiological and psychological principles themselves, of which the many know as little as do the lower animals, who, wonderfully clever each in his own little sphere of intuition, are all eye, all ear, all scent and taste, without a vestige of spare soul or inner eye wherewith to see themselves, or even to reflect and *know*, otherwise than sub-consciously, that they themselves exist. Such is the influence of the external world and its teeming interests even on the race of man, the head of the animal creation; and that cannot but be a salutary interval to the traveller which will initiate him a little into "the way the blood forms the body"—"the way we move, and the influence of the mind upon the body"—"the way people die," and other ways, and means, of a creature so "fearfully and wonderfully made" as man is.

Instructions to Gas Consumers on its Economical Management. By JAMES BROWN; late Inspector of Meters to the Sheffield United Gaslight Company. Longman and Co.

THIS little shilling pamphlet ought to be in the hands of every gas consumer. It would enlighten him considerably on the use of his meter and the general management of his gas. It contains various woodcuts representing the different parts of the meter, with explanations and advice, as to its proper regulation, which would enable the consumer himself to judge whether he is fairly dealt with by it or not. A good deal of general knowledge on the subject of gas, too, may be acquired from its pages, a knowledge which ought now to be general, and which would do more than anything else to prevent those manifestations of gross ignorance whereby explosions and other accidents with gas are still occasionally produced.

Miscellanea.

THE ELECTRICAL LIGHT.—We have not heard much of late about the electric light in the metropolis: why it has gone to the country we do not know, unless it be merely as a novelty: we observe, however, that it is at present being exhibited at Liverpool, where there is perhaps a somewhat better or opener field than in the narrow river of the metropolis for the extension of its uses in connection with shipping. The light, says a Liverpool paper, "was exhibited from the tower at the north end of the Prince's dock shortly after the mail steam-ship *Africa* entered the river. It was exceedingly brilliant, and could be distinguished at a great distance. The experiment was considered decidedly successful. The inventor has obtained the permission of the dock committee to test the advantages of his light by showing it at the landing-stage, or other suitable position along the line of the docks." With steadiness of lustre, the power of the electric light would be invaluable as a guide to sailors.

IRON AND COPPER.—In 1851, the iron manufactured in Great Britain amounted to 2,500,000 tons; of which 750,000 tons were made in South Wales; 775,000 tons in Scotland; 600,000 tons in South Staffordshire and Worcestershire; and 400,000 tons in other districts; one-third of the produce being employed in castings, and two-thirds in malleable manufactures. In order to obtain this quantity, 7,000,000 tons of ore, 2,700,000 tons of limestone, and 13,000,000 tons of coal had to be extracted from the bowels of the earth; while, in addition to steam power, the labour of from 650,000 to 700,000 individuals, directly or indirectly employed, was required.——Mr. S. H. Blackwell, of Dudley, F.G.S. recently delivered a lecture "On the Iron-making Resources of the Kingdom," before the Mechanics' Institute at Northampton, in which he introduced a reference to the ore recently brought into notice. Mr. Blackwell said iron had been largely smelted in Northampton at the time of its occupation by the Romans, as well as in many other parts of the country, where it had been discontinued since the substitution of coal for wood as fuel. For the Exhibition of 1851, he obtained some specimens from General Arbuthnot, and forwarded them. Hitherto the stone had been found to yield from twenty to fifty per cent. of iron. It may be found largely developed all along the line of the railway from Peterborough to Gayton and Towcester. In admixture with other ores, it makes iron of a good quality, and may be cheaply raised, and is practically exhaustless. ——In the price of copper, the Birmingham trade circulars announce an advance of 5*l.* per ton, and another rise has since been rumoured. The quotations in the *Birmingham Gazette* of last week were—best selected, 101*l.* per ton; tough cake, 98*l.*; tile, 97*l.* Quantities smaller than three tons, 20s. per ton extra on the above prices. The rapid and heavy advance of price on this important article in Birmingham is attributed to the desertion by the workmen of the copper mines of Australia for the gold diggings.——A return was issued on Saturday, from which it appears that the value of wrought iron and copper and of machinery exported to the foreign West India Islands, to Brazil, and to the foreign West Indies and Brazil jointly, in 1851, was 158,771*l.*

BRICK MACHINES.—In reply to our remark on Mr. Hart's statement as to the saving resulting from the use of his machine, that gentleman says,—"To make 20,000 bricks per day, requiring four gangs of men, will require four horses to pug the clay. To make an equal number by my machine will require a 2-horse engine. The cost on one side stands thus:—four horses, at 15*l.*=60*l.*: they will work say ten years; the annual charge, therefore, will be,—interest on 60*l.* at 5 per cent.= 3*l.*; the depreciation = 6*l.*; cost of keep, at 10s. 6d. each per week = 109*l.* 4s.; total, 118*l.* 4s. besides cost of tackle, pug-mills, wear and tear, &c. On the other side, the machine costs 200*l.*; a 2-horse engine, 80*l.* These will work five years. The interest on 280*l.* at 5 per cent. is equal to 14*l.*; annual depreciation to 56*l.*; cost of fuel, 12 cwt. per week, at 10s. 6d. = 27*l.* 6s. per annum; total, 97*l.* 6s. which, deducted from the 118*l.* 4s. amount as above, leaves a clear annual saving of 20*l.* 18s. which I would have been justified in setting forth, and the statement would even then have been perfectly fair; but I have refrained from bringing forward those items which are the same, or nearly so, in both cases, and only put forth the evident advantages resulting from the use of my machine, and even these very much within the mark. The present cost of moulding bricks by hand-labour in London is 4s. 6d. per 1,000. My machine, if fully worked, reduces the same to 10d. per 1,000."

TURNER'S PICTURES.—It is tolerably well known to those who, of late years, have had access to Turner's dwelling-house, that the pictures he has bequeathed to the country are in such a state as to require the immediate attention of the "restorer;" and if something be not soon done, they will, in a very short time, be comparatively worthless as works of art. We believe that Turner, during his lifetime, applied to Mr. John Seguier to undertake the task, but was alarmed at the price named by the latter. The first question that arises on the subject is—what steps can the trustees of the National Gallery, and the executors under the will of a deceased artist, take to avert the threatened calamity? Turner's will is now before the Ecclesiastical Court; but so far as our legal knowledge extends, we presume that an application to the Lord Chancellor would obtain from the Court an order for the expenditure, out of the estate, of a sufficient sum of money to meet the exigencies of the case. Supposing this to be granted, the next thing is to find an individual every way qualified to execute so important a charge: the pictures of Turner are not of a character to bear the ordinary processes oil-paintings usually undergo when in the hands of the restorer; so that whoever may be entrusted with them should be a person intimately acquainted with the artist's method of painting and the vehicles he made use of. Under any circumstances, the task will require the most judicious and careful management—*Art-Journal.*

The Sanitary Movement and Assurance Offices.—The *Athenæum* suggests that now that every prudent man insures his life,—that the revenue of the societies is beginning to be counted by millions a year,—it may become worth the while of these bodies to assume some form of superintendence of the public health. The writer says we know not if this idea has as yet occurred to them; but they have begun to complain that the bad drains are destroying lives for which they have to pay. A case has just occurred, in which a good life and a thousand pounds were sacrificed to a defective sewer. The public health is here found to be an element in the success of a great commercial speculation,—and where the higher motive has failed to operate, the lower one may be advantageously let in. Might not the various insurance offices appoint a committee of inspection, empowered to look after the drains, heaps, and water-courses in the neighbourhood of their clients? Might it not be worth their while to contract with the parishes for due attention to everything which is necessary to the preservation of the public health in its highest state? They pay the medical man to detect disease for them,—might they not pay the scavenger to sweep it away? A few shillings would have cleansed the drain whose foulness cost one of the societies a thousand pounds. The loss to all the offices in London arising directly or indirectly from imperfect sanitary arrangements must be very great—perhaps greater in amount than would be the sum required to put the whole metropolis in good sanitary condition. We throw out this hint for the consideration of the insurance companies: their interests are precisely identical with those of the public.

The Smoke Nuisance.—A petition has been presented to the House of Lords, by Lord Redesdale, from the corporation of the City of London, praying for the extension to the whole of the metropolis of the provisions contained in the London Sewers Act of 1851, for abolishing the nuisance of smoke from steam engines and furnaces. On presentation of the petition the Earl of Shaftesbury said that if any of their lordships would go to Whitechapel or Lambeth, they would see how the comforts and decencies of life were vitiated by this nuisance of smoke. It was injurious not only to the health, but to the pockets of the inhabitants to allow the smoke of manufactories to go unconsumed. He knew an instance where an intimate friend of his own—a large manufacturer—consumed his own smoke, and effected a saving thereby of 300*l.* a year. He believed, then, that the general adoption of the practice by manufacturers would benefit not only their health, but their pockets. The petition was ordered to lie on the table.

The Wellington Statue at Edinburgh.—Though we have duly recorded the inauguration of this statue, we have said little as yet about its appearance or its merits. We should have liked to have had a look of it ourselves first; but in the meantime we gather a few details from the local papers, which are all quite enthusiastic in its praise, declaring it to be "admitted by the most critical judges that of all the monuments raised to Wellington, Steel's is the most worthy of the illustrious hero." The horse is in the act of rearing, (a doubtful position), and is so balanced that the hind legs and flowing tail alone sustain the whole weight of horse and man, without any clumsy adjunct such as a tree stump sticking through the belly of the former. The Duke's figure is said to form a striking contrast, from its repose, to the free and bold action of the horse. The pedestal—from a design by Mr. Bryce—is of red Aberdeen granite. It is 13 feet in length, 6 in breadth, and 12½ feet high. The equestrian figure itself is about 13 feet in height, and has been secured on the plinth by strong bolts of copper. Its weight is 10 tons (12 tons of metal of the best quality having been melted down for it at an expense of 1,000*l.*). The colour of the bronze is bright, if not brilliant, and will remain so till darkened by the natural action of the atmosphere. The site selected for the statue at the front of the Register-office, is one of the finest and most public situations that could have been selected in the city of Edinburgh, and was clearly designed by the architect, as we have before said, for an imposing group of statuary. The only question that required to be considered with reference to it probably was that of proportion, which we trust has been duly considered.

Architectural Society of Archdeaconry of Northampton.—At a committee meeting, held on 14th ult. it was stated that the plans for St. Mary's, Stamford, which had been laid before the committee, are about to be carried out. Some members of the committee had been requested to meet Mr. Scott, at Geddington, respecting the restoration and re-seating of that church and chancel, which have been placed in his hands by the vicar and the Duke of Buccleuch. The committee resolved itself into a St. Sepulchre's committee, Lord Henley in the chair. Mr. Butlin and Mr. Hutton stated that, with former subscriptions, they had promises for 1,270*l.* Mr. Scott's more detailed and amended plans were produced and approved. The London committee for raising a memorial to the late Marquis of Northampton had declined to make the restoration of the round part, that memorial, preferring to erect an altar-tomb in the new part of the church, making either the aisle in which it stands, or portions of the chancel, as the pavement, stalls, or glass, memorial also. This would throw the repair or restoration of the round upon the local committee. It was probable that not less than 4,500*l.* would be required for the whole. The altered plans would give kneeling accommodation for about 900. The architect has proposed an apsidal east end, following in this the authority of Little Maplestead.

Curved Lines in Architecture.—Allow me to suggest, to those concerned in the erection of the Crystal Palace in its new location, attention to a fact I have observed in the construction of almost all large cathedrals, of both our own and foreign countries, I have been enabled to visit; viz. "that as well in the plans as the construction, what seem to be straight lines are, in fact, slight curves." In some cases this arrangement is so evident as to have suggested an idea that some parts of the substruction of the building have given way. This has been stated in respect to Lichfield cathedral, without, I believe, any foundation. The curve, so evident in the nave of that beautiful conception, seems to have been evidently designed on the part of the architect; and a slight curve, both in the plan and also in the horizontal lines, appears to add greatly to the effect. The plan of the cathedral at Lyons is slightly serpentine. Earlier cavillers would attribute these arrangements to defects of construction on the part of the builders, as though they were unable to produce straight lines, and were ignorant of the use of the plummet. In these days, however, a more humble spirit may teach us to discover excellences in what, in less enlightened periods, others have only fancied defects; and the perspective advantages produced by these curved lines, fully warrant the opinion that they should be regarded as evidences of high thought and genius in design, rather than of inability in execution. I have just risen from your review of Mr. Penrose's work on the Parthenon, and it seems to me that the ancients and the mediæval artists both worked on the same principles of curves, not straight lines. The Maison Carrée, at Nismes, will fully bear out his views.—M. Mitchell.

Value of Building Land, Wimbledon.—Eighty lots of freehold building land, forming portions of the Wimbledon Park and West Hill Estates, Wimbledon and Wandsworth, were offered by auction on the 24th June, by Messrs. Chinnock and Galsworthy. The sale called together a large attendance, and a spirited competition was evinced. Nearly all the lots were sold at prices ranging between 350*l.* and 600*l.* per acre, being far beyond the prices hitherto realised for similar plots of land upon these estates. The lots varied from a quarter to four acres, and are chiefly adapted for villas. The total result of the sale was upwards of 19,900*l.* Wimbledon-park partakes much of the character of the Regent's-park.

Portland Breakwater.—The stageing now extends nearly half a mile in length from the shore. The piling is complete as far as the end of the first section of the breakwater, and a series of piles diverging from the direct line in the form of a crescent is being laid down to form the workmen's roadway from this to the second or main section, which will be proceeded with as rapidly as possible. While, however, the temporary road is being made by some classes of workmen and labourers, others find ample employment in preparing and depositing the stone for the first division of the breakwater, very many thousand tons being still required. The roadway alluded to will stand 25 feet above the level of the sea at low water, and the general depth of water at the ebb is about 57 feet, so that the piles supporting the roadway must be 80 feet high. They are made, like masts, of several pieces, and weigh each about 7 tons. The shoes, or spiral fittings, weigh upwards of 10 cwt. each. The piles are screwed down into the clay or shale by means of a capstan head and bars, with an endless rope attached to a crab, a system introduced by Messrs. Mitchell and Son, engineers, Belfast. The piles, as they are screwed down, are braced together by longitudinal and cross beams on the top, by chains running from the lower part of one to the top of its neighbour, and by similar chains running transversely from one to another at about low water mark, thus securely uniting the whole body. The piles are in rows, 30 feet apart; and on the top of them the necessary superstructure for carrying three lines of railway and a horse-track is fixed. Screw moorings are screwed down at regular intervals on each side of the staging for the purpose of steadying the piles. A screw is *temporarily* attached to one end of a large pile, from end to end of which is bored a hole, through which is passed the chain with one end permanently secured to the screw: the screw is then towed to the spot, and by powerful machinery on board a large barge, the pile is placed in an upright position, the screw end sinking to the bottom of the water. It is turned round a sufficient number of times for the screw to penetrate the ground to the depth of 5 or 6 feet: the temporary pile is then hauled up, the chain becoming drawn out from it, and on being released, the upper end is taken by other tackle, and conveyed to the pile to be moored, to which it is tightly strained and securely fixed. The quantity of stone deposited in the breakwater per day is about 1,200 tons, and we understand, from the local papers, that the quantity already so deposited amounts to about a million of tons.

Limerick School of Design.—This new and much needed school of art was inaugurated on Wednesday week. The *Limerick Examiner*, in noticing the circumstance, says —"There is no portion of the empire—we may add there is no portion of the civilized world—labouring under such disadvantages as Limerick, in whatever relates either to example or instruction in the arts. We have neither the modern nor the antique schools of statuary. We have no picture gallery; and if there are some pictures which might instruct, they are all but inaccessible to the student. We have neither copy, nor example, nor model, of even the most ordinary architectural character, and the result, we regret to say, is perfectly apparent whenever we find it necessary to construct a new building, and commit to the hands of a home-instructed native. It is to training in the arts that Cork owes her present exhibition."

Warrington Markets Competition.—An architect informs us that five designs were sent in reply to advertisement, and that one of the competitors has been allowed, during three weeks' delay, free access to the other plans, and *opportunity*, through the good offices of some conscientious councillor, to submit a *sixth* plan, embodying the best points of each of the other five!

Museum of Practical Geology.—A course of lectures on gold has been commenced here with a view to the instruction of emigrants about to proceed to Australia. The first was given on the 30th by Mr. J. B. Jukes.

METROPOLITAN WATER SUPPLY.—On the second reading of the Water Supply Bill in the House of Lords, the Earl of Shaftesbury said he trusted this bill would not preclude the introduction of some other measure for the supply of purer water to the metropolis. The Earl of Derby said the only alternative was to pass or reject the present bill. He admitted the subject had not been fully considered, but still the only course left open to the government was to propose the present measure or postpone legislation. If the measure were rejected for another year, most likely the public would be found in the same disadvantageous position in which they were at present. There was this merit in the bill, that it provided a purer supply of water to the people of the metropolis than was at this moment within their reach.—Lord Campbell expressed a hope that the government would apply their attention to the general subject of a water supply to the public, hitherto much neglected. He should like to see measures of this kind originated in their lordships' house.

APPROACH TO BRITISH MUSEUM.—Although it is not yet done, it must surely be intended to lay down a flagged causeway from the entrance gates to the portico of the British Museum. On going into the building the other day, I was surprised to find that nothing had been done to form a tolerably commodious and firm foot-road up to it. Owing to a passing shower a short time before, the ground was in very quagmire condition, and bepatched with pools of standing water. What I complain of is not the hardship but the *softship* of having to tread tiptoe all that way upon pulp, and avoid plumping into miniature lakes, to the consternation, I presume, of their presiding naiads. It is dryads not naiads whom we would there meet; at all events have a dry and cleanly path. The trustees or authorities ought to mend their ways in the literal, and perhaps in the figurative sense of the words also. As to the railing next the street, I cannot help considering that an extravagant affair; extravagant in point of taste, as well as in that of cost. The colour chosen for it, too, is such as to give it the look of painted woodwork. A greenish hue would certainly have harmonised far better with gilding than does the present deep brown. Neither is the gilding well distributed: there surely ought to have been some in a vertical as well as horizontal direction, for its being almost entirely confined to the latter occasions a straggling and rather patchy look.—*_*

ETIQUETTE AMONG ARCHITECTS.—A builder complains, under this heading, of an architect employed to restore and repew two parish churches, who has, in each case, persuaded his employers that he can execute the works at a much more reasonable rate than a builder, and employs his own mechanics to carry on the works. Before complaining, however, it would be right to be certain that the proceeding was not forced on the architect. Few architects would willingly take upon themselves the increased trouble and responsibility entailed by this course. If we are to understand that the architect is making money by the arrangement he is acting most improperly.

SECURITY OF PUBLIC BUILDINGS AGAINST FIRE.—An American paper, in drawing attention to the necessity of securing the interior as well as the exterior of public buildings against fire, states that a manufactory of material useful for such a purpose has been established at New York by Mr. T. J. Gillies, of Broadway. The material is iron, enamelled and finished in imitation of marble, or of some of the richest and finest woods. The manufacture is new to America, but not to Europe. As remarked by the paper in question, "The most expensive and permanent materials are generally employed in constructing the outer walls of public buildings, while the most frail and combustible are used in completing the interior. The outside is made fire-proof, but the inside is not. Whereas experience has shown, that at least equal, if not greater caution is required within than without, as conflagrations originate more frequently within than from the outside of public buildings. Our city hall (New York) has been several times on fire, and all its municipal and judicial records threatened with irremediable destruction; but the fire, in every instance, has originated within the building. Such also has been the case with the Treasury building at Washington. The Patent Office building, at Washington, shared a much worse fate, having been wholly consumed. The Congressional Library Rooms also took fire from the inside. The outer walls escaped uninjured, but the library was destroyed. There was security for the outside, but none for the inside. The points of greatest danger, to wit, the interior parts of the building, were lost sight of and left exposed. The building itself, which in case of loss could easily have been replaced, was saved, but the rich and valuable treasury, the accumulations of a whole century, which the building was intended to preserve, and which in many cases cannot be duplicated or replaced, were irretrievably lost. The principal object of strong outside walls is to give strength and permanence to the building; but it is perfectly idle to rely upon them alone for protection against fires. To effect this there is only one remedy—make the insides as well as the outsides fire-proof."

RAILWAY JOTTINGS.—It is understood that a contract has been entered into by the directors of the London and North-Western Company with Messrs. Fairbairn, of Manchester, for the construction of a number of express-train engines, designed by the company's locomotive engineer, for the attainment of high speed. It is fully expected that these engines, which Messrs. Fairbairn have undertaken to complete in four months, will run from Euston-square to Birmingham, a distance of 113 miles, with loaded trains, in two hours; and it is anticipated, therefore, that, before the close of 1852, the important manufacturing and commercial districts of South Lancashire, will be brought within an easy journey of three-and-a-half hours of the metropolis.——The Great Northern station at Retford, according to the *Doncaster Gazette*, is fast approaching to completion. It is situate immediately adjoining the Manchester, Sheffield, and Lincolnshire line, with which it here forms a junction. The buildings altogether are small and insignificant. Approaching from the north, to the right hand of the up-line is a coke-house: a little farther on is the engine shed: in front and behind the engine-house is a paved platform—in front 100 yards in length,—which in passing onwards communicates with the down-train waiting-room, of small dimensions. Nearly opposite to this, on the other side of the line, is the goods warehouse. Near there are some cottages for servants, and a residence for the station master and the clerk in charge. To the southward is the general station, the first of which is the refreshment room, dimensions 20 feet 4 inches by 11 feet 6 inches, and which let at the annual rental of 52*l*. The next is the ladies' waiting-room, adjoining which is the first class waiting-room; then comes the booking-office and the clerk's room, with other appendages. Almost immediately adjoining is the engine-house for supplying the tanks with water. This building is opposite to the main junction, where the two main lines cross each other. At present there is only one road to the Great Northern station, and that is considerably more than a mile distant from the Retford market-place, by a tortuous and somewhat unpleasant route. It is said to be worse situated for tourists, travellers, and the inhabitants of Retford, than any other station on the whole line between London and York.

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Clifford	1,084	10	0
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Dore	705	0	0!

For the erection of parochial schools and master's-house at Putney. Mr. Ferrey, architect.

Building Association	£1,407	0	0
Messrs. Nicholson and Son	1,348	0	0
Messrs. Avias	1,314	0	0

For National Society's Training Institution, Westminster. Mr. H. Clutton, architect.

Rigby	£37,897	0	0
Cubitt and Co.	37,815	0	0
Little	37,095	0	0
Grimsdale	36,848	0	0
Locke and Nesham	36,840	0	0
Smith and Appleford	36,403	0	0
Holland	34,899	0	0
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Piper	33,362	0	0

For additions to Woodhall, Worcestershire. Mr. J. J. Cole, architect.

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Wood, Worcester	2,497	0	0
Tombs, London (accepted)	2,333	0	0

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A YOUNG MAN, who was last engaged in a large Builder's Office in designing measuring, specification writing, bookkeeping, &c. is open to a RE-ENGAGEMENT. First-rate testimonials, both as to character and abilities.—Address, 19, Old-street, St. Luke's, London.

AS BUILDERS' GENERAL FOREMAN or CLERK of WORKS. The Advertiser having just finished his last engagement, is open for a RE-ENGAGEMENT in either of the above capacities. Perfectly understands making out working drawings, taking out quantities, and estimating for same. Satisfactory reference can be given as to capability, &c.—Address, post-paid to A. Z. 14, Huntley-street, Frances-street, Tottenham-court-road.

A RESPECTABLE Young Man, aged 23, who has served an apprenticeship to a Builder, and since then has had considerable experience in a Surveyor's office, is desirous of an ENGAGEMENT with a Builder, either as CLERK, or TIMEKEEPER on a Building, or in any situation where he could have an opportunity of improving himself. Salary would be a secondary consideration.—Address, A. G. W. Mr. Leathwait's, No. 1, Pope's-head-alley, Cornhill.

TO ARCHITECTS, SURVEYORS, &c.

A THOROUGH and EXPEDITIOUS DRAUGHTSMAN, having been twelve years in the profession, and understanding all the trades belonging to building, taking out quantities, estimating, surveying, making working detail, and perspective drawings, is in want of a SITUATION to either of the above professions.—Address, J. H. B. M. office of "The Builder," 1, York-street, Covent-garden.

TO ARCHITECTS, SURVEYORS, BUILDERS, &c.

AN experienced DRAUGHTSMAN, having a few leisure hours daily, OFFERS his SERVICES, in designing, copying, or reducing all kinds of maps, plans, perspectives, &c. Terms exceedingly moderate, occupation being the chief object.—Address S. Miss Butcher's, No. 2, Clarendon-road, Nottinghill.

TO BUILDERS.

AN active, experienced Foreman is in want of a SITUATION as SHOP or WORKING FOREMAN, &c. References unexceptional.—Direct, J. E. 81, Lower Marsh, Lambeth.

TO ARCHITECTS, SOLICITORS, AND OTHERS.

A HANDSOME PREMIUM will be paid to any gentleman who will introduce a respectable party to BUILD SIX HOUSES on the advertiser's ground, at a moderate ground-rent. It is 500 feet frontage, and 150 feet deep, in a public road and most desirable situation, twelve miles from town, and close to a railway station, where houses of about 120l. a year are much required.—Apply to Mr. PILCHER, 43, Great Tower-street, City.

TO BE DISPOSED OF, a powerful iron PURCHASE CRANE. Also, to be SOLD or LET, a most valuable PLOT of FREEHOLD BUILDING GROUND, with a frontage of about 84 feet, facing the main road, Brixton-hill, for the erection of houses, with shops, which are in great request.—Apply to O. P. 39, Frith-street, Soho.

TO BUILDERS, CONTRACTORS, AND OTHERS.

TO BE DISPOSED OF, TWO large Descending STOVES (Cundy's patent), suitable for a Church, Exhibition-room, or large Offices, where a good degree of heat is required. As they are not wanted for further use, they will be sold at a great reduction of the original cost.—May be seen on application to Mr BROWNE, Ironmonger, 8, Tabernacle-walk, Finsbury-square.

By Royal Letters Patent.

THOS. HAWKINS begs to inform Builders, Painters, and the Trade generally that he has now on hand a large stock of his newly patented Brushes, made on an entirely new principle, and warranted to stand any test. One trial will be sufficient to prove the superiority of these brushes over any other article now in use by the trade. Terms, cash.—Address, THOMAS HAWKINS, 3, Inverness-terrace, Bishop's terrace, Paswater

ROBSON and SON'S IMPROVED WHEEL TIRE, for lessening the draught of Vehicles, and reducing the friction upon the axles.—R. and Son, Wheelwrights and Hoop Tire-smiths, having registered an improved Iron, which is manufactured by a process recently patented), are prepared to tire wheels with the above iron, which has many advantages over the flat tire, as the strain is removed from the front and back edges to the centre, thereby decreasing the draught greatly, in vehicles with six-inch tire and under.—N.B. Old wheels can be new tired with the above iron.—Lists of prices may be had on application at the factory, Lonsdorne-street, and Lamb's-conduit-street, Gray's-inn, Holborn, London

PALMER'S PATENTED PROCESS for reducing or enlarging Paintings, Prints, Sculpture, Daguerreotypes on Glass, Microscopic Objects, copying Landscapes, Buildings, Portraiture, &c. &c. and printing the same with the greatest accuracy and facility, either by the scientific or amateur.—W. ELLIOTT and SONS, 56, Strand, London.—Sole Agents for the apparatus, which may be seen daily from twelve to two.

PLUMBERS and BUILDERS supplied with CAST and MILLED LEAD in sheets, or cut to their Patent and Enamel Pipe Lead, Trap and Service Bends, at wholesale prices. WILLIAM DENT, 21, NEWCASTLE-STREET, STRAND, Manufacturer of Plague pumps. Water-closets, and every description of Plumbers' Brasswork. The Registered Urinal Basins now selling at the reduced prices of 17s. 24s. 22s. and 25s. according to colour and fittings. Also an Earthenware Slab and Wash-hand Basin of improved construction.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEAL, to imitate OAK, MAHOGANY, or SATIN WOOD colours. For specimens of the above Dyes, the public are referred to the WOODWORK of the GREAT EXHIBITION, and particularly the ENTRANCE DOORS, which were coloured with the stains invented and manufactured by HENRY STEPHENS, of 54, Stamford-street, Blackfriars-road, who supplied to the workmen both stain and varnish, and who was the first person to introduce and call the attention of the public to this means of colouring wood, so as to bring forth the ornamental effect of the natural grain, and thus save the expense of artificial imitation.—Prepared and sold by HENRY STEPHENS, 54, Stamford-street, Blackfriars-road.

TO PARTIES ABOUT TO BUILD OR ALTER CHAPELS.

THE Trustees of the Old Wesleyan Chapel, Luton, are desirous of SELLING—1. The whole of the PEWING, including framed backs, doors and elbows, with mahogany capping, seats, bearers, and other fittings of a gallery, 64 feet by 37 feet, including an excellent moulded front, with circular ends. 2. A deal painted and grained PULPIT, with stairs and mahogany handrail, and ornamental iron balusters. Tenders stating separate amounts for the above to be sent to Mr. GUSTAVUS JORDAN, Luton, Beds, of whom further particulars may be known. The highest or any other tender will not necessarily be accepted.

IMPORTANT to FAMILIES FURNISHING, who study Elegance with Economy.—JAMES COOK'S three guinea French polished Mahogany Arabian Bedstead, Bedding, Cabinet, Carpet, Looking-glass, and Upholstery Warehouse Estimates given, and a list of prices sent post-free.
BROMPTON HOUSE, 23 and 24, QUEEN'S-BUILDINGS, KNIGHTSBRIDGE.

HEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS, sent free by post, contains designs and prices of upwards of One Hundred different Bedsteads, in Iron, Brass, japanned Wood, polished Beech, Mahogany, Rosewood, and Walnut-tree Woods; also their priced List of Bedding, and their new warerooms enable them to keep one of each design fixed for inspection. They have also in addition to their usual stock, a great variety of the best designs of PARISIAN BEDSTEADS, both in wood and iron, which they have just imported.—HEAL and SON, Bedstead and Bedding Manufacturers, 196 (opposite the Chapel), Tottenham-court-road.

THE BEST SHOW of IRON BEDSTEADS in the KINGDOM is WILLIAM S. BURTON'S. He has added to his Show-Rooms TWO VERY LARGE ONES, which are devoted to the EXCLUSIVE SHOW of Iron and Brass Bedsteads and Children's Cots (with appropriate Bedding and Mattresses). Many of these are quite new, and all are made in plain figures, at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Common Iron Bedsteads, from 12s. 6d.; Portable Folding Bedsteads, from 13s. 6d.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 16s. 6d.; and Cots, from 20s. each. Handsome ornamental Iron and Brass Bedsteads, in great variety, from 3l. 5s. to 31l.
WILLIAM S. BURTON has TEN LARGE SHOW-ROOMS (all communicating), exclusive of the shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares), so arranged and classified that purchasers may easily and at once make their selections.—Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.
39, OXFORD-STREET (corner of Newman-street); Nos. 1 and 2, NEWMAN-STREET; and 4 and 5, PERRY'S-PLACE.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ½ inch to ¾ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Plank, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c. Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD, Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 300 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A. continues to offer all the advantages as stated in his previous advertisements.

TO BUILDERS AND OTHERS.

SEASONED WOODS, by the Patent Desiccating Process, FOR SALE, at E. J. FULLER'S Depôt, 27, Gloucester-road, City-road.

MUIR'S PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO

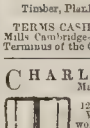
TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle; Boards, &c., prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantages of situation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.
Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

MOULDINGS BY MACHINERY.—ARCHIBUTT and ATKINSON have just published a new and enlarged list, containing nearly 300 diagrams of Mouldings, with prices attached, lower than any ever yet offered. A copy will be forwarded on receipt of four penny postage stamps.
A. and A. have also on sale
FLOORING PREPARED and PLANED to a parallel width and thickness by improved patent machinery, at greatly REDUCED PRICES, as under:—

Per square. s. d.		Per square. s. d.
1-inch Yellow 16 0	1-inch White.....	15 6
¾-inch ditto 14 0	¾-inch ditto	24 0
½-inch ditto 13 0	½-inch ditto	13 6

140 feet run of 9-inch boards to the square, and 180 feet run of 7-inch battens to ditto.
Timber, Planks, Deals, Battens, Scantling, Sash-sills, &c. at equally low prices.
TERMS CASH. Saint Pancras sawing, Planing, and Moulding Mills, Cumberidge-street, Old Saint Pancras-road, close to the Goods Terminus of the Great Northern Railway.

CHARLES WM. WATERLOW, Manufacturer of Sashes and Frames, and Joiner to the Trade, 121, Basinghall-street, Wood-square.



Well seasoned materials, superior workmanship, lowest prices.
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes and Frames, always on sale.
Glazed goods securely packed for the country. Steam struck mouldings in any quantity.
N.B. This Establishment is worth the notice of all engaged in building.

NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade,



beg to inform their Customers and the Public generally, that they have removed to more extensive premises in
BAKER-STREET,
BAGNIGGE-WELLS-ROAD,
where they have convenience for carrying on a larger business.



N.B. By inclosing a postage-stamp, a full list of prices may be had by return of post.

TO ARCHITECTS, SCULPTORS, BUILDERS, STATUE and MARBLE MASONS, &c. &c.—ALABASTER QUARRIES, CHELLASTON, near DERBY.—Alabaster in blocks of almost any size, and of very superior quality, may now be obtained from these quarries on application to
Messrs. JOSEPH SMITH and SONS,
HORNINGLOW, near BURTON-ON-TRENT.
This stone was extensively used during the Middle Ages for Monuments and other Ecclesiastical Decorations, and since that period until now has not been obtained in blocks of any size. Its colour is white, and beautifully variegated. It is easily worked, and capable of taking a high polish, which renders it suitable for every kind of internal House Decoration.
Agents in London, Mr. WILLIAM FIELD, 58, Holywell-street, Millbank; Depôt, 34, Wharf, Paddington, where a stock is always on hand.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.
This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.
It becomes then, worth the attention of those who are interested in building, to inquire whether materials of an impurishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.
Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.
A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,
Mr. BARRETT (late FOX and BARRETT),
12, York-buildings, Adelphi,
whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

MORTGAGE SECURITIES.—The Sums of 1,500l. 1,000l. and 500l. are ready to be advanced, immediately, at 4l. per cent. for a term of seven years certain, on freehold lands.—Apply to Mr. COLE, Solicitor, 12, Furnival's Inn.

MONEY.—Gentlemen requiring ADVANCES on REAL PROPERTY may be advantageously and expeditiously provided by forwarding the particulars of their securities to Mr. SMITH, 5, Brompton-place, Brompton, Middlesex.

LOANS.—Persons desirous of obtaining ADVANCES from 50l. to 250l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectus, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3l. per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100l. is to bear interest after the rate of 3l. per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.

By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION,
7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON.
Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money at 4 per cent. interest, but unused to seeking securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realising the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE:—

Assurances may be effected from 50l. to 10,000l. on a Single Life.
Entire profits belong to the Assured, and divided annually.
Credit for half the amount of the first four annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence, greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a family, or affording to the assurer security against the casualties of age, involving, as it does, the uncertainties of health on 1 fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

THE NATIONAL PATENT STEAM FUEL COMPANY, provisionally registered, pursuant to 7 & 8 Vict. c. 110, to be incorporated by Act of Parliament or Royal Charter, limiting the liability of shareholders. Capital, 50,000l. in shares of 1l. each, to be paid upon allotment, after complete registration.

TRUSTEES.
Sir Robert Price, bart. M.P.
Samuel Gurney, jun. esq. | Thomas Hankey, esq.

PROVISIONAL DIRECTORS.
Sir Robert Price, bart. M.P. Stretton-street, Piccadilly, and Foxley park, Herefordshire.
George Davey, esq. Briton Ferry, Glamorganshire.
Capt. R. W. Pelly, R.N. Upton, Essex.
Samuel Gurney, Fry, esq. Fenchurch-street.
Matthew Crawford, esq. Middle Temple.
Edwin Fox, esq. St. Helen's-place.
Henry Baker, esq. Upper Gower-street, Bedford square.
BANKERS—Messrs. Hankey and Co. Fenchurch-street.
AUDITORS.
Capt. Thos. N. Were, H.E.I.C.S. John Searle, esq. Dulwich.
SOLICITOR—George Jackson, esq.
SECRETARY—Osmund Lewis, esq.
Offices, 49, Fenchurch-street.

The directors have carefully estimated the cost, from actual experience, of manufacturing 1,000 tons of fuel per week, an amount very far below the demand which may be fully calculated upon, and they feel warranted in stating that the sale of even that limited quantity will not only enable the Company to pay a dividend of 10 per cent. upon the capital invested, but likewise to set aside a reserved fund for the extension of their works.

Various certificates respecting the merits of this fuel used on board Government and other steamers, can be seen at the office of the company.

Applications for the remaining shares may be made, according to the annexed form, to the Secretary or Solicitor, at the offices of the Company, 49, Fenchurch-street, where prospectuses and every information respecting the working results of this undertaking may be obtained. Applications may also be made to Messrs. Huggins and Co. 14, Austin-friars, Old Broad-street, the share-brokers of the Company.

Form of Application for Shares.

To the Directors of the National Patent Steam Fuel Company
Gentlemen,—I request you will allot me shares in the above Company, and I hereby undertake to accept the same, or any less number that may be allotted to me, and pay the sum of 1l. per share when required.

Dated this day of , 1852.
Name in full .....
Usual Signature .....
Profession or Occupation .....
Address { Residence .....
Office, if any .....
Referee .....

THE NATIONAL PATENT STEAM FUEL COMPANY.—No FURTHER APPLICATIONS for SHARES in this Company will be received after SATURDAY, the 3rd of JULY next.—By order,
OSMUND LEWIS, Secretary.
Offices, 49, Fenchurch-street, June 21st, 1852.

BRITISH ASSURANCE COMPANY,
3, King-street, Cheapside.
Chairman—SYDNEY SMIRKE, Esq. R.A.
The rates for both Fire and Life Assurance are as low as can with safety be taken. The premiums for Life Assurance made payable to suit the convenience of the assured. Prospectuses and all particulars may be had at the head office, or of any of the agents. JOHN REDDISH, Manager.

THE LIVERPOOL and LONDON FIRE and LIFE INSURANCE COMPANY (established 1836), 3 and 10, Water-street, Liverpool, and 20 and 21, Poultry, London. Capital, 2,000,000l. sterling. Reserved funds, 340,000l. Liability of proprietors, unlimited.

Midsummer Policies should be renewed within fifteen days after the 24th June. The renewal receipts are in the hands of the agents.

Fire insurance at home and abroad on liberal terms.

Life insurance in all its branches.

Life policies, when taken out under Table 2, have fixed bonuses guaranteed to them, not contingent on profits, without any liability of partnership to be assured, and at moderate premiums.

Prospectuses and all information may be had on application.
BENJAMIN HENDERSON, Resident Secretary.
SWINTON BOULT, Secretary to the Company.

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY, 4, Chatham-place, Blackfriars, London, and all the principal towns in the kingdom.

TRUSTEES
John Macgregor, esq. M.P. | David Ferguson, esq.
Jeffery Smith, esq. | Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.
Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

NON FORFEITURE OF POLICIES.
Assurers unable, or who find it inconvenient to pay their premiums as they fall due, may have a credit on application to the board.
Loans granted on personal and other securities, in connection with life assurance.
The directors, being desirous of extending the agencies in and round the metropolis and throughout the provinces, are ready to receive applications from influential and active persons, accompanied with a reference. GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.
Persons of all ages, and in every station, may assure with this Society, and the assured can reside in any part of Europe, the Holy Land, Egypt, Madeira, the Cape, Australia, New Zealand, and in most parts of North and South America, without extra charge.

FIFTH DIVISION OF PROFITS.
The FIFTH BONUS will be declared in January last, and the amount varied with the different ages, from 24½ to 55 per cent. on the premiums paid, during the last five years; or from 1l. to 22l. 10s. per cent. per annum on the sums assured.
The small share of profit divisible in future among the shareholders being now provided for, without intrenching on the amount made by the regular business, the Assured will hereafter derive all the benefits obtainable from a Mutual Office, with, at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital—thus combining, in the same office, all the advantages of both systems.
A copy of the last report, setting forth full particulars, with a prospectus, can now be obtained of any of the Society's agents, or by addressing a line to
GEO. H. PINCKARD, Resident Secretary.
99, Great Russell-street, Bloomsbury, London.

PELICAN LIFE INSURANCE COMPANY, Established in 1797, 70, Lombard-street, City, and 57, Charing-cross, Westminster.

DIRECTORS.
Robert Gurney Barclay, esq. | Kirkman D. Hodgson, esq.
William Cotton, esq. F.R.S. | Thomas Hodgson, esq.
William Davis, esq. | Henry L. Holland, esq.
Richard Foller, esq. | J. Petty Muspratt, esq.
Jas. A. Gordon, M.D., F.R.S. | C. Hampden Turner, esq. F.R.S.
Henry Grace, esq. | Matthew Whiting, esq.

AUDITORS.
Emanuel Goodhart, esq. | John Davis, esq.
John Haggard, D.C.L.

BONUS.
At a division of Profits declared up to 3rd July, 1847, the Bonus added to Policies effected in the seven preceding years on the "Return System" averaged Thirty-three per Cent. on the premiums paid. Four-fifths or Eighty per Cent of the Profits are divided amongst the Assured.
LOANS in connection with Life Assurance on approved security.
Annual Premium required for the Assurance of £100 for the whole term of life:—

Age.	Without Profits.	With Profits.	Age.	Without Profits.	With Profits.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
15	1 11 0	1 15 0	40	2 18 10	3 6 5
20	1 13 10	1 19 3	50	4 0 2	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament. Capital, 500,000l.

TRUSTEES.
Ralph Creyke, esq. Rawcliffe Hall.
John Swann, esq. Askham
Leonard Thompson, esq. Sheriff Hutton Park.
BANKERS.—Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for insuring 100l.

Age next birthday.	A MALE.	A FEMALE	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 8 6	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 1	1 11 6	56	5 4 0	4 14 6
23	1 17 0	1 13 8	60	6 6 0	5 12 6
26	2 0 3	1 15 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 2	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 22l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.

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As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT!"

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The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium PURE WHITE OXIDE of ZINC in a dry powder, and the casks bearing their mark, VM, are only to be considered as genuine, and may be obtained, for grinding in oil, at any of their Agents, residing in the following towns, viz.: Bristol, Liverpool, Manchester, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.
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PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being fully prepared to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not only meet the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.
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In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flattinz, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.
OFFICE IN LONDON.—Mr. R. COOKE, No. 7, Sise-lane.
Office of the Washington Chemical Company,
73, Grey-street, Newcastle-on-Tyne, January 1, 1852.

The Builder.

No. CCCCXCII.

SATURDAY, JULY 10, 1852.

ON all sides there is an outcry against the formation of the Metropolitan Cattle Market in Copenhagen-fields, as we expected there would be as soon as the determination became known. Without meaning any disrespect, we must say that the Home Secretary of State has not done his duty in the matter. Under any ordinary Act of Parliament notices would probably have been required, which would have brought the intention prominently before the public, and would have enabled those who were interested to object in time. In the present case the public were supposed to be protected as to the selection of a fitting site by requiring in the Act that it should be approved of by one of her Majesty's principal Secretaries of State: there is no other protection whatever against the removal of the present market to Finsbury-circus or the Artillery-ground, or any other nice open site in the neighbourhood, if the Corporation could quietly buy it; and yet, when a deputation of gentlemen interested in the Camden estate urged upon the Home Secretary, that it could not have been the intention of the Legislature that the Secretary of State should give a mere formal assent to the site selected by the corporation of the City of London, but that he should exercise his right of approval more as a judicial than as a Ministerial act, and inquire into the *propriety* of fixing the market on any given site before signifying his approval of it,—Mr. Walpole objected to that view of the question, and said, it would be impossible for any Secretary of State to take upon himself judicial powers, examine witnesses, and make such a survey of the site as it would entail. Why, then, was his approval required? The preamble of the Removal Act sets forth that it is expedient a new market "should be provided in a more suitable place, more distant from the centre of the metropolis;" and a clause provides, as we mentioned last week, that after the market has been formed as authorized by the Act, no new market for the sale of cattle shall be opened at any place distant less than seven miles, in a straight line from St. Paul's. There is no restriction whatever as to the site of the market to be opened under the Act, except the veto of the Secretary of State, and now the honourable gentleman says he gave his assent as a matter of course, or, at all events, had written a letter, which he thought morally compelled him to assent when called upon, and was "afraid," according to the published report of the proceedings at the interview, that he could not retract. The honourable gentleman admitted that the Act was very arbitrary in permitting the selection of the site, without either the production of plans to the House of Commons, or notice in the *Gazette*, or any intimation whatever to the inhabitants of the neighbourhood, and yet he omitted to exercise the power confided to him for the protection of the public. The Home Secretary evidently sees the error he has committed, and should take all the means in his power to remedy the oversight. It was pointed out to him by the deputation alluded to that a church had been built, squares commenced closely adjoining the proposed site, and that the land is already, indeed, surrounded by a population almost as dense as the neighbourhood from which it was proposed to remove the market; with this distinction, that, whereas the inhabitants in the neighbourhood of Smithfield had principally chosen their residence there in consequence of its contiguity to the market, as convenient for their business, those residing in the neighbourhood of Copenhagen-fields had chosen it in consequence of its being a respectable and ornamental neighbourhood, and in the full conviction that they would not be disturbed by the establishment of a nuisance almost at their very doors.

Mr. Dunhill, who, in 1847, began to advocate the removal of Smithfield Market to Copenhagen-fields, has called upon us to insert a long defence of the proposition in reply to the letter on the subject in our last week's paper, but this we are unable to do. There is the less reason for it, inasmuch as the writer admits fully the impropriety of adopting this site, except as a matter of expediency and a choice of evils. He says:—

"The proximity of Copenhagen-fields to a populous section of the metropolis is urged as an insuperable objection, and I am free to confess, except for other considerations, no one would, in sober seriousness, have proposed a mere transfer of the market to that site as a remedy for the evils of the ancient nuisance, well knowing that the whole population would rejoice to be relieved entirely from a huge live cattle market in any suburb, however distant; and when called before the Royal Commission, in 1850, I submitted a project for effecting this desirable termination to the monopolies and abuses of Smithfield.

My proposition was, that Smithfield market should be abolished, and any new establishment within a ten-mile radius should be forbidden; it so happening that nearly in the direction of the four cardinal points of the compass, at that distance from London, are located the nearest *existing* cattle markets, viz. Barnet, Romford, Croydon, and Southall, each situate on main trunk lines of railway, and now largely attended by London butchers. Indeed, the majority of the trade would economise both time and money by attending these markets; their distance apart and distinctive character avoiding the objections advanced against a plurality of markets.

The transmission of cattle to convenient abattoirs in the immediate suburbs of the metropolis would be safe, expeditious, and economical, so that carcases only would have to be conveyed through the streets to the butchers' shops, or to a grand central dead meat market, established at Smithfield on a scale commensurate with its importance.

Less comprehensive measures may never be regarded as absolutely permanent by future generations; nevertheless, while propounding this scheme to the commissioners with the conviction that the principles upon which it is based must ultimately obtain, the experience of many years' war waged against close monopolies and class interests, forbade me to exclude another conviction,—that to effect anything, the cosmopolitan view must for the nonce be ignored, and present concessions made to confirmed habits and inveterate prejudices."

This view of it we cannot admit. The metropolis must not be satisfied with a half measure in such a case, and this now proposed by the Corporation is not a half measure nor a quarter measure; it is simply a shifting of the nuisance. Those citizens who in 1380 petitioned that the butchers might be forced to kill their beasts at "Knyghtsbrigg" (Knightsbridge), or some other place equally distant from the city, looked a great deal further into the future than those who would now remove the nuisance of Smithfield into Copenhagen-fields, surrounded on all sides by houses and towards which the town tide is unquestionably setting in.

Bow Common, suggested by the deputation as a proper site, though less objectionable than Copenhagen-fields, is less advisable than the level opposite Woolwich Reach, mentioned by a correspondent last week. At the end of last year Mr. Charles Wilson, an engineer, published a pamphlet, with plans, recommending this position, and urging wisely that we should reject any half measure which might suffice for to-day, and establish a market on a scale worthy of the metropolis now, and sufficient to meet the views and wants of the generations that are to follow. We have ourselves no wish to advocate the adoption of any particular site: our object is simply to declare strenuously against the formation of the market in Copenhagen-fields. We have much greater faith than some of our contemporaries in the good intentions and ability of the Corporation of London and their officers, and are disposed to hope that, hearing of the overwhelming objections to the site named, they will reconsider the question, and prevent the necessity for such an interference on the part of the public as should otherwise be invited.

GREEK PERIPTERAL ARCHITECTURE AND ECCLESIASTICAL DESIGN.

There can be no doubt that nations in primitive times and southern climates resorted for worship to the depths of woods, nor that, led by the solemnity of such localities, they built their earliest temples in groves. When temples came afterwards to be raised in towns, and on a greater scale of magnificence, the colonnade, which may be looked upon as a petrifaction of the original line of trees of the sylvan situation (its æsthetic type) was extensively used. This, in the opinion of Wren, was the origin of the portico as an adjunct to the temple; an opinion that is not without support: the Indian and Chinese pagodas have each their peristylar accompaniments; and the adytum or sanctuary of the Egyptians was approached through a forest of columns. Nor was the fore-Christian Church, the Temple of Solomon, without them. And this columnar ordonnance, though only brought to perfection by the Athenians, may be viewed as the joint result of the geometric skill and art-feeling of Greeks, Egyptians, and all other imaginative and ingenious nations preceding them.

Another cause, doubtless, contributed to this appropriation of the peristyle, viz. its intrinsic beauty and grandeur: the shrine of religion was deemed in every nation the most important building: David took shame to himself that he should "dwell in a house of cedar" while the Ark of God dwelt "between curtains;" and this sentiment could not fail to result in the most powerful elements being sought for its construction and embellishment. Nevertheless, the chief reason, as I conceive, was its peculiar expressional fitness, and the classical and other ancient nations used it under a sense of its entire and exclusive capacity for exciting those solemn emotions that should attend the worship of the divinity.

Besides, the peripteral arrangement or entire surrounding of the temple with columns, expressed to them a state of being set apart,—cut off from the world and devoted to an appointed use. They would naturally wish to give the sanctuary a distinct air, unlike all adjacent buildings; and nothing would do this like the enveloping porticoes. The most striking structural object on earth is a Greek temple. In such a building the colonnade is really a feature of utility, separating the house of God from others, and proclaiming it as holy. How impressive, how affecting, even its ruins at the present day: at Pæstum, the traveller of sensibility feels as on sacred ground, and owns "the religion of the place." Why have these qualities been disregarded by eccle-

siastical architects generally? The solemn grandeur and repose of the Greek temple has to me long marked it out as a fit model as regards its exterior, on which the religious structures of the day should be framed,—as a true and enduring type of sacred architecture. Christianity, if I rightly understand it, would find in Greek columnar architecture the completest and sublimest expression possible to the art. If classic architecture be applied at all, in any of its modifications, to this purpose, it is the peripteral or temple style that should be aimed at; and if this, *i. e.* pure detached columnar architecture, be not fit, no other form of classic architecture, no Palladian or Italian corruption of it, is so. I look upon the Greek temple as "an apotheosis in stone:" its conception sprang from the religious feeling, the devout contemplation of the Supreme and Eternal, and was to enshrine the idea of God in all the glory and beauty of which architecture is susceptible. Framed upon such model, the church of the day would, I consider, by its grand architectural qualities alone, and independently of all sculptural illustration, by striking those chords that vibrate in unison in the hearts of all men, declare itself none other than the "House of God;" and we should henceforth have a truly catholic style, in which each denomination of Christians might, according to its peculiar rite, erect its shrine to the common Lord.*

As to the horizontal spirit of Greek architecture, why should that be excluded from ecclesiastical design? Why should all point upwards, as if earth were not? The symbolism of verticality has been overrated, or too exclusively aimed at. Religion has reference to earth as well as to heaven, and there is that in it which may be aptly symbolized by the sublime repose of the Greek architecture, which is as applicable as the aspiration of the Gothic. If the one directs to heaven, the other says, "Peace on earth;" and the Christian temple, transfused with the horizontal spirit, would very fitly be an object of peaceful repose and relief to the eye from the necessarily broken and picturesque line and forms presented by the domestic and secular buildings around.

But the Greek temple, says some objector, was raised to a false worship, and breathes of that worship. Architecture, it might be replied, can go no farther than an embodiment of religion in the abstract; and the Greek temple reached the ultimatum of this expression, and is quite independent, therefore, of Paganism for its effect. "The temple," says Schiller, "remained holy to the eyes long after the gods had served for laughter;" and it is, I would add, holy still: the fane of Minerva is as sacred in the eye of taste to-day as it was to the blindest worshipper of the goddess. The Greek and Roman deities, it should be remembered, were the fountains and dispensers of life, wisdom, and immortality, and their earthly abodes were, in their artistic expression, to excite emotions such as might co-exist with the contemplation of universal dominion, eternity of duration, almighty power, infinite knowledge,—attributes which, though ascribed to whatever creatures of the imagination, belong to the one true God,

"Jehovah, Jove, or Lord,"

and forming the highest theme that could be rendered in stone, would require the highest qualities of art for its expression.

Let us not suppose that art was in its origin a mere ceremonial adjunct to idolatrous rites, an extraneous addition of splendour, subservient to the wiles of priestcraft: as such neither the statues nor the shrines of the gods could have been produced. The essential nature of art lies in its spirituality of apprehension, and its true manifestation can only be wrought out in integrity of heart, in independence of soul. It may be—it is—fallible through the weakness of the finite intellect, but it is never false through its wickedness; and though the highest works of art have been, and may be, degraded to the most false and grovelling uses, it is as impossible for the artist, with a set purpose of fraud or wrong, to produce such works, as it would be for him to reverse the law of gravitation, and cause the grosser elements to supersede the more ethereal.

Among other recommendations presented by that peripteral disposition I am recommending, is its adaptiveness to the simplest forms. The character of the Greek temple may be had without its entailing the necessity for any expletive or obsolete feature. But though adapted to the simplest arrangement, it may be applied to the more complex. The feature that gives the Greek temple its perfection as a work of art, viz. the peristyle, is admissible without mutilation into the Christian temple, whatever its external form, though the simplicity of the general outline of the Greek temple should not be lost sight of; and though the porticoes may be useful as covered ambulatories, and as such have an air of welcome and protection very appropriate to their place, yet I plead for this peripteral distribution of columns chiefly on account of its simplicity, entirety, and completeness, qualities certainly in harmony with the spirit and tendency of Christianity. The Greek temple, the most pure and perfect architectural work ever evolved from the art-spirit of man, is, I think, worthy of thus standing as a type for the Christian sanctuary. Simplicity, and grandeur, and beauty—independence on outward ornament, are characteristic of genuine Christianity; and these are the distinguishing features also of Greek architecture. A chaste beauty, a noble simplicity, unaffected purity, and truth, are proper art-qualities to associate with Christian worship; and in no style can these excellences reign in such perfection as in the architecture of the Greeks;—I say in the architecture of the Greeks, for it is emphatically the architecture of proportion, which is its distinguishing principle, "the stamen which they drew out into one immense connected web;" and being the perfection of proportion it is less dependant than any other upon decoration,—the most unadorned of beautiful architecture,—the most beautiful of unadorned construction.

The rejection by the first Christians of the ancient temple which was before their eyes affords no presumption of its unfitness. Their preference of the Basilica as the model of their churches must be attributed to other causes. There was nothing in the spirit of Christianity nor in the material requirements of its worship that forbade the exterior colonnade, or called for so perverse a rejection of classic beauty as their first basilical churches evinced. It was not inevitable that the portico of the Pagan edifice was not admitted into Christian architecture. I cannot consider the discarding of the entablature as a necessary and inevitable consequence of the new spirit of Christianity, but as being the fruit of the accidental meeting of that spirit with a depraved taste in the art among the Romans. Had there existed at the time sufficient purity of artistic feeling to have regulated the religious zeal, which was undiscriminating against all that was Pagan, the antique architecture had been adopted by the church builders in another manner. Had Christianity become the religion of the empire two or three centuries sooner,—in the reign of Augustus instead of Constantine, while Greek genius was yet potent,—had the new art sprung up amid the prosperity and glory, instead of the degradation of the empire,—very different, I suspect, had been the character of our Christian and mediæval architecture generally. In short, it is impossible to conjecture to what height of glory and excellence the art, formed from a pure type, germinating from a healthy root, and re-animated by Christianity, might not at this time have attained. If the temple was associated with the idolatry so much hated, and a return to which was so much dreaded by the first Christians, so were the architectural elements and materials which they hesitated not to use. They worshipped in structures erected with the spoils of heathenism: would artistic arrangement of these elements, their continued devotion to the beautiful, have polluted their sanctuary or marred their rites? Would it not, on the contrary, have been the best apology for using them? Certainly we, with our better and broader views of art, can make a more refined use and wiser application of the temple ordonnance; for what but the most inartistic conjunction of corrupted details was the composition of the church basilica? Its front exemplifies a complete perversion of all classic principle in the use of classic architecture; an adoption of the worst elements, and a suppression of the best; and the side of the building is either a dead wall, or a wall relieved only by superficial features, blank arches, and a break which is neither pilaster nor buttress; while the open timber roof, exposing the common straight-lined supporting principals, has, as indeed it must ever have, however gorgeously painted, a rude and barn-like appearance. Surely reproduction of the hybrid temples of Constantine, though in a later and somewhat purer dress, is unworthy the talents of a great architect of the present day. We pay but a poor compliment to Christianity when we enshrine its worship in corrupt styles, or rather transitory manners and fashions, and associate it with barbarism in art.

It cannot be pleaded that it was an awakened desire for a new structural principle that inspired the change, and that here was the first and latent rise of the Gothic style, however the change effected by the Constantinal architects may have ultimately led to it; for though the entablature was banished, the horizontal principle was not rejected, and the continuous cornice of the ancient temple retained its place above the arches, and elsewhere, both in the exterior and interior.

The temple, it is true, presented no guide to the first builders as regards their interior distribution, which, with them, was the only, or at least the chief consideration; while the antique basilicæ were well lighted, and required but little modification. And if the assertion of an Italian writer be true, that the first churches were considered as tribunals where the bishops administered penance to the guilty and the eucharist to the absolved, such destination of them may have been an additional reason for the choice of a tribunal of justice as their model or type.

There can, however, be no doubt that these temple grandeurs were eschewed chiefly because they appeared a part of the Pagan worship, and essential to its pomps; and it was, perhaps, prudent to make the new temple differ in its general character from the old: but the mere fact that the temple ordonnance was an issue of the human imagination under the sway of Paganism should not prejudice or exclude it now, if its intrinsic qualities do not unfit it for the sacred uses of the day. The self-centred mind that observes and reflects free from the theoretical entanglement of art schools, and unawed by the absolutism of conventional criticism, would allow no influence to such considerations. As to associations of Paganism, temple architecture has lain quarantine long enough; and centuries of neglect and spoliation ought to have purged it from these. What the mind I have just described would deem it necessary to do, and what we have to endeavour, is dispassionately to consider how far the sentiment it awakens is consonant with that of Christianity,—what the latter enjoins and what it prohibits. Is there anything, it might be asked, in the Christian code that commanded arches to usurp the entablature? Is theological truth opposed to architectural truth? The beauty of holiness to the beauty of art? Is the destruction of the poetic a part of the mission of the Gospel? Greek temple architecture has been too flippantly spoken and disposed of: it has been narrowly and superficially judged: a deeper and broader insight would show us that it has a catholic meaning and use that renders it a denizen of every age. To me it has always worn the aspect of entire modernness, and yielded the correct and permanent expression of religion.

Nor were the further deviations from the temple style, by the subsequent modifications of the Basilicæ, more essential than the rest. The desire to give the form of the cross, and the further desire to decorate the intersection of its two limbs,—neither of which was necessary in

* As we have said before, it is not to be understood that we necessarily agree in all the views set forth in our pages.

an artistic point of view, nor called for by exigencies, either physical or spiritual,—being the sole causes of the wide departure from the original oblong, though the cruciform plan and curved termination of the east end, with other of the modifications it received, might have been introduced,—I consider,—without betraying the beauty and truth of the art, provided the transept were kept at one end, as it was in more than one of the churches of Constantine, to avoid cutting up the length,—a cause of great lack of grandeur in Gothic cathedrals. That the first Christian churches had aisles was owing to their being formed on the model of the Roman Basilicæ, which Constantine placed at their service; and as to symbolism, which, doubtless, had its influence in these changes, it is entitled to little weight, as symbolism should be carried out by simpler means, not by so interfering with the main forms of fabrics as to clash with the principles of art and beauty.

I wish it to be understood that I am not recommending the severer character of the Athenian temples exclusively, which were Doric and Ionic, chiefly the former: I would widen the field of expression, from the grave—the awful—of Greek Doric, to the more graceful yet solemn effect of the Roman Corinthian peristyle of the earlier Greco-Roman period. There is a calm dignity, highly befitting a religious edifice, about the Grecian Ionic, which it will be remembered was the sepulchral order of the Ionians. Nor would I confine myself to the simple parallelopipedal form, and aim at Greek sublimity by copying the temple plan: the solemn beauty and grandeur of the temple can be had consistent with every rational and artistic diversity, of external and internal arrangement, as the triple temple of the Acropolis (which exhibits the widest departure from the simple oblong) will satisfactorily attest. In fine, the temple character might be blended both inside and outside with all our necessary forms, which would not only go far to destroy associations of Paganism and stamp it as Christian, but give individuality and something of picturesque combination, which the Greek temple architecture generally lacks. Greek architecture is more ductile and more copious than it is generally supposed, and variety might be obtained in it without impairing its higher qualities. The interior of St. Stephen's, Walbrook, is something like the aspect it would assume on the inside,—an enlightened application of temple architecture to an interior. The exterior decorative expression suited to such an interior, or that such an interior would correspond with or suggest, is that for which I am here contending. Now, the octagonal form is admirably suited to the Protestant worship, and an octagonal periptery would have the solemn beauty of the temple with but little of its association. But we could, if required, indicate the cross, which might have the peristyle applied either to the whole or to one limb only, as the chancel or choir portion, which, as the most sacred part of the edifice, it would not be improper so to distinguish. Indeed, there is nothing to prevent the use of any forms that might be deemed necessary to ecclesiastical edifices, or the full carrying out of the principles of church design. The temple character might even be had with clerestory arrangement, producing, of course, but a qualified grandeur, and it might be truthfully obtained, as in the Gothic, *i.e.* without the masking of the real form. In short, I would use those elements that render Greek architecture expressive of the great and solemn—that breathes of deity and religion; but I would marry these to the plans which the ritual of the day and country requires; and for decorative embellishment I would draw upon our own natural and historical resources, and no longer satiate the eye of taste by the everlasting changes rung upon the honeysuckle and other ornaments of the Greek orders; while all mythic or sacrificial allusions could be omitted or substituted without weakening the qualities sought to be expressed. In fine, it is an advocacy of the right use of the colonnade in church architecture—the principle on which the peripteral disposition is founded,—that is the object of these remarks.

The column, like other features, depends for its effect upon its mode of treatment: it may be so treated as to beget insipidity and excite disgust in the spectator, as it really does in numerous extant buildings. Detached columns, I consider, are the essence of the grand style: the most powerful effects cannot be had without the colonnade in some shape, and attached columns must always fail to produce greatness, however lavishly introduced. Palladio, though the most renowned of modern architects, appears not to have understood the column, for he degraded it to the strangely subordinate place of a superficial appendage to his façades, where, having lost its true character, it could not even rank high as a decoration; and so little or so ill is the effect that is generally produced by such works, that the finest buildings in Italy are those in which columns have been omitted altogether as principal features.

But columnar architecture has not only been misused, it has, when properly treated, been misappropriated; *i.e.* applied to the wrong buildings. The Greeks and Romans confined it almost, and the Egyptians entirely, to their temples or mausolea, where it is most significant: the moderns omit it in their sacred edifices, and employ it where it is more or less discordant—to commercial edifices, to shops and buildings of the meanest use; nay, we offer insult to the sanctity of art by prostituting the most solemn elements of architecture to the embellishment of the gin-palace. At the Paris Bourse, the Birmingham Townhall, and many buildings of purely secular purpose, the peristyle is profusely employed; while St. Peter's, at Rome, has not one insulated column,—I mean, of course, in the church itself, and on the scale of the principal order. The latter building owes its failure, I consider, entirely to its departure from the spirit of Greek architecture. Its interior produces, I believe, an impression of gaiety: it is beautiful, but not what we should expect from its dimensions, and what it might have been otherwise treated—sublime: imagine the interior effect of St. Peter's (and the remark applies as well to its London competitor), if, instead of the few blank lifeless pillars, its aisles had been divided by files of columns on the gigantic scale of the exterior order.

Nor is the ill consequence of deviation from the temple style less felt on the exterior: the façades of St. Paul's, the chastest of any of its class, are palatial rather than ecclesiastical. To avoid monotony, and produce the charm of variety, not to strike the imagination by the greatness of the whole, was evidently the aim of the designer.

To the shrine of religion, the most intrinsic and genuine qualities of art do of right belong. In it everything should be sterling—nothing meretricious. It should exhibit the most powerful effect, obtained in the most legitimate manner: *e. g.* by exquisite precision and truth of detail, along with simplicity and grandeur of general form, greatness of design, and purity of decoration. In the well-designed church the lower excellencies, as sensuous and abstract beauty, are sacrificed to the higher and more intellectual. The picturesque display that gratifies the eye is waived, as inconsistent with the idea of deity to be reflected. But in no architecture are these conditions so completely fulfilled as in the Greek. The temple ordonnance, in short, is the simplest arrangement that ever spoke so forcibly to the mind and imagination, or awoke emotions so unutterable.

The few attempts hitherto made to render it available for ecclesiastical edifices have, for the most part, been made in a pirit of servile imitation, and have, therefore, failed to give satisfaction: make a fac-simile of a Greek temple, and it will look like a Greek temple, and can never, whatever the purpose it be applied to, look like anything else. St. Pancras Church, whatever purity of taste it evinces, was designed in too timid and narrow a spirit, and will not serve as an illustration of my suggestions; and St. Madeleine's at Paris (which, by the way, is a Roman example), besides being too much a reproduction, has failed through mistreatment, its character partaking more of richness and sumptuousness than of religious solemnity.

With regard to lighting, I would remark that to preserve its genuine expression and repose, windows should be cautiously introduced behind a colonnade, the effect of which is perhaps in some measure impaired by windows, however skilfully inserted. Nevertheless, the objection so much urged against windows in connection with Greek or Roman colonnades arises, I am convinced, more from their mismanagement than from anything in the essential nature of the window. Common sliding sashes are wholly inadmissible: the filling up must be made architectural as well as the dressings, if it is to unite with them in the production of a whole. This condition fulfilled, there would be little complaint of want of harmony between windows and the columns before or otherwise associated with them. Why is it that the door harmonises with the rest in most buildings, modern as well as ancient? Because the valve or leaf is generally a *design*, and has some artistic taste exercised on its panelling and decoration, as well as on the architrave that surrounds it. I believe that division by wide mullions and transoms to receive the light is what our windows most want to render them fit associates for columnar architecture, and I believe such mullions and transoms are as proper in Classic as they are in Gothic. The window so divided, instead of being one large rectangular perforation, the vertical sides of which interfere with the columns in front of it, might become a series of small ornamentally shaped perforations, that would interfere with it (if at all) in but a very slight degree.

There is a far more substantial reason than that usually stated, why windows should be omitted within a portico or a loggia: the latter generally so much diminishes their utility by the obstruction of light, that in peripteral structures other or additional means of lighting must be resorted to.

But the objection to windows of whatever nature presents no great difficulty, I conceive, in ecclesiastical design. We are not dependant upon windows for light to churches: skylights, which might be variously and beautifully formed, are good substitutes. Light might be admitted through geometrically formed panels or compartments in cylindrical and flat ceilings; or, by that clerestory method, according to the theory of Mr. Fergusson (doubtless the true one), of the Greeks themselves; or it might be admitted after the manner of St. Madeleine's Church, Paris, through a segmental dome or domes. One large light in the ceiling produces a broad and simple distribution of light and shade below, and by the omission of apertures in the walls, another advantage is gained, viz. the exclusion of noise from without, which in large towns is worthy of attention. The admission of light in a central stream from above seems an appropriate arrangement in a place of worship, and will not be objected to by the advocate of symbolism.

Again, let me disclaim the advocacy of the mere reproduction of the Greek temple: I am but suggesting that true and artistic employment of the column which it exemplifies; an emulation of the speaking beauty, the sublime eloquence of the peristyle, and a devotion of it to its right purpose. It is not the form to which I would call attention, but its expression; not the fact, but the poetry of the temple; which might be aimed at as far as they consist with the essential and material demands of accommodation and convenience. My suggestions all refer to those abstract qualities that constitute its excellence; and columns in which they inhere, as here viewed, can never be inconsistent with fitness in our churches, at variance with geometrical unity and truth, or opposed to the present modes of construction.

This I know could only be done by the architect capable of penetrating the spirit of the antique temple, and discriminating its peculiar qualities; but such an architect is a poet, who would employ his elements, however obtained, but as the symbols of his emotion.

Such an architect would look upon his model as a germ from which he must develope a style of church architecture for himself. He would find full scope for his powers of combination and invention, and so far from slavishly copying would produce works in every true sense of the word original,—works that would have each its distinct and separate emotion and sentiment, and exhibit effects hitherto unknown. I have before suggested that the ecclesiastical architect need not confine his imagination within the simple oblong of the Greek: now, in departing from this, the genius of Roman design would render him aid, and he might emulate the grand dispositions and striking compositions that embellished the Eternal City, among which circular and polygonal plans were not uncommon. He need not fear modification of his plans, such as a slight indication of the cross, Greek or Latin, nor forbid the dome to assert its sublimity above: the latter feature does not contravene this style of decoration, but might be employed with greater simplicity and purity, and with more complete unity with the rest of the edifice than it has yet been; and by the omission of the surmounting lantern of modern times admitting a broad and charming distribution of light from the summit into the interior, yield that peculiar beauty for which the form is so preeminently calculated.

Finally, he would not tie himself down to fixed rules, and be bound to one model or proportion for the order he adopted as settled, or attempted to be settled, by Vignola and other Italian system-makers, who, instead of considering how many different entire examples of beautiful and perfect orders might be adduced from extant works of the ancients, endeavoured to tie down their contemporaries to one invariable form and proportion for each, and leave to posterity a stereotype edition of the antique architecture. Both Greeks and Romans gave great diversity of character to the orders they originated. The architect of sound judgment and imaginative power would not only avail himself of every variety they have bequeathed, but, by treating the antique ordonnance in a free, independent, and artistic spirit, and studying every further shade of expression, increase their amount.

So produced, the Christian temple would be neither Greek nor Roman, nor Greco-Roman; for, besides being enriched with the arch and the dome, and all gifts of modern and ancient invention and discovery, it would be revivified from higher sources of inspiration,—by new importations from the vast gallery of nature, and from the stores of sacred history and allegory. It might, indeed, be any one of these—Greek, Roman, or both—and yet not be architecture at all, for column and peristyle do not constitute architecture. They are results, not causes, and, like other results, are capable of being used in disconnection with their causes. The true architect, therefore, would not begin his design by borrowing the Greek peristyle, but would work from within towards it, and "adorn nature with a new thing." He would penetrate the spirit of Greek design, attain to the same region of thought from which it flowed, and conceive and operate from thence, and so inform his productions with the sacred fire of art. The work of his hand would be from a spiritual apprehension of his type, i. e. he would recast it in the mould of ideality, and petrify into steadfast form the inward faculty divine, that faculty which, in its working, renders its material forms translucent with the glory of their higher meaning. Reproductions of the Greek temple we have in abundance, but the Greek temple, repassed through the alembic of genius, is yet to be made manifest.

SAMUEL HUGGINS.

SUBMARINE TELEGRAPHS.—We fear the contemplated telegraphic communication between Holyhead and Houth will prove a signal failure—the defective parts of the line appearing to be out of the reach of the promoters. When we ventured on a caution against haste and incomplete work for such undertakings, the mischief was done.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

THE Saxon reigned in England when we last talked together: ALFRED, the great and good, encouraged learning, and sought to foster the arts. Let us look at a coming change.

In the eighth and ninth centuries the coasts of France, Germany, and Britain were ravaged by predatory bands of pirates from the north, known generally as the *Northmen*, or Normans. So dreaded were these barbarians, that a prayer for protection from them was added to the liturgy,—"From the fury of the Northmen, good Lord, deliver us!" The kings of France bought peace by ceding to them the fertile province of Neustria, afterwards called *Normandy*. In 1066, these same barbarians (then considerably advanced in civilisation), with one WILLIAM at their head, invaded and obtained possession of England. No sooner were they fully established here, than the Norman clergy proceeded to rebuild, in a more magnificent manner, the cathedrals, churches, and monasteries, with which the land was covered. The accounts which have been handed down of the rage for building in the twelfth century, are almost past belief: dispensations were granted by the pope to those who assisted in the erection of particular edifices: money flowed in from all quarters; and the whole land, it has been said, became one large mason's yard. Besides religious edifices, the kingdom was covered with castles: in the reign of king Stephen alone, a period of nineteen years, it is asserted that no less than 1,100 strongholds were erected. The buildings erected within 150 years after the Conquest must always excite wonder.

The architecture we call Norman, and which is the English version of what is elsewhere called Romanesque, is massive, and, in the earlier examples, plain. The arches are semi-circular, the windows small. The walls being very thick, buttresses were scarcely needed, and, when used, projected but slightly. The chevron, or zigzag, is the most characteristic moulding of the style, such as you see indicated on the interlaced arches in Fig. 23. The

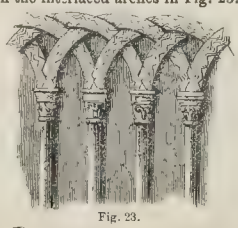


Fig. 23.

chapel in the White Tower is the best example in the metropolis, but this is at present inaccessible, being filled with records. When the new Record Office is completed, we may hope to be able to see the ancient structure. The interior of the church of St. Bartholomew the Great, in Smithfield, will afford you an interesting illustration of Norman work, and if you look into the story of the edifice previously, you will find a visit to it full of pleasure. The nave of Gloucester Cathedral, the transept of Winchester Cathedral, Southwell Minster, Romsey Abbey Church, parts of Rochester Cathedral, and scores of other structures scattered over England are of this period. When you next visit Brighton, that pleasant piece of London by the side of the sea, go to Shoreham, and you will find the church there a very good specimen of the Norman style; in plan a cross with square massive tower at the intersection of the nave and transept, semi-circular arches, zig-zag mouldings, and flat buttresses. In many cases these grand old buildings, constructed of stone, solid, truthful, and durable, are the nucleus round which the village or the town has grown, and which in some cases alone keeps it together. Fig. 24 represents the entrance to the Chapter House, at Bristol, an interesting piece of Norman work of rather a late period. This Chapter-House is one of the most perfect apartments of the Norman period remaining in this country. It is approached from a vestibule, or porch, of the same period, remarkable for its simplicity and beauty. The Chapter House in early documents is sometimes called the *Capitulum*, and the *Domus Capitularis*. The vestibule before us may be considered an example of what Ducange calls the *Antecapitulum*.

The round towers of Suffolk and Norfolk, which are peculiar, and have been the subject of many disquisitions, are without doubt of the Norman period.

In the 12th century a general change was made in architecture by the introduction of the Pointed Style, called Gothic. Greater lightness was introduced: the massive cylindrical column was divided into numerous shafts, and continued up the whole height of the building till it lost itself in the branching tracery of the vaultings. The arches were made pointed. Walls were made thinner, and projecting buttresses were applied externally to receive the thrust of the roof. The tendency of all the lines became vertical instead of horizontal. The round part of the Temple Church, London, dedicated in 1185, by Heraclius, patriarch of Jerusalem, shows a mixture of semi-circular and pointed arches, a state of transition.

An earlier specimen of this transition period is the church of the Hospital of St. Cross,

* No. XI. See also pp. 100, 133, 164, 196, 228, 260, 292, 324, 356, and 389.



Fig. 24.—ENTRANCE TO THE CHAPTER-HOUSE, BRISTOL.

commenced by Henry de Blois, brother of King Stephen, about 1136. The Hospital of St. Cross, the "alms-house of noble poverty," which stands about a mile from the city, retains more fully its ancient appearance and customs than any similar establishment in the kingdom. The brethren, with their black gown and metal cross on the left breast, the dining-hall with the old "black jacks" for ale, and other implements given by Cardinal Beaufort; the quiet cloister, the ancient church embowered by trees, and the pretty residences of the brethren around it, serve to take back the mind to a much earlier period in our history, and suggest that in a rude and violent age the monastery—which St. Cross, though never so used (being simply a hospital and a refuge), closely resembles—must have offered strong attractions to all studious or timid men, who were unwilling or unfitted to encounter in the world the more boisterous spirits of the time.

Originally, besides the resident brethren, 100 miscellaneous poor were fed daily in what was called, in consequence, "Hundred Menne's Hall," but is now a brewhouse. At the present time all who apply at the gatehouse may receive a horn of beer and slice of bread,—that is until two gallons, the day's allowance, have been expended; nor are the applicants for this few.

An American writer, who visited the hospital a short time ago, has pointed out to his countrymen this adherence to a bequest during many centuries, as a wonderful instance of integrity and faithkeeping, honourable to England. It may be a question, nevertheless, whether the spirit of the bequest is followed out as it should be. You may remember friend H——'s eloquent denunciation of the sour beer and dry bread which he found there, and my own experience is to much the same effect. The church has acquired considerable notoriety from the circumstance that Dr. Milner, following a suggestion thrown out by the Rev. J. Bentham,* has appealed to the interlaced semicircular arches in the choir, where pierced for light, as being probably the first open pointed arches in Europe. If you look at fig. 23 you will understand what he meant. The precise origin of the pointed style of architecture is still as doubtful as it was before the appearance of any of the numerous dissertations to which it has given rise. Nevertheless, the inquiry cannot be deemed useless: as, in the pursuit of the philosopher's stone and *elixir vitæ*, the enthusiastic student of alchemy discovered many new substances and enlarged the science of chemistry; so, in the pursuit of the origin of the pointed style of architecture, much valuable information has been gathered.

Whichever theory may be the most correct, it is certainly not that deduced from the intersecting arches at St. Cross. Apart from less obvious objections to any deduction founded on the present appearance of this arcade, the main arches in the choir, *below* it, are pointed, as, too, is the vaulting of the aisles; by which we must be led to believe either that considerable alteration was made in the choir at a later period, when the practice of the Pointed style was more advanced, and which might have extended to the interlaced arches in question, or that the date of its original construction is somewhat more recent than that usually assigned to it. Moreover, other structures in England, the date of which is asserted to be even anterior to that of St. Cross, as, for example, Buildwas Abbey, display likewise an intermixture of pointed and circular arches. The circumstances, however, which occurred in many cases to delay ecclesiastical buildings for years after the recorded date of their foundation, and the difficulty of detecting alterations and reconstructions made at a remote period, prevent us from arriving with any certainty at a satisfactory conclusion.

There have been many theories of the origin of the Pointed style: — Bishop Warburton maintained that it proceeded from the imitation of groves of trees; that they erected buildings,

> "The arcades of an alleyed walk
> To emulate in stone:"

Sir James Hall said, from wicker-work; one from the section of the Ark—giving it a Hebrew origin; and another, from the Pyramids! Sir Christopher Wren was of opinion that it came from the Saracens; and many think with him. Others show that the vaulting produced it. Some give it to the English, some to the French, some to the Germans. The pointed *arch* is not the pointed *style*, although it is a very important and characteristic portion of it. Pointed arches are of very early date: the form is to be found in those very primitive structures I spoke of, where the covering is made by the gradual overlapping of stones, as in the Treasury of Atreus. Pointed arches are found in the buildings of the Saracens, in Sicily, for example, from the ninth to the eleventh century; and M. Hittorff, in his beautiful work on the buildings of that country, endeavours to find there the origin of the style. The Normans visited Sicily in 1061, and entirely conquered it in 1089. All the buildings erected by the Normans there between 1071 and 1185 were copied from the Saracenic pointed-arched buildings. All these structures give evidence, in the richness of the mosaics, and the paintings which cover the walls, of the employment of Greek (Byzantine) artists, who, having emigrated, formed then a part of the population of Sicily, and had preserved the superiority in art which their ancestors possessed in so high a degree.

The walls of many of the Norman buildings in England were covered with paintings, betraying the influence of this Byzantine school.

We have seen that colours were used by all the early nations in the decoration of their buildings. In the Byzantine churches the system was pursued to a great extent, and afterwards obtained wherever the Greek church prevailed.

The Saxon church of St. Andrew, at Hexham (founded 674) was profusely polychromatized. Prior Richard, who wrote about the end of the twelfth century, says "the arch of the sanctuary was decorated with historical representations, imagery and various figures in relief, carved in stone, and painted with a most agreeable variety of colours." St. Stephen's Chapel, Westminster, after restoration by Edward III. presented a striking example of the extent to which colours and gilding were employed in decoration at that period. At the time of the Reformation, all the coloured adornments of our churches were whitewashed over, or otherwise obliterated. The whitewash has served in many cases to preserve that which it seemed to destroy: every day brings to light on the walls of our village churches interesting examples of such decorations.

At a time when few persons comparatively could read, pictorial representations of the principal events recorded in the Scriptures were valuable as a means of instruction, and were, consequently, put up in every available position.

There is at this time a disposition to introduce paintings into churches, and certainly means of encouraging the higher branches of art are much needed. About seventy years ago Sir Joshua Reynolds, West, Barry, Dance, Cipriani, and Angelica Kauffman offered to adorn the interior of St. Paul's Cathedral with paintings, with the view of convincing the public of the improvement in our sacred buildings which might be effected by this means, and so of obtaining an opening for the encouragement of British art. The Archbishop of Canterbury and the Bishop of London could not be induced to entertain the proposition, on the ground that it savoured of Popery, and the idea was abandoned in consequence. A similar offer at this time would probably be better received. I am sure I need not urge upon you that all are interested in advancing the fine arts. Apart from their great general power over mind and manners,—by the warrior and the statesman, they are seen to be the means of perpetuating worthily their deeds and memory; by the author, the only expounder of his ideas with universal significance; and by the Christian, the most powerful illustrator and exponent of the truth. As affecting our commercial relations, too, the promotion of taste is nationally important. Improvement in this

* Bentham says, in his "History of Ely Cathedral Church, 1771," when speaking of the origin of pointed arches:—"Some have imagined they might possibly have taken their rise from those arcades we see in the Early Norman and Saxon buildings on walls, where the wide semicircular arches cross and intersect each other, and form thereby, at their intersection, exactly a narrow and sharp-pointed arch. In the wall south of the choir at St. Cross is a facing of such wide round interlaced arches by way of ornament to a flat vacant space: only so much of it as lies between the legs of the two neighbouring arches, where they cross each other, is pierced through the fabric, and forms a little range of sharp-pointed windows: it is of King's Stephen's time; whether they were originally pierced I cannot learn."

respect amongst our operatives would remove a great disadvantage under which we now labour, as compared with foreign manufacturers. By the power of art that which is evanescent and fleeting is arrested and made permanent, to minister constantly to our delight and improvement: from her works we have obtained some of our most distinct impressions of the past, our best knowledge of things remote: moreover, as I have again and again urged in all quarters, admiration of what is beautiful is not far from admiration of what is good.

No opportunity should be lost of extending the elevated enjoyments which the arts present; and it is to be desired that influential public bodies will aid the efforts now being made in their favour, by expending some of their surplus revenues in portraying on their walls noble actions or elevated feelings, and setting up, in marble, memorials of their good and great men.

The larger number of the wall paintings to which I referred have been destroyed; nor is this to be wondered at, when we remember the extent to which ancient buildings themselves have been ill-treated and removed. A more preservative spirit has been induced, in late years, by the works of a few writers and by the various archæological and antiquarian societies established throughout the country. As a member of one of the bodies sings,—

"These clerks sturdy men were they,
As ever wore gown and hood;
And they wander'd about from day to day,
In coif of black velvet and jacket of grey,
And they visited every church by the way,
Wherever they walk'd or rode;
And they measur'd each buttress and tower and pier,
And decipher'd black letters on every bier;
And they climbed the tall ladders to trace the old glass,
And they fell on their knees as they rubbed the bright brass;
And they thought themselves wonderful wights, no doubt,
To make such illegible writing out,
And to tell all the people far more about
Their own parish church, than the yeoman stout
Who'd been the churchwarden (as who could doubt)
For twenty long years and more;
Or the rector so fat, or the vicar so lean;
Or the curate, as yellow as vellum with spleen;
Or the clerk, or the sexton, or she who *should* clean,
But does not, the church every Saturday e'en;
Or the sturdy archdeacon, or sturdier dean,—
Cathedral or rural,—or bishop, I ween;
Or patron himself, with his visage so keen,—
So vast and profound their lore!"

To our friend Mr. Britton, for his efforts, in this respect, at a time when most people seemed to think, with Evelyn, that Gothic buildings were "dull, heavy, monkish piles, without any just proportion, use, or beauty," the thanks of all are due. To him belongs the merit of having formed the present efficient school of architectural illustrators and engravers. This, however, is a digression.

Gothic architecture passed through several stages, which have been termed, in the broadest division of them,—

The Lancet, or Early English;
The Decorated; and
The Perpendicular.

Various other titles have been given to them, but I am disposed to retain the old ones, simply adopting one further division,—

The Geometrical, between the Early English and the Decorated,—instead of speaking, as was formerly done, of Early Decorated and Late Decorated.

In very broad terms, we will look a little more closely at the matter hereafter, when we come to examine the characteristics of these styles: you may call

Norman, the architecture of the twelfth century;
Early English, of the thirteenth century;
Decorated, of the fourteenth century; and
Perpendicular, of the fifteenth century.

Thus, you see, when you have learned how to distinguish the styles—and I will try and tell you how to do this easily in my next—you will at once, on falling upon one of our old cathedrals or churches, recognise the period of its erection, and so view it with much more knowledge and much more pleasure.

Believe me always sincerely yours,
Reggeo.

PRESENTATION OF THE PRIZES—ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ON 28th June, Earl de Grey took the chair, and said that a pleasing duty, and one which he had executed with very great satisfaction before, devolved on him on the present occasion,—the distribution of the prizes awarded in the course of the present year to different competitors in different gradations of the profession. Whilst his duty was most gratifying, the selection of the candidates to receive the rewards, which fell on the council, was not so light a task, and was, indeed, accompanied with the fear of doing unintentional injustice in making the award. His lordship then proceeded to present the prizes which had been awarded to Messrs. W. Lightly, J. C. Tarring, and B. Fletcher, students (the first-named receiving two prizes), accompanying the presentation with congratulatory and encouraging remarks to the recipients. The medal of merit was then presented, with like observations, to Mr. Knowles, jun. The next prize, his lordship said, which he had to present, was the Royal gold medal, placed at their disposal by her most gracious Majesty, who, with the greatest liberality and frankness, had always been kind enough to sanction the recommendation made by the Institute as to its appropriation, without any intervention whatever on her own part. He had, on two occasions, had an opportunity of speaking to Prince Albert on the subject, and he knew that both her Majesty and the Prince had great pleasure in learning that the Royal medal had been so productive of advantage to the important profession on which it was bestowed. The distribution of the medal was, of course, at all times, a matter of more or less difficulty. It was not restricted to works of any immediate specific nature, but the conditions on which it was awarded were very extensive,—as would appear from the paper respecting it which had been publicly put forth by the Institute. The Chevalier von Klenze, to whom it had this year been awarded, was a man whose fame was now European. His works were perhaps mainly confined to the city of which he was an inhabitant, but his fame was universal. It might have been imagined, and it would not have been an unnatural feeling, that, as many in this country were looking forward to obtaining this honourable mark of distinction, they should feel a desire to confine it to their own nation; but he thought the Institute of British architects, although called "British Architects," had done themselves the greatest honour by the entire impartiality they had shewn in not confining this reward solely to the members of their own country. He had before presented the Royal Medal to a gentleman not a native of Great Britain (Canina), and he had then expressed the same sentiment, because he was quite sure that the Institute would be held in higher estimation by men of their own profession abroad, when it was seen that there was no petty jealousy, and no nepotism in the awarding of this medal; and that it was not given to a man merely because he was an Englishman, or a member of the Institute. Mr. Cockerell, it should be remembered, was not a member when the medal was awarded to him.

His lordship then addressed M. le Baron de Cetto, the Bavarian Minister, who attended on behalf of the Chevalier von Klenze, to receive the medal, thanking him on the part of the Institute for his kindness in being present. As they could not have the pleasure of receiving M. de Klenze himself, it was the more desirable that some gentleman should be present who would be kind enough to report to him the feeling with which the gift of the Royal Medal was accompanied. He had not himself visited Munich since Von Klenze had resided at Munich; but they all knew that besides the works of that distinguished architect in that city, there were many others which might be honestly attributed to him as the work of his pupils or students, and that the decoration of that city, enjoying an European, and indeed universal, reputation, was due in the greatest degree to his talents, his taste, and his exertions. The British Architects had therefore done themselves great credit in selecting such an individual, to confer the medal upon, and he trusted that, in transmitting it, M. de Cetto would be kind enough to convey the feelings which he hoped had been expressed by the meeting on that occasion, those feelings which they all wished to convey to him, namely the warmest tribute of their respect and admiration.

The Baron de Cetto, in receiving the medal, assured the chairman that M. Von Klenze would accept it with a high degree of pride at having been thought worthy of it by a body of such eminent men as those forming the Institute,—and the more so, as it was an honour which so many others were ambitious of obtaining. He thanked his Lordship for the very flattering terms in which he had been pleased to mention Von Klenze, and expressed the gratification he should feel in conveying those sentiments to him.

The Chairman said that he had on more than one occasion urged upon the members, and all persons connected with the Institute, the importance of doing something to contribute to the interest of its proceedings. For himself, he was an advocate for making example and precept go hand in hand. Two years ago the Institute were kind enough to listen with attention to some remarks he had put together respecting the excavations then going on at Fountains Abbey, Yorkshire. The works had been since continued, and he thought it possible that a few additional remarks might possess some slight interest to those who had felt it in the earlier stages of the work.

In the course of the paper the writer said,—

"Such loose and decayed stone or mortar as could easily and *safely* be removed by hand, without the risk of shaking the remainder, was carefully taken out, and mortar, or cement, or grout, carefully and *slowly* put in, so that one portion might set before too much was accumulated.

The upper surface of the wall thus fitted up, has then been fairly levelled, with a weathering to carry off the wet in the most favourable direction; and as the maintenance of picturesque effect was most desirable where it could be managed, in many parts the stones of the upper course, if they were sufficiently light and loose to be safely moved by hand, were taken off and set aside with the moss, or herbage, or even shrubs adhering to them, and afterwards replaced *upon* the levelled surface; thus affording protection to the wall below, by the new work, and yet preserving the broken line, and effect of foliage and antiquity upon the margin."

The Rev. Richard Burgess, B.D. then read a paper on the Topography of the Roman Forum and the Clivus Capitolinus, to which we shall refer hereafter.

At the conclusion of it, Mr Tite offered some observations on the subject, being the results of his recent investigations on the spot.

NOTES IN THE PROVINCES.

St Ives.—The new station, goods' shed, &c. were opened to the public on Monday week. The passengers' station, with four fronts, waiting and master's rooms, with other convenience, has been but ten weeks in erection' under Mr. Peshcroft, the Eastern Counties engineer. On the left of the passengers' station is a goods shed, extending 160 feet, built by Mr. Peck, of Cambridge, with sheds to accommodate the cattle market of St. Ives. It is contemplated by the Eastern Counties Company to let the field out on building leases.

Melton Mowbray.—Little Dalby Church has been restored and reopened. Mr. E. B. Hartopp, of Dalby House, and the late Mr. Samuel Hartopp, who held the vicarage, are said to have borne the greatest cost. The architect employed was Mr. Brandon, and Messrs. Broadbent and Handley, of Leicester, the builders.——Ab-Kettleby Church, which has become much dilapidated, is under repair, at a cost of about 700*l.* partly borne by Mr. H. C. Bingham, the patron of the living, and partly by public subscriptions.

Sunderland.—The contract for completing

the north pier of south entrance of the new dock, has been let to Messrs. Thomson and Hunter, who have completed several previous contracts. The south pier contract remains unlet. The excavation of the half tidal basin has been let to Mr. James Frazer.

Southport.—The contract for the erection of the new town-hall has been given to Mr. Thos. Stanley, of this town, at the sum of 2,249*l.*; less 200*l.* to be allowed by the contractor for the old building. The building is to be completed, under a weekly penalty, by 1st February next. The sum named by Mr. Stanley in his tender was about 500*l.* lower than the next above him. There were no other tenders from resident builders, and only two, it is said, from elsewhere.

Birmingham. — According to the *Midland Herald*, there appears every prospect of the speedy restoration of St. Martin's-spire, without a resort to any other means than the liberality of the townsmen. A considerable amount has already been promised. The committee are very anxious to renovate the tower also. The estimated cost of spire is 2,450*l.*; that of tower (if repaired with same scaffolding), 1,100*l.* more.—A new house is in course of erection at the Botanical Gardens, Edgbaston, for the reception of the Victoria Regina. The structure will be of glass, in wood sashes, the roof being supported by iron pillars and brackets.

Northwich.—A new Independent chapel is about to be erected at this place in a central situation. It will be built of red brick, with Runcorn-stone dressings. It will consist of a nave of five bays, the two extreme bays having transeptial projections with two gables. The transept at one side will be much deeper than the other, and will contain the vestries, with the gallery for school children above. At the other angle of the nave will be an octagonal turret, with wooden belfry and lofty slated spire with gilt cross. The style is the Geometrical. The shape of the land necessitates the peculiar arrangement of the building. The architect is Mr. Raffles Brown.

Feckenham.—Mr. E. V. Neale, the lay impropriator of this living, is said to have given orders for rebuilding the chancel of Feckenham Church; Mr. Butterfield to be the architect, and Mr. Robinson, of Redditch, the builder.

Stourbridge.—The building for the School of Design here (late the theatre) is nearly completed.

Chester.—Seven new first and second-class bathing boxes have been erected at the public baths of Chester, and private warm baths will be completed in course of two or three weeks. A tolerable number of the poorer class continue to visit the baths.——The piers of the Dredge suspension-bridge over the river are now erected, and the chain is carried across the river. The bridge was commenced on 23rd April, and all the materials have been made in Chester, the majority in a forge temporarily built at the bridge. Mr. Dredge is superintending operations. It is to the spirit of a fellow-citizen, Mr. Gerrard, says the *Chester Chronicle*, we are indebted for this last addition to the list of bridges at Chester.

Plymouth.—Resolutions have been passed at an influential public meeting in favour of the establishment of public gardens at Plymouth. It is proposed to purchase Greenbank, a property of about 11 acres, for about 8,000*l.* and to sell 3 acres of it for building ground, restrictions in the title allowing that portion only to be built on. The union of the two local Horticultural Societies in the promotion of this scheme is contemplated.

Guernsey.—The first stone of the harbour-works is to be laid, it is believed, on 21st inst.

MODERN MONUMENTAL BRASSES.—Messrs. Waller have recently completed a monumental brass to the memory of Mr. William Cross, Q.C. and his wife Ellen, in Grimsearch Chapel, near Preston. It is of very large size; includes figures of the two persons commemorated, under very elegant canopies, and is, in arrangement and drawing, one of the best, if not *the* best, modern work of the kind that has come before us.

POSITION OF MR. A. W. PUGIN.

IT has been a source of grief, and long known, that Mr. Pugin's mind had given away under an excessive strain of professional work and nervous excitement, and that he had been placed in a private asylum. Perhaps no man in the profession has made greater self-sacrifices than Mr. Pugin, and certainly no believer in the Roman Catholic faith has ever been more devoted to it, giving away all he had to build churches, schools, &c. Considering his means, no one has applied his worldly earnings as Mr. Pugin has done for the support of his religious convictions. It is said that he is now so reduced to beggary by his religious zeal that there are no funds to support him, and that he has actually been removed to a *public hospital!* Not a generous friend in or out of the pale of his religious faith to come forward to spare him this disgrace, if he should ever recover to feel it! Not one of the many who know what the Houses of Parliament owe to his ability: not one of his many Roman Catholic brethren who know the thousands of pounds he has spent on their Church! Not even a tradesman or manufacturer, Roman Catholic or otherwise, who has benefited by executing his designs! It seems to me most discreditable to such parties. I have no faith in Mr. Pugin's notions of art; still less in his religious beliefs; but I respect his genius, and would gladly not see him among public paupers. If a subscription could be started to relieve him from his present degraded position, my guinea at least is ready for such a purpose. F. S.

[We fully participate in the writer's remarks on this melancholy subject, and hope some endeavours will be made in the direction pointed out.—ED.]

DECORATIVE ART.

IN his lecture on this subject, reported last week, Mr. Owen Jones gave utterance to some very stringent, and far more truthful and wholesome than complimentary remarks. The highest class in the land—those who ought to be the intelligent patrons of art—are almost uneducated in art, consequently incapable of encouraging it, they themselves being guided in their taste chiefly by fashion and by the interested advice of those who are the immediate ministers of fashion and its arbitrary whims and caprices. The middling classes are proud to emulate the taste of their superiors, no matter how worthless it may be, and thus "a most vicious circle is established, out of which it is impossible to escape." Even if fashion be occasionally right, it is so only accidentally, and merely temporarily. Genuine art, on the contrary, is independent of fashion; and it ought to possess that influence which is now usurped and exercised by the latter. And I myself cannot help being of opinion that such sinister influence is in a great measure to be attributed to the superciliousness with which those who stand before the public in the special and recognised character of *artists*, have hitherto looked down upon and ignored as alien from their own special and particular province, those subordinate and more mechanical branches of art which nevertheless stamp and direct popular taste.

It might be supposed that at any rate architects would qualify themselves for directing and superintending the internal completion of the buildings erected by them, especially when, as in dwelling-houses of first-rate class, so much more than the mere fabric itself is required for ultimate completeness. Nevertheless, it is only quite exceptionally that any of them even pretend to do so. They hold fitting-up and furnishing to be no concern of theirs; so leave all such finishing touches to their work to be added *à discrétion*, which is accordingly generally done without any discretion at all; without regard to the *economy of taste*, or economy of any other kind. It is idle to say that the beauty of a room is totally independent of furniture and other accessories; because if so, a room which is really beautiful in itself ought to please just as well when unfurnished as when fully attired by decorator and upholsterer. The two last usually act upon the principle of "Nothing like leather," and the more of it the better; and while architects look down upon gentry of their calling as being only a sort of men-milliners to houses, they look upon the others as the mere first shapers-out of what is not even presentable until decked out *comme il faut* by themselves. Thus, many a modern drawing-room is bedizened out with such an assemblage of heterogeneous fineries as to look like a furniture bazaar, or a Noah's ark of *ameublement* and knick-knackery, equally fashionable and vulgar.

This is an unfortunate state of things; nor is it likely to be corrected until employers themselves shall begin to acquire some well-established and sound principles of taste, instead of being governed by their own wayward whims, or else blindly submitting to the equally arbitrary and capricious mandates of mere fashion. Instead of fashion governing taste, it is taste that should control fashion, which is now the ready-made substitute for the other, and of very Brummagem quality it generally is. Such would not be the case were people but half as ready to pay for taste as they are for fashion. Is taste, then, to be bought? Yes; but the purchase-money for it is—thoughtful *study*; whereas fashion requires nothing like rational study of any kind.

Q. E. D.

THE STATE OF BLACKFRIARS-BRIDGE.

BY a somewhat slow process of reasoning and supposition, the authorities interested have come at length, after the unavailing expenditure of a good deal of money, to the conclusion long since declared by us to be inevitable, that permanent and efficient repair of the present bridge is impossible, and that a new one ought to be built. Moreover, we have not even the satisfaction of being able to state that the expenditure of money on this bridge will be in any degree compensated by the conversion of it into a temporary way until the new one shall be opened; for a temporary bridge as well as a new one is recommended to be erected, and the one that now is to be at once pulled down.

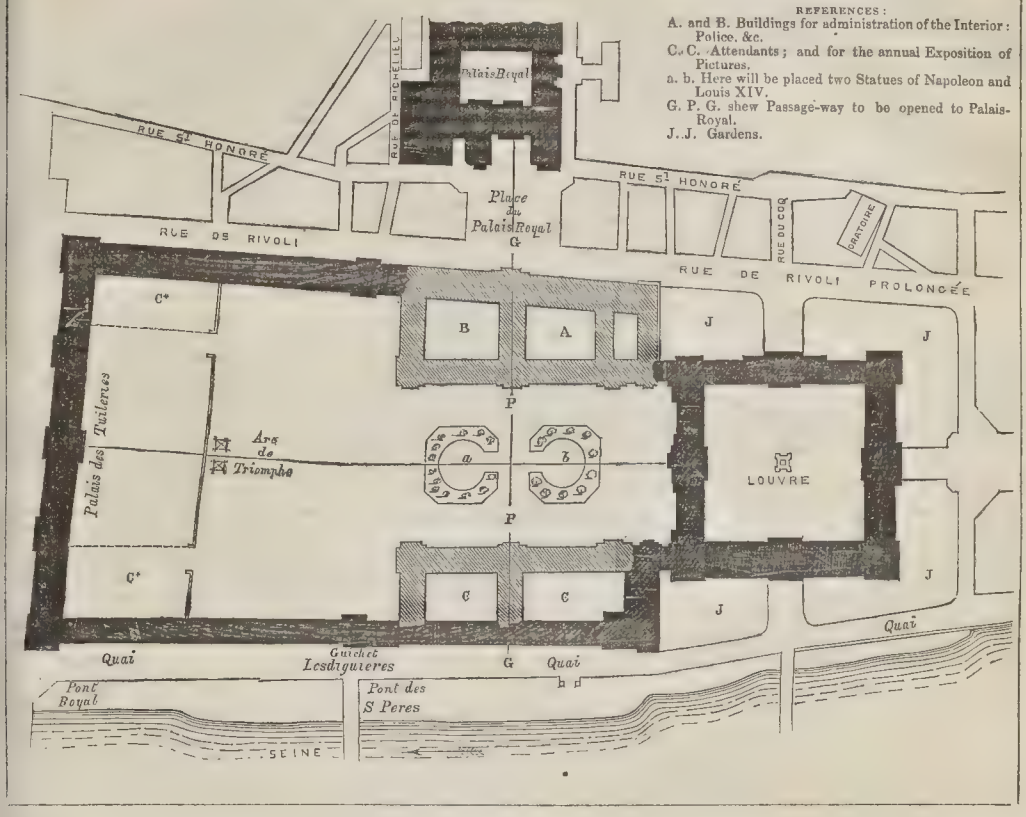
Such are the recommendations now given in a report by the Bridge-house Committee to the City Council, based on a report to the committee itself by Messrs. Walker and Burges, supported by the opinion of Sir William Cubitt and Mr. Brunel, who were consulted in the matter.

In defence of past outlay on the present sinking structure, it is stated in the engineers' report that when a repair was recommended in 1833 "at a cost of 80,000*l.* exclusive of abutments and approaches, which proves in 1850 not to be permanent," they "did not suppose the bed of the river would have been allowed to get so low as they found it in 1850, close to the fifth pier, nor did they anticipate the sinking of the clay under the piers" in the way described. But why, then, after all this unavailing expense and disappointment, still persist, even in 1850, in so desperate an undertaking? Little is said of the recommendations then made and the expense then incurred, only it is stated that there has since been no further sinking; but of what avail is it that from August 1851, when the work was finished, no further sinking has been observed, since we are now told that the bridge must come down, and in fact that if not taken down "there is little doubt not only that the present defective pier *will* sink still lower, but (that the sinking) will be extended to the other piers."

Messrs. Cubitt and Brunel recommend that a new bridge should be constructed on a plan similar in general principle to that of a design proposed by Messrs. Walker and Burges. This bridge would be of cast-iron, and have only five arches instead of seven, thus reducing the number of piers from six to four. The centre arch would be 150 feet span, and the two side arches be also enlarged to 140 and 130 feet respectively. The width is proposed to be considerably greater than at present.

The committee recommend in their report to the council that they be empowered to ob-

ADOPTED PLAN FOR COMPLETION OF THE LOUVRE, PARIS.



JUNCTION OF THE LOUVRE AND THE TUILERIES.

The accompanying plan will interest some of our readers. The communicant says: "As far as I can judge, it does not appear to me that this plan (though adopted by a special commission appointed by the Board of Public Works) is the best. The difficulty lies in the irregularity or want of parallelism in the existing buildings, and the non-coincidence, if I may be allowed the term, of the central openings of the two palaces. This irregularity, it is thought, will be greatly diminished by constructing the four courts A B, and C C; yet I apprehend that the reducing the length of the north and south inner ranges of buildings next the Tuileries, will cause their obliquity to be all the more apparent. In this year's exhibition of architectural drawings here, there is a design by C. F. Nepveu for accomplishing the union of the Tuileries and Louvre (illustrated by two plans, two elevations, and a general bird's-eye view of the whole assemblage of buildings), which I think superior. That *projet* proposes the formation of two other courts (marked by me on the plan C* C*) at angles next the Tuileries, corresponding to A and C next the Louvre, in the present plan, that marked B, and the other C, being omitted. This seems to me a happier solution than the one adopted, of a difficult problem, which has repeatedly exercised the ingenuity of French architects." The works are commenced.

A Statue of Charlemagne is about to be placed in the principal court of the Post-office, in the Rue Jean Jacques Rousseau. Charlemagne first founded the post-office.—*Galignani.*

MASTERS AND WORKMEN.

At a dinner given last week by Messrs. Randell and Saunders to their workmen at Corsham, the former gentleman said in addressing his guests—"If I were called on to name a motto to be adopted by those who serve as well as by those who are served, I think it should be this,—'Do justly and love mercy.' With a disposition on each side to do that which is just and right, to amend what arises amiss, and to ameliorate, as far as practicable, anything injurious or unpleasant, there never can be any wide differences between masters and servants; and these are the feelings I would desire to reciprocate with you. There are other labours, other energies, besides those purely physical required in the development of undertakings of the character of that in which we are engaged; and depend on it the anxieties and happinesses of the several stations of society are much more nearly balanced than we generally imagine.

"Honour and shame from no condition rise:
Act well your part—there all the honour lies."

I cannot sit down without congratulating you on the improved condition of the industrial position of the labouring population of this country. I do not refer to mechanics and artisans in the observation I am about to make, but it is not many years since that the agricultural labourer of this country was paid not according to the services he had rendered, but according to the number of children he had: his so-called wages were regulated by the question of whether he had a wife and children to keep: that day has passed. In some districts of this country, in the good old times, as we hear them frequently called, the labourer was paid a portion only of his wages by the party who employed him, and, shame to say, was sent to the pauper table to have eked out to him—not the residue of his just earnings but—the amount that might be considered sufficient to keep together the bodies and souls of himself and his family.

The agricultural labourer has risen in the scale of society: the bottom tier, the lower course of the building, has been raised, and all above is carried up with it. Your condition, too, has been improved. Never was employment more abundant in this country than it now is. You can now secure a good day's wages for a fair day's work; and never did a day's labour command more of the comforts and luxuries of life than it now does. Such has been the improvement in the general productions of this country that your daily labour now commands for you many comforts, and not a few of the luxuries, which were formerly hardly accessible to persons in what is called the middle walks of life. In the "good old times of Good Queen Bess," a lady might hesitate long whether she could afford a cotton gown; such was then the cost of its production.

With wisdom to spend, and with a provident spirit to save and improve, remember your own progress is in your own hands: no one can help those who will not help themselves. It is not what we have given to us that improves us, or does us much good, it is what we earn—what our heads and our hands carve out for us—what we feel we have created, as it were: this is what we enjoy, and this is what we take care of. To improve your position you must improve yourselves: improved ideas, whether obtained by reflection or by observation, improved methods, improved skill, renewed application,—these only are the means of progress; and look to this in your families: would you that the labour of your children should command more of the comforts

and abundances of life than your own does, then educate them,—prepare them for the battle of life by superior information. If they are to rise higher they must be superior, they must have superior information or superior skill. Look not to others: your success under God's blessing is in your own hands. May you have the heart to determine, the head to design, the skill to execute.

RECOVERY OF ARCHITECTS' CHARGES.

MOFFATT *v.* DICKSON.

THE plaintiff in this case, tried in Court of Common Pleas, was an architect: the defendant is clerk to the visiting committee of the Lunatic Asylum for the county of Northumberland; and the action was brought to recover 437*l.* 10s. for preparing drawings, &c. for the new Lunatic Asylum for the county of Northumberland.

In 1848, the erection of this lunatic asylum was contemplated, and the plaintiff was engaged to prepare the "requisite probationary drawings." He accordingly sent in his plans, and attended before Sir Charles Monk and the other committeemen, to explain them. The committee considered the matter, and thought the plans likely to promise well for the uses intended; but they disapproved of the elevation, both for its appearance and for the probable cost of its erection, and requested him to prepare amended plans. About this time the Lunacy Commissioners made some alterations in their regulations, and the plaintiff had to send in a fresh set of plans altogether; but these were rejected without any specific ground of complaint being made. An extra claim made by the plaintiff was for twenty guineas, for two journeys down to the north, and the defendant paid 100*l.* into court, upon the count for work and labour.

At the conclusion of the plaintiff's case, several questions of law were raised, which his lordship reserved for the opinion of the Court, and left it to the jury to say what was the amount of the plaintiff's damage, without reference to the money paid into court.

The jury found a verdict for the plaintiff for 437*l.* 10s. without interest or money for the journeys.

AN EXPERIENCE OF PIPE DRAINS.

ABOUT five years ago I had a house in town drained with 4-inch pipe drains. The fall was very good. My tenant constantly complained of the drain acting badly, and I had much trouble in getting it cleared. At last, I determined to have it thoroughly examined; and it was then found that there was a most imperfect junction of two of the pipes, their ends not meeting, and one being much below the other. The junction was made good, and the drain works well. The fault here was not in the pipes, but in the pipe-layers.

About two years ago I had a house in the country drained with 4-inch drain pipes, and I induced a neighbour to do the same. Each house has offices, stables, coach-house, and yards. The whole internal and external drainage of each house is carried off by its own one 4-inch pipe drain, and the two drains unite and discharge the united sewage through one 4-inch pipe drain into a manure tank in a meadow. There is a very good fall, and the drains answer perfectly. The pipe-layer was a clever man, and did his work carefully.

I have another house near town, where I have had 4-inch pipe drains in use for various periods, from three years to one. Having occasion lately to have the ground opened near one of them, I examined the state of the pipes. It was most satisfactorily clear. There has not been anything like a stoppage, except in one; and that was owing to either an accidental or a mischievous damage to it. The fall is very slight, but the pipe-layers were careful.

I understand that there is an instructive system of small pipe drainage at St. Mark's College.

My experience and observation lead me to believe that where the work is done well, and the fall is reasonable (not less than 1 inch in 10 feet), and there is a due supply of water through the whole length of the drain (which can generally be got from a water-closet or a stack pipe), a 4-inch pipe drain is amply sufficient for an ordinary house. N. R.

PIPE-DRAINAGE, RICHMOND.

I UNDERSTAND that during the recent heavy rains, the pipe sewer in the Queen's-road, Richmond, was blown up, owing, it has been supposed, to some portion of the surface drainage of Richmond-park, with the washings of the neighbouring roads, having been turned into it, contrary to the original plan. Fortunately the accident was discovered in time, though not before a considerable quantity of earth had been washed away, or else some serious casualty might have occurred, for the sewer is here situated in the centre of the road, at a depth of about 10 feet below the surface. This seems to corroborate the correctness of the views taken by many of the speakers at the Institution of Civil Engineers, when discussing the subject of sewerage, who opposed very strongly the thick and thin support given by some parties to the as yet comparatively untried pottery pipes; and bears out the opinion of Mr. G. Donaldson, the author of the paper on the drainage of Richmond, which gave rise to the discussion in question, that if pipe sewerage was to succeed at all, it must be by the entire separation of the house and surface drainage. Should such an accident occur in the High street, the result would be most disastrous, as the sewer is there laid through a running sand, which it would be difficult to stop when once in motion, before great injury was done to the foundations of the adjacent houses. A. B. C.

SUBURBAN ARTISAN SCHOOLS.

ON Tuesday last, the president and committee of these schools received their friends and supporters at a *soirée* in the Library and Flaxman Hall, of University College, London. An interesting collection of works of art, consisting of paintings and drawings, bronzes, gold and silver work, pottery, bookbinding, wood-carving, &c. &c. contributed by Messrs. Hunt and Roskill, Elkington and Co. Cave Thomas, Day, Leighton, Rogers, Minton, Claudet, Fenton, Armytage, Jackson and Graham, Thorneycroft, Marochetti, &c. &c. was displayed in the fine library of the college, and gave ample sources of amusement and pleasure to a numerous company. In the course of the evening the hon. secretary read a short statement of the rise and progress of the schools from the spring of 1849 to the present time, including the formal report for the past year, and the president explained that the committee were desirous to receive contributions of books towards the school library, and of money to the general fund, as from the nature of the institution it cannot be altogether self-supporting.

In one of the compartments a number of drawings executed by the students of the school were exhibited, and served to give satisfactory evidence of the progress that is being made in it. The Flaxman Hall was effectively lighted. The kindness of the college in granting the use of it on this occasion deserves acknowledgment.

ASYLUM FOR IDIOTS.—COMPETITION.

A NEW building is about to be erected for this institution, at Earlswood, near Reigate, where the board of management have purchased a farm of ninety acres, which affords, at one part of the land, a remarkably fine elevated site for building, commanding for a long distance the two lines of railway which meet in the vicinity. The establishment is to accommodate 400 inmates, of both sexes, and of all ages, from the infant upwards. The classification must consequently provide separate departments for nursery children, school children, and adults, besides infirmary, superintendent's residence, and accommodation for other officers and attendants, and for the domestic department.

Eight designs having been submitted to the Board in competition, the decision has resulted in favour of the one presented by Mr. Robert Kerr and Mr. George Morgan. This design is Italian in character: the wall material is the stone of the locality, of which there have lately been opened new quarries, said to be of the ancient quality (the modern quality being very inferior); and the estimated cost, exclusive of certain matters set forth, stands at 21,200*l.*

The proportion of idiots in our population is much larger than is generally supposed; and yet it is remarkable that with *lunatic* asylums all over the country, it is only within the last few years that the public mind has been aroused to perceive the want of *idiot* asylums. Of late, however, the charity now in question has sprung up and grown into position, under the management of Dr. Andrew Reed, whose name is known to the English public in connection with more than one of the noble list of our benevolent institutions.

We are glad to hear of Mr. Kerr's success, and have no doubt he will, in conjunction with his partner, produce a building creditable to himself and satisfactory to his employers.

Amongst the competitors were Messrs. Moffatt, Daukes, Ashpitel and Co. &c.

THE VALUE OF THE NEW HOUSES OF PARLIAMENT TO ART.

IF we are ever to arrive at that degree of excellence in the higher branches of the fine arts to which other nations, in less auspicious times, and under circumstances less favourable than those in which we are placed, have attained, it can only be by conforming to the spirit by which they were animated, and aspiring to the fame which they achieved.

To what purpose do we compass sea and land, and expend vast sums for the precious relics of ancient art, and the transcendent conceptions of lost genius, if no kindred emotions are to stir our own souls, and no adequate resources are afforded to quicken and sustain our emulation. Regarded in this light, whatever judgment may hereafter be passed upon the architectural style and character of the new Houses of Parliament, it can never be denied that the public spirit and costly liberality displayed in the construction and decoration of these buildings is in all respects worthy of the genius and generosity of a great and enlightened nation.

Stimulated and encouraged by the examples here presented, future architects and artists may, and probably will, attain to greater magnificence in conception and grandeur of effect, to more skill in arrangement, or dexterity in execution; but, nevertheless, these splendid structures must ever remain a munificent monument of the ardent and intelligent aspirations of the people of our own times.

It should likewise be noticed that these works constitute a new era in the history of art in this country. In regard to cost they are essentially the work of the people themselves; approved and sanctioned by the most rigidly economical of their representatives; and while they unmistakeably evince the social progress of the nation in intelligence and taste, they form, at the same time, a worthy tribute to their loyalty and patriotism. "They are not dedicated exclusively to the benefit of any one portion of the community, but all have an interest in them, as all may aspire to a voice and a seat, and even a niche of fame, in these magnificent halls." These noble and commanding edifices have been reared by no tyrannical prince at the expense of the blood and treasure of servile vassals and serfs, and for the purposes of his own self-indulgence and personal aggrandizement; but they are the deliberate and self-chosen work of a free people for the intelligent gratification of a refined taste, in the exercise of their highest constitutional and legislative functions. If all our national edifices had been conceived and carried out in the same enlarged and patriotic spirit, we should not now have to complain of the waste of so much of the public money upon buildings, which a parsimonious and unwise economy in the first instance have rendered altogether valueless and unsuitable, as compared with the wants and requirements of the present age.

We can have nothing good in art, and especially in architectural art, without its proportionate cost.

In a rich and prosperous country like this, and for buildings absolutely required for the

service and advantage of the public, it is not money, but its inconsiderate misappropriation, that ever need be objected to. Our prominent buildings, as works of art merely, should be made sources of more general interest and attraction. But we cannot have great works without corresponding means.

We cannot determine upon a well-considered plan, and having begun upon it, depart from the design, and yet attain the desired effect. If Sir Charles Barry is at length allowed to finish his great work in its full integrity, and with the same unstinting spirit in which it was originally planned and begun, we may yet hope to see a monument completed, to the country's glory, which shall endure as long as the constitution and fame of the empire itself shall last.

There appears to be one anomaly connected with the decoration of the Houses of Parliament, which seems to have escaped general notice. There is nothing whatever to represent or indicate our immense and wonderful and magnificent colonial empire and possessions. Surely this is either a mistake or an oversight. WATCHMAN.

PICTURES BOUGHT BY THE ART-UNION OF LONDON.

THE following are the principal pictures purchased since our last list:—

Father Thames, 150*l.* S.B.A.—J. Tennant
The Village Letter-writer, 100*l.* N.I.—J. G. Middleton
The Action in which Van Tromp was killed, 100*l.* R.A.—W. A. Knell
Lake Leman, Switzerland, 80*l.* R.A.—T. Danby
A Flower Girl of Seville, 80*l.* S.B.A.—F. Y. Hurlstone
Returning from Church, 70*l.* N.I.—W. Underhill
Glen Nevis, Inverness-shire, 80*l.* N.W.C.S.—W. Bennett
A quiet Valley Autumn, 100*l.* S.B.A.—H. J. Boddington
St. Brelade's Bay, Jersey, 60*l.* S.B.A.—A. Clint
Smugglers disposing of their Cargo, 60*l.* S.B.A. T. Clater
The Bird's Nest in Danger, 60*l.* R.A.—W. F. Witherington, R.A.
Bolton Abbey, Yorkshire, 60*l.* R.A.—W. Havell
The old Boat-house at Ventnor, Isle of Wight, 50*l.* N.I.—E. C. Williams
Noon, 55*l.* N.I.—G. A. Williams
Gipsies in a Barn, 50*l.* N.I.—W. Underhill
The Lake of Thun, 50*l.* W. C. S.—W. C. Smith
One for me, 40*l.* R.A.—W. H. Knight
The Swing, 40*l.* N.I.—E. C. Cobbett
Snowdon, 50*l.* W.C.S.—Copley Fielding
The frozen River, 40*l.* N.I.—A. Montague
Welsh Peasants, 40*l.* N.I.—C. Dukes
On the Conway, 40*l.* N.I.—F. W. Hulme
Road to the Saeter, 36*l.* 15s. S.B.A.—W. West
Don Quixote and Sancho, 40*l.* N.I.—J. Peel
On the Frith of Forth, 44*l.* R.A.—R. McInnes
Scene near the Upper Falls, Lynmouth, 30*l.* N.I.—H. B. Willis
Off Purfleet, river Thames, 26*l.* 5s. R.A.—R. H. Nibbs
Going to Market, 25*l.* R.A.—J. Stark
Demise, Lamartine's Stone-cutter of St. Point, 25*l.* N.I. O. R. Campbell
Morning, 30*l.* N.I.—G. A. Williams
Waterfall at Bradladt, Norway, 30*l.* S.B.A.—W. West
Summer Evening, Tramps descending to a Village, 35*l.* S.B.A.—J. W. Allen
Roses, 17*l.* 17s. N.W.C.S.—Mrs. Margetts
Cinderella, 20*l.* B.I.—W. S. Burton
The Close of a Sultry Day, 20*l.* R.A.—E. Williams, jun.
Returning to Post, Evening, 20*l.* S.B.A.—J. W. Yarnold
Wargram, Berks, 20*l.* R.A.—A. Barland
Old Manor House at Salterns, Dorset, 20*l.* S.B.A.—A. Clint
The Mouse, 31*l.* 10s. R.A.—H. P. Parker
An Autumn Evening in the Bay of Monaco, 28*l.* R.A.—H. J. Johnson
Youth and Age, 22*l.* 10s. S.B.A.—J. Noble
Calm, River Thames, early Morning, 25*l.* S.B.A.—R. H. Nibbs
The Stream in June, 20*l.* R.A.—J. Middleton
Isabella, 20*l.* S.B.A.—W. Gale
The Forester and his Favourites, 20*l.* R.A.—H. B. Willis
Dutch Ferry Boat, Morning, 20*l.* N.I.—A. Montague
The Nevis, Inverness-shire, 17*l.* 17s. N.W.C.S.—W. Bennett
Canal, St. Fronaro, Venice, 20*l.* N.I.—W. Oliver
Clovelly, North Devon, 20*l.* R.A.—H. Jutsum
View from Denison's-hill, Surrey, 20*l.* B.I.—G.V. Cole, jun.
River Scene, Showery Weather, 20*l.* N.I.—E. Williams, sen.
A Gleaner, 20*l.* S.B.A.—F. C. Underhill
A Peep at By-gone Times, 21*l.* R.A.—W. S. P. Henderson
On the banks of the Yare, 15*l.* R.A.—J. Stark
Distant View of Conway, 15*l.* 15s. W.C.S.—D. Cox, jun.
Calais Pier, Fresh Breeze, 15*l.* N.W.C.S.—T. S. Robins
On the Thames near Chiswick, 15*l.* S.B.A.—J. Tennant
On the Coast near Ostend, 15*l.* S.B.A.—J. Wilson
Shallow Stream, North Wales, 20*l.* R.A.—C. Marshall
Fruit from Nature, 31*l.* 10s. B.I. –Miss Stannard
Children Playing at Jink-stones, 15*l.* R.A.—A. Hunt
The Mill, Chigford, Devon, 45*l.* R.A.—J. Gendall
Gipsies, 15*l.* S.B.A.—G. Cole
Children at Play, 12*l.* 12s. N.I.—Miss Hewitt
On the Coast of Kent near Broadstairs, 15*l.* 15s. B.I.—J. Dugardin
Evening on the Common, 15*l.* N.I.—G. A. Williams
A Path by the Woodside, 15*l.* N.I.—T. J. Soper
The Path to Church, 15*l.* S.B.A.—H. J. Boddington
Dynas Rock, Vale of Neath, 15*l.* R.A.—W. Williams
She dwelt among the untrodden Ways, &c. 15*l.* N.I.—F. Wyburd
Coast Scene, Linton, 15*l.* S.B.A.—W. West
Reigate Heath, 15*l.* N.I.—W. E. Bates
A Shepherd Boy, 15*l.* 15s. S.B.A.—J. J. Hill
Langdale Pikes, 14*l.* 14s. N.W.C.S.—T. L. Rowbotham, jun.
The Sunny Hour, 26*l.* 5s. N.W.C.S.—J. H. Mole
A Heathy Scene, Isle of Skye, 15*l.* W.C.S.—W. Turner
Lynmouth, North Devon, 22*l.* 12s. N.W.C.S.—S. Cook.

DESIGN OF A MONUMENT TO THE FOUNDER OF THE SMITHSONIAN (U.S.) INSTITUTE.

AN American paper gives an account of what it calls the "glorious design" for a monument to Smithson, by Horatio Stone. The design has been shown at Washington, and it is hoped that Congress will commission the artist to execute the work for the Smithson Institute. The subject is symbolical, somewhat high flown, and in some points scarcely in good taste. "Young Freedom" is the hero; and "the sage philanthropist"—Smithson, we imagine,—is his mentor. Franklin, however, gives him "the key of knowledge" and "the thunderbolt on the kite." In a group on the part of the pedestal fronting the statue Knowledge feeds the lamp of Young Freedom, who is garnished with his stars and stripes. Fulton holds a merited place in the sculptures, and Morse, we think, is *rather too much* made of: he is saying "in words on the scroll of the telegraphic machine, 'Let there be light.'" The wires ascend to the frieze, and being distributed above the dome of the Capitol are borne by angels around the circle of the world. The peculiar architecture of the four quarters of the globe occupy the frieze fronting the statue. Beneath the cornice, and over America, are the telegraphic angels, because "from thence first proceeded the 'still small voice' of the electric wires (?), and from the Capitol was the first telegraphic Word made manifest to the world!"

"An important member of the base-mouldings, upon which the whole work rests, is formed of the shields of all the states, bound together by a wreath of olive. When enlarged in marble, the heraldic figures and devices proper to the several states will be sculptured upon the shields. The statue of Smithson, surmounting the illustrative pedestal, is to be 9 feet in height. It is draped in the appropriate mantle of the Sage. In the left hand of the statue is placed a crystalline substance, to indicate the science to which he devoted his life. In the right hand is held a stylus disposed in readiness to record the result of investigation.

The cylindrical shaft of the pedestal, on which the principal illustrations are to be sculptured, furnishes a circumference-surface of 20 feet by 4½ in height: the figures on this surface are to be made in *alto-relief*, and 3 feet in height."

Miscellanea.

SELF-ACTING TIME SIGNALS.—Some time ago we put a question suggestively to men of ingenuity as to the possibility of inventing a railway signal which, fixed on the line, and acted on by a passing train, as in the rise and subsequent fall of some prominent mark on a post or pole, and by a light to rise and fall by night, would show to subsequent trains the length of time, within a quarter of an hour or so, which had transpired since the train setting the signal in action had passed. Such a signal as we then pointed out would be especially useful to trains on entering long tunnels, in which serious accidents have happened from want of it. In fogs, too, and in curves and low levels or hollows by day, as well as by night under all circumstances, such signals would be invaluable. An invention has lately come under our notice, which might, perhaps, be adapted to the self-acting mechanism required and still to be invented. "The machine," it is said "is of simple construction, consisting merely of a pole 16 feet high, upon which slides up and down a copper ball, of 18 inches in diameter. This ball is wound up to the top of the pole by clockwork directly a train has passed; ["trouble attending the manipulation" is alluded to, so that it is unfortunately not self-acting, or put in trim by the train itself] and as it occupies exactly ten minutes in its descent, the driver of the following engine can discern at a glance how long a time [within ten minutes] has elapsed since the last train passed, and by which, at one view, he is made acquainted with the distance the next train before him has gone on, and instructing him, the while, to shut off his steam, or proceed at a more rapid rate. In the day-time the ball itself is sufficiently conspicuous, but in the night-time, or foggy weather, top and bottom lamps are employed, with a different colour to the one in the ball; thus making it an unmistakeable night signal. The trouble of attending to the manipulation of the machine itself is so slight as scarcely to be worthy of notice. The uses of this invention are so multifarious and self-evident, that it would be tedious to describe them, on the one hand, and needless on the other." The inventor is a Mr. Tidmarsh, who was awarded a silver medal by the Scottish Society of Arts as a token of their appreciation of its ingenuity.

THE BIRMINGHAM SCHOOL OF ORNAMENTAL ART.—The annual meeting of the donors and subscribers to the Society of Arts and Government School of Design at Birmingham was held on Tuesday in last week at the rooms of the institution, in New-street. In the absence of the president (the Earl of Stamford) the Hon. and Rev. G. M. Yorke occupied the chair. The treasurer read an abstract of the accounts, which showed the entire receipts for the year ending 31st May (including a balance in hand from the previous twelve months of 101*l.* 3s. 4d.) to have been 1,284*l.* 8s. 6d. of which sum 287*l.* 10s. were derived from subscriptions and donations, and 156*l.* 10s. 6d. from students' fees. The government contribution to this school is 600*l.* a year. In the face of these facts it is astonishing to find one of the principal speakers at the meeting, without one word urging the manufacturing and other able inhabitants of Birmingham to increase their subscriptions, nevertheless hoping that Government would "see the propriety" of increasing their grant, which he (the speaker) thought ought to be doubled! Not one of those who addressed the meeting, if correctly reported in the local papers, could "see the propriety" of remonstrating with their townsmen for not at least equalling the generosity of the Government towards them and their interests in the charitable support of their own school of art. The modelling class of this school is considered to present its most complete feature as a whole, that class having continued its operations without interruption during the recent changes.

ENCLOSURE OF LAND FROM THE SEA IN THE NETHERLANDS.—The first sod of the lands conceded to the Netherlands Land Enclosure Company by the Government of Holland was turned by Captain Pelly, on Thursday in week before last, at Hanswerk, Zeeland, Holland, in the presence of a large concourse of the population. In the Scheldt, between Bergen-op-Zoom and Antwerp, there exist large tracts of land covered at high water by the sea, and at low water presenting a varying surface of several feet in depth of the richest alluvial soil, ever on the increase. To redeem and dispose of this land is the object of the company named, which is composed of practical men on both sides of the Channel, with Sir John Rennie as engineer-in-chief. The necessary powers have been granted for ninety-nine years from last August, under which the company may recover and enclose land to the extent of 35,000 acres. The reclamation will cost 20*l.* per acre they say, and the land reclaimed will be worth from 60*l.* to 70*l.* per acre.

GAS.—The Coventry Gas Company have announced a reduction on 1st July, to prices graduating from 3s. 6d. to 5s. 6d. per 1,000 feet.——An effort is being made to establish a new Gas Company at Yarmouth, for the purpose of supplying Gorleston and Southtown with gas. At same time the old company have determined on reducing the price of gas, after Michaelmas quarter, from 5s. 6d. per 1,000 feet to 5s.——The increasing prosperity of the Kelso Gas Company, according to the local *Chronicle*, is so great as to require an extension of accommodation at the work to meet the extending consumption. A dividend of 10 per cent has just been declared.——The Stranraer Gas Company have reduced the price of gas to 8s. a thousand cubic feet.

THE PATENT LAWS.—By the Amendment Bill, which lately made its way through Lords and Commons, one patent is made sufficient for the whole of the three United Kingdoms and the colonies. On payment of a fee of 5*l.* on leaving petition for grant of letters patent, provisional protection for six months to be granted, during which the invention to be patented might be published and used without prejudice to any letters patent to be granted for same. Within six months this protection to lapse, unless notice to proceed given, and 5*l.* paid, after which the following fees:—On sealing of letters patent, 5*l.*; on filing specification, 5*l.*; at or before expiry of third year, 40*l.*; at or before expiry of seventh year, 80*l.* Other fees:—On objection to letters patent, 2*l.*; on search, 1s.; entry of assignment or license, 5s.; certificate of same, 5s.; filing application for disclaimer, 5*l.*; caveat against disclaimer, 2*l.* Stamp duties to be paid:—on warrant of law officer for letters patent, 5*l.*; on certificate of payment of fee at expiry of third year, 10*l.*; at expiry of seventh year, 20*l.* All specifications to be printed and sold, and indices of specifications to be kept open to the public. New office of patents to be opened, and compensation given to old officers. Law to take effect on 1st October, 1852.

HOW LOW TENDERS ARE CARRIED OUT.—Some months since persons were invited to tender for the re-seating, &c. of one of the largest churches in this country: many others as well as myself were at considerable expence and trouble to arrive at the real value of the work to be done. The new seating consisted of open benches, to be made of the "*best dry Riga wainscot*," in quality equal to a model seat prepared (of real size) as a specimen for the competitors to value their work by. This seat was made of good dry Riga wainscot according to the specification, the value o market price of which was not less than 8 per foot superficia', and thinking the co - mittee were in earnest in what they had set forth, I valued my work accordingly, but to my great surprise I found myself considerably beaten in price when the tenders were opened, and I have not, till very recently, been able to understand how it was. But upon being offered by my timber merchant some "*Baltic oak*" at 2s. per foot cube, or 2d. per foot superficial, which he assured me was the very same timber as that he had supplied for the fittings of the church in question a few weeks before, I saw at once how my brother competitor was about to make himself right, and get a much larger profit than I had ever contemplated, if the committee will only allow him to set them up. —X. Y. Z.

IRISH NATIONAL EXHIBITION LECTURES AT CORK.—The series of lectures intended to be given in connection with the Cork Exhibition has been opened by Archbishop Whateley. The inauguration took place in the banquet-room, which was filled by a crowd of ladies and gentlemen. His grace, in delivering the introductory lecture, stated that the lectures themselves were not to be considered as a course of education even in any one department, but merely as specimens of the instruments which existed in that country for cultivating the human mind in the shape of good instruction.

THE NATIONAL AND INFANT SCHOOLS OF CHRISTCHURCH, MARYLEBONE.—The foundation stone of the new schools in the district of Christchurch, Marylebone, was laid on Saturday last by the Bishop of London. The site is a large plot of land closely adjoining to Christ Church, and forming the corner of Lisson-street and Stafford-street, Lissongrove; and for site, as well as building, the district is indebted to Miss Lewis, of Sussex-gardens, Kent-terrace, Regent's-park, who has, at least, given 600*l.* towards the site, and is to pay the whole cost of the building, which is estimated at 4,300*l.* It is designed by the architect, Mr. Joseph Flemming, to accommodate about 750 children, and will also contain apartments for masters, mistresses, and teachers engaged in the education of the poor. The erection has been entrusted to Messrs. Winsland and Co. builders.

FRIGHTFUL ACCIDENT WITH MELTED IRON.—One of those shocking casualties of which a sight of the "ladling" process in large foundries leads one, instinctively, as it were, to dread a much more frequent recurrence than actually takes place, has just occurred at the foundry of Messrs. Mare and Co. at Blackwall, in course of an immense casting, for which a "ladle," containing twelve tons of red hot liquid iron, and mounted on wheels, had been filled and was being conveyed to its destination. One of the wheels suddenly broke, and upset the liquid among the poor fellows at work with it, scalding and burning their feet, arms, legs, and faces, and various parts of their bodies. One of them, named Garlick, was discovered under the hot metal shockingly burnt and quite dead. Eight of those who had received the worst injuries were placed in carts and conveyed with all possible care to the accident-ward of the London Hospital. Two of them are very extensively injured.

WHAT WE LIVE AMONGST.—Nothing can be more true than the observation I met with in your excellent journal, namely, that "Our children brought up amidst vagaries of the vilest taste, are reconciled by habit to ugliness and incongruity." Is it not, then, to be lamented that, in almost all buildings, lately erected, for the instruction of youth, no other taste is exhibited than one fitting for the construction of poor-houses and prisons? Why are all our charitable institutions to be models of gloom and darkness—windows few and small—roofs high, and chimneys obtruding themselves as beauties—a capricious irregularity of plan, with much space consequently lost—no symmetry or grace, and an outline unpicturesque and mean?—A LONDONER.

BRISTOL HOSPITAL COMPETITION.—The drawings submitted in competition are still under consideration we believe. In reply to some inquirers, if the directors have not obtained the assistance of a competent professional man in the examination of the drawings, they ought unquestionably to do so. We are not disposed to publish the letter of a "Bristolian" without proof of its correctness. There has been a correspondence in the local papers concerning some of the candidates, which has a curious aspect, considering that the matter is still *sub judice*.

FALLING BALCONIES.—A poor man was killed a few days ago by the falling of a balcony attached to a newly-built house in Denbigh-place, Pimlico. The deceased had been in the balcony only a few minutes when it gave way. Thomas Casey, superintendent of the masons' work, said he believed the accident arose in consequence of the settlement of the building, which had crushed the stone supporting the balcony, or that some heavy substance had fallen on the balcony. The stone, which was built with the house, was 2½ inches thick, and was inlaid 9 inches in the wall. It was 3 feet projecting under the balcony. There were only two persons in the balcony when it gave way, and the pressure on it (the balcony) was about 3 cwt. After the accident, there was no flaw observed in the stone. We have before now drawn attention to the dangerous condition in which balconies are often left. It is desirable that stone bottoms for balconies should have cantilevers, however sufficient the tailing in may be, for fear of flaws in the stone. Many of the iron balconets that are put up are little better than nailed to a brick wall!

VALUE OF LAND AT KINGSTON:—Mr. Nightingale has recently sold by auction, in sixteen lots, 4 acres of building ground: one lot, only a quarter of an acre in extent, sold for 300*l.*; and the whole realized 2,630*l.* On the same day a close of land at Walton, let for 7*l.* a-year, he sold for 400*l.* being upwards of fifty-seven years' purchase.

THE GERARD'S HALL CRYPT AT BASING-LANE.—The committee of the city council appointed to consider as to the preservation of this memorial of antiquity, by removal and reconstruction under the Guildhall, have determined against the proposal, on account mainly of the cost, which they estimate at 4,000*l.* to 5,000*l.*

THE IRON TRADE.—The quarterly-meeting masters appear to be still unable to realise a general rise in prices, and have resolved to abide by the old nominal rates at their forthcoming meeting. We need scarcely say that the actual trade prices are below these nominal ones of the high price supporters; the latter being admittedly "high prices."

NEW LEVELLING INSTRUMENT.—A patent has been granted to Mr. W. Gillespie, of Torbanehill, near Bathgate, in Scotland, for a new instrument which is thus spoken of by the *Edinburgh Evening Post*:—"The new implement at once either adjusts itself mechanically to the slope sought to be ascertained, or may be mechanically adjusted to any slope that workmen may wish to make. The patentee, under these circumstances, conceives that his simple yet ingenious device must be found extensively applicable in the formation of all future public works, and of most private improvements connected with land, such as railways, canals, piers, roads, embankments;" and the *Post*, after having seen the working model deposited for inspection at the office of Mr. Telford, recommends the contrivance "to the notice of all engineers, drainers, and contractors, having no doubt that saving of labour and expense may to a great extent be accomplished through i's instrumentality, and not only so, but a decided improvement effected at the same time n the execution of the works."

NUISANCE OF GAS-LIQUOR IN NEW BRIDGE-STREET, CITY.—Complaints having been made of an intolerable nuisance of daily occurrence in this quarter of the town, the surveyor to the City Sewers Commission, Mr. Haywood, investigated the subject, and reported that it arose from the practice of the City of London Gas Company discharging their waste liquor into the Thames. The nuisance was worse than usual when this was not done with the ebb-tide, and a mere want of sufficient storage occasionally led to this increase of the nuisance. The surveyor recommended increased storage as a temporary expedient till measures be taken to prevent either the Thames or the sewers from being thus polluted—a question at once referred to the committee of general purposes. Other gas companies north of the river appear to discharge their waste liquor through the sewers, complaint of which has also been made, especially as regards the Fleet sewer.

TENDERS

For building two houses in Newington Causeway for Mr. Mann. Mr. Wm. Rogers, architect.

Bunney	£1,310
Cooper	998
Tombs	997
Taylor	994
Maria Ward	947

London and Westminster Bank alterations and additions. Mr W. Tite, architect.

Nicholson	£7,090
Hayward and Nixon	6,950
Lee and Son	6,935
Cubitt and Co.	6,880
Grimsdell	6,787
Locke and Nesbam	6,630
Piper	6,558
Myers	6,215
Little	6,088
Jay	5,984

For new schools, &c. at Nottingham for the Midland Institution of the Blind. Messrs. Aickin and Capes, architects.

Simpson, Nottingham	£3,250
Haslem, Matlock	2,960
East and Hill, Nottingham	2,895
Hall, Nottingham	2,890
C. C. and A. Dennet, Nottingham (accepted)	2,783

TO CORRESPONDENTS.

"Riga" (red and yellow fir is imported from Norway, Sweden, Russia, &c. Some also comes from Scotland. It is perhaps the most durable of the pine species. We are not aware that there is much difference between the strength of red and yellow. The common white deals come from Norway. Note was overlooked).

"R. G. T. (doors of Honduras mahogany *veneered* with Spanish would best answer the purpose. Slate makes a wholesome cistern. The evidence in favour of gutta percha pipes for the conveyance of water seems satisfactory so far as it goes), "W. E.," "E. L. G.," "Author of the Pamphlet," "H. C.," "J. D. W.," "Messrs. D. & R.," "R. K.," "W. A." (will find note at the office), "A. G." (we have before protested), "Koe" (Stockholm), "General M." "C. S. and Co." "T. D." "A. P." "T. B. S." "J. W. H." "T. S. W." "A. and C." "H. C. B." (under our mark), "M. M." (ditto), "J. B. W." (ditto), "P. P." (ditto), "J. B." "R. O."

TUBULAR DRAIN-PIPES. — WANTED, a person as TOWN TRAVELLER, to take orders for the above, and for other articles used by builders, &c. Letters, stating qualifications, and the amount of remuneration required, to be addressed to P. P. at the Office of "The Builder," 1, York-street, Covent-garden.

WANTED, a Person to GIVE LESSONS, three times a week, to a Youth, in ARCHITECTURAL DRAWING, in the neighbourhood of Westbourne-terrace.—Address, stating terms, by letter, to E.M. Mr. Calder's Library, 1, Bathurst-street, Hyde-park-gardens.

WANTED, a CORRESPONDING CLERK, who must be a good letter writer and accountant, capable of writing specimens on, taking out quantities, and measuring works.—Address, G. C. at the Office of "The Builder," 1, York-street, Covent Garden.

WANTED, in an Architect's office near Birmingham, a JUNIOR ASSISTANT. He must be a good draughtsman and accustomed to the duties of an architect's office.—Applications, stating terms and references to be addressed to W. B. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, a clever ARCHITECTURAL DRAUGHTSMAN, to prepare finished and working drawings.—Apply, with specimens of drawings, and references at 261, Oxford-street, between the hours of Ten and Three, on Tuesday, the 13th July.

TO ARCHITECTURAL DRAUGHTSMEN.

WANTED, a first-rate ARCHITECTURAL DRAUGHTSMAN, who has a thorough Practical knowledge of the Gothic and Italian styles of architecture.—Address stating terms, and enclosing testimonials and specimens of drawing, to Messrs. BOWMAN and CROWTHER, Architects, 68, George-street, Manchester.

TO BUILDERS' CLERK.

WANTED, in a Builder's Office in London, a YOUNG MAN, who is a draughtsman, and can assist generally in the duties of the office.—Address, stating references, age, salary required, and where last engaged, to L. A. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, by an Architect of extensive practice, a MANAGING CLERK, who must be a good draughtsman and thoroughly conversant with Italian and Elizabethan details, the preparation of specifications, and the general routine of business in an Architect's office. Three optionable references required.—Apply personally at 54, Oxford-street, between the hours of ten and three, on Tuesday, the 13th July.

TO SURVEYORS.

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DURABILITY OF GUTTA PERCHA TUBING.

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From the Rev. DANIEL C. DELAFOSSE, Shere Rectory, near Guildford.

"May 11th, 1852.

"GENTLEMEN,—In reply to your communication relative to the Gutta Percha Tubing laid down in one of my wells, I have to state that as yet it has fully answered the purpose to which it was applied, and has proved far more durable than the leaden pipes which were hitherto used.

"The fact is, my spring water is strongly impregnated with iron, which *corrodes the lead*, and causes holes in the pipes, so that the air getting in, prevents the pumps from acting properly. The only inconvenience that I experienced from the use of the Gutta Percha Tubing was, that it gave, for a week or so, an unpleasant taste to the water, but after this brief space had elapsed, the water passing through the tubes was as clear and tasteless as that which had hitherto been raised through the leaden pipes. A year, I think has nearly elapsed since I tried your pipes for the first time, and as no damage has hitherto occurred to the one now in use during that period, I have reason to hope that the evil of the leaden pipes will be permanently cured; or at least that it will take a far longer time to injure the Gutta Percha Tubing than I have found to be the case as regards the lead. "Yours, &c. "D. C. DELAFOSSE.

"To the GUTTA PERCHA COMPANY."

From W. BIRD HERAPATH, Esq. M.R.C.S. M.B. London University, &c.

SECOND TESTIMONIAL.

"February 18th, 1851.

"In reply to your inquiries respecting the Cistern and Tubing of Gutta Percha, which I had erected in my house for the dispensing department, it gives me great pleasure to be able to say that they answer most admirably. I had occasion to examine the interior of the cistern (which holds 200 gallons), the other day, and I found the surface of the Gutta Percha *wholly free from any erosion or trace of decay.* The Tubing is without a fault; not the slightest trace of leakage has appeared,—the water is clean and wholesome, and destitute of all impurities, such as it must have contained had *lead* been employed instead of your incomparable material."

From JOHN GOODWIN, Esq. Pershor and Holt Mills, Worcester.

"April 12th, 1852.

"I purchased some Gutta Percha Tubing from you, for the conveyance of water, cider, &c. part of which having been under ground for the last three or four years, without any apparent injury arising therefrom, I feel much pleasure in expressing my thorough approval of it, and recommending the same to any one requiring its use.

"To Mr. WHITING, Worcester."

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The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the casks bearing their mark, VM, are only to be considered as genuine. It may also be had ready ground in oil, at any of their Agents, residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.
The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above-mentioned localities, as likewise from the following Agents, Messrs. G. DEVAUX and Co. 62, King William-street, City, London; and Messrs. ROBT. ANDERSON and Co. Timber Bush, Leith, Scotland. Pure White Zinc for Varnishing and Japanning to be purchased from Messrs. BLUNDEL SPENCE and Co. Hull.
For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's offices, 12, Manchester-buildings, Westminster-bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of
PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.
Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonate of Lead, containing what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.
But the chief and by far the most important advantage it possesses, is its remarkably decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period directed to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the only way of being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.
In using the Oxichloride, no difference in the materia's with which it is mixed is required. Oil and Turpentine being employed as usual, both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable.
The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

AGENTS.

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LIVERPOOL	Mr. Richd. Cooke, 7, Sir.-lane. Messrs. Johnson and M. Gowan.
MANCHESTER	Mr. James Grey.
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BELFAST	Messrs. William Stevenson, jun and Co.

The Builder.
No. CCCCXCIII.
SATURDAY, JULY 17, 1852.

THE letter published by us last week, setting forth that Mr. Pugin, unhappily deprived temporarily of reason, had been removed from the private asylum in which he had been placed, there being no funds to support him, and transferred to a public hospital, has excited considerable sensation. We record the first response to it which reached us: it is dated "Pembroke Lodge, July 10, 1852," and was therefore written immediately on the appearance of our journal:—

"Sir,—I do not know whether there is any truth in the assertion of a correspondent of your paper, that Mr. Pugin has been reduced to beggary. I hope not. But if there is any truth in the statement, and a subscription is opened for Mr. Pugin's relief, I beg that my name may be put down for 10*l.*

"I am, Sir, your obedient servant,
"J. Russell."

When it is remembered that the noble writer has scarcely recovered from the bustle and excitement of a contested election, that at this moment the fate of political parties hangs in the balance, the prompt kindness and consideration which dictated this letter will be recognised from one end of the kingdom to the other.

We have taken some pains to test the accuracy of our correspondent's statement, and find it perfectly true, at all events to this extent, that Mr. Pugin has been removed from a private establishment at Kensington, Dr. Philp's, and placed in "Bedlam,"—Bedlam, with all its distressing traditions, and where he will be one of the sights with "Oxford, who fired at the Queen," and the man "who shot Mr. Drummond." It is unnecessary for us to say that it is not the "Bedlam" of former times; that chains and whips are now unknown there; that Tom o' Bedlams no longer wander; that the greatest kindness is shown to the inmates; and that all that science can prompt is applied to their recovery: still it is an establishment for criminal and pauper lunatics, and the disgrace of being sent there will be acutely felt by him should he happily be restored. Well may F. S. exclaim,—"Not a generous friend in or out of the pale of his religious faith to come forward to spare him this disgrace! not one of his many Roman Catholic brethren, who know the thousands of pounds he has spent on their church! Not even a tradesman or manufacturer, Roman Catholic or otherwise, who has benefited by executing his designs!" On the church and buildings erected by him at Ramsgate, which, we believe, have wholly passed away from him, we understand he has spent more than 10,000*l.* Whether or not he and his large family are actually left unprovided for, we do not pretend to say: we sincerely hope not; but it must be inferred from the statement of those who have placed him where he is that the removal is a matter of necessity. Indeed, his admittance to Bethlehem is itself a proof of it, one of the four requirements previous to the reception of a patient being—evidence that he could not be maintained in a private establishment.

When first placed under restraint, Mr. Pugin was exceedingly violent, and destroyed everything within his reach, but just previously to his removal, we are informed, he had become much more tranquil, and was otherwise so much improved that his medical attendant expresses his conviction that if he had continued to make the same progress for six weeks he might have been set at large. What effect the removal may have had, if any, it is not for us to say, but certain it is that at this moment he is in so sad a state that his nearest connections are not permitted to see him.

One of our correspondents attributes a motive to those who have taken him to the neighbourhood of St. George's Cathedral which we may not repeat. Few of our readers probably are aware that Mr. Pugin, as we are positively told, has manifested a desire to quit the Romish Church, if, indeed, he has not formally done so; that he has expressed great remorse for the abuse he has lavished on the Anglican Church; and on more than one occasion, in quieter moments, has drawn cheques of large amount, as being due from him to the church which he now thinks he has erroneously vilified. Once, as we understand, he said,—"The rest of my life must be one of penitence, to seek forgiveness for the wrongs I have done to the Anglican Church!"

With this new phase in his singular life, however, we have nothing to do: we are simply anxious to obtain such an asylum for him in his great misfortune as befits the man; and it must rest with his family and immediate friends to say in what way this can most satisfactorily be effected. The offers of assistance are numerous.

After the above was in type, and immediately before going to press, we received a letter from Mr. Edward Pugin contradicting F. S.'s statement that his father "has been removed to a public hospital *for want of funds to support him*;" and concluding thus:—"I need hardly say that the question of making a public subscription is one that ought not to have been put forth without, at least, *some* authority. For the rest, I trust I may be able to carry out my father's professional engagements; and, with the continued assistance and encouragement of his friends, to maintain the family till such time as it may please God to restore him to us." Further interference on our part would therefore be indelicate: we have simply to add from F. S. that want of funds was the reason *given* for Mr. Pugin's removal by those who have placed him in the hospital, and that he had no ground for supposing the truth had been disguised.

Fall of a House in St. Paul's Churchyard.—On Monday morning a house occupied by Messrs. Morgan and Co. situate immediately opposite to the southern portico of St. Paul's Cathedral, with the exception of the front wall, fell with a tremendous crash. The premises adjoined others belonging to Messrs. Cook and Son, the whole of which have been recently removed for the purpose of rebuilding, in pursuance of arrangements made by the firm and the City of London Improvement Commissioners, the line forming part of the new Cannon-street West. The party wall appears to have been an old one, older than the rest of the brickwork. Fortunately no person was hurt. The matter should be inquired into.

ARCHITECTURE CONSIDERED AS EVIDENCE OF SOCIETY.*

With the subjugation of Greece terminates the fourth age of architecture, the loss of liberty checking all further advancement. We have now, therefore, to follow the art in its fifth age, and to examine in a similar manner to the last the various attributes and characteristics of the Roman epoch. We do not purpose extending our inquiry into the particular architectural details of the period, but shall content ourselves by showing, as shortly as possible, the more general adaptation of the art, and shall endeavour, in accordance with the end we have in view, to trace its connection with a corresponding social advance; and although we cannot attempt to claim for the fifth age similar attributes of grandeur and beauty to those which characterised the Greek period, we yet maintain that the ends of the art were more fully answered by rendering it more commonly subservient to the promotion of general happiness and well-being, and contend, without, it is to be hoped, laying ourselves open to the imputation of sheer utilitarianism, that the decline in actual purity and majesty was more than counterbalanced by increased utility; and that a larger practical wisdom and more enlightened state is evident from an increased employment of the art upon edifices which the advanced requirements of the times necessitated, and which a new order of things had called into existence. We will at once proceed to the examination of the fifth age, and attempt to point out the main features, which distinguish it from the preceding one, and proclaim the progression of society. We have already stated that the principal mark of difference between the Greek and Roman epochs of the art consisted in the more general adaptation of its principles to the requirements of mankind, rather than in the further development of those qualities of grandeur and majesty for which the former period stands pre-eminent; rather the appropriation and practical application of known truths than in the discovery of new ones; and on this ground we propose to support our argument of the *practical* superiority of the age we are describing over the preceding one, it being our aim throughout to show the advancement of the art, as contemporary with that of man's social and moral nature; in fact, to lay before the reader a hasty sketch of the social history of architecture, and following up the plan we have laid down, we will cite a few examples of the age, and leave it to the reader to decide as to the correctness of our views.

It will be at once apparent that the structures which peculiarly mark the Roman epoch are not so exclusively confined in their objects as those of the fourth age, in which the principal if not the sole application of the art was to objects of a religious nature; and although the pantheism which prevailed amongst the Greeks obtained to some extent with the Romans, we believe we may justly claim for the latter more practical views than the speculative abstractions of the former admitted. It is unnecessary for us here to instance particular examples of the various edifices with which Rome abounded, and upon which the beauties of architecture were lavished with no sparing hand. The remains of the thermæ or baths, aqueducts, roads, and cloacæ are sufficient of themselves to denote the higher advancement of human development, as affording advantages to health, welfare, and civilization which the mere beauty of the preceding period never possessed. A recent writer in The Builder quotes the Coliseum or Amphitheatre Flavium as an instance of the "material greatness and moral degradation of ancient Rome:" the example is doubtless correct, but it does not follow as a natural conclusion that the degradation is the greater for our being the more intimately acquainted with it than with that of other countries and other times, whilst, on the contrary, it appears just to believe that a nation which has handed down to posterity records of material greatness should not have been wholly wanting in the higher order of social and moral qualifications; and we believe in the examples we

* See p. 418, ante.

have already noticed we have instanced sufficient to render evident a wider development of those institutions whose aim is the permanent benefit of society, founded on sure principles of giving to each individual an interest in the general welfare, and the promotion and preservation of those privileges which are the great bonds that bind humanity and consolidate the institutions from which those advantages arise. We trust that we have now sufficiently dwelt upon this era of architecture to strengthen the belief of our readers in the correctness of our argument; and that although but imperfectly developed, our conclusions will, we hope, be found in the main true and reasonable. We believe we have again rendered sufficiently obvious the progression of human intelligence attested by architectural records, silent but truthful and impartial historians of the social condition of their age. If the vices of old Rome were greater than those of ancient Greece, yet were her virtues higher and more numerous, as in nature the deepest shade ever accompanies the brightest light. If Greece could boast of more illustrious names amongst her sons, yet in Rome the diffusion of talent was the more general: if the institutions of the one were the more magnificent, in the other they possessed the higher merit of being more calculated to promote the common good: if the intellectual flame of the former were the more brilliant, with the latter it was the more steady and generally diffused: if the Greeks were eminent for individual virtues, the Romans shone conspicuous in those which distinguish the citizen and advance the prosperity of a republic. He who surpassed in eloquence at the Olympic games received the highest reward that Greek ambition could aspire to—a wreath of bay: to the Roman who saved the life of a fellow-citizen was decreed a mural crown.

But it was written, "Rome shall perish," and in a flood of barbarism her once mighty power was annihilated and extinguished; but she had served her purpose in the great career of humanity, and the whirlwind which swept alike arts and empire from her grasp was destined to invigorate society, to distribute fresh life and energy through the enervated frame of the civilised world.

Having concluded the Roman period of the art, at which, although we have taken but a cursory glance, we yet trust it will be sufficient to render clear and distinct to our readers the views we have adopted, the wider development of which in this paper the want of space necessarily precludes, we now proceed to consider the sixth age, which, from its peculiar characteristics, we have deemed proper to denominate the Gothic Ecclesiastic, or Religious Age, from the fact of the ecclesiastic being the paramount and distinguishing power of the epoch, and therefore stamping the structures of the time with those peculiar features from which we have adopted the name which we have applied to distinguish this age of the art.

Although the ecclesiastic period is apparently less marked by any actual advance in the social condition of the era, or by any vast development of the intellect of the human race, we yet hope we may be able to convince our readers that our views in this instance are not only tenable, but that after a fair examination of its peculiar attributes and features, we may claim for the sixth age a degree of importance which it has hitherto been but imperfectly understood to possess, and which, if studied aright, will be found to occupy a most important page in social history. To the Gothic age belong those religious edifices which abound in the majority of the middle age cities of Western Europe, and which at once distinguish the period with a character so marked and definite as to render it unnecessary for us to consider its characteristics in respect of these peculiar structures. At no period of the history of the art does it more clearly attest the contemporary social position. To the convulsion and tumult with which society had been distracted at the close of the Roman period, had succeeded an interval of repose and lassitude, the reaction consequent upon a previous state of intense excitement and social disturbance. This period of quietude was eminently fitted for the cultivation of the peaceful arts: circumstances had occurred which had given a new impulse to the energies and intellectual powers of mankind, and a new field had been opened for their exertion, a new religion had arisen whose creed was eventually to extend its influence from pole to pole, which was to embrace the whole brotherhood of humanity, and whose spirit was universal charity and sympathy, which allowed of no mean distinction of class or caste, and which placed the prince and peasant on an equal level. Is then a religion whose principles are the binding of humanity into one grand family, which declares our existence in this world as inseparably connected with our future being, which was to breathe into our nature the noblest sentiment that has ever inspired the mind of man, and whose whole spirit was love,—is such a religion to be considered as inferior, as less noble, less exalted, less expanding to the mind, as tending less to the unity of the races of mankind, than the one which it had superseded, whose basis was fear, superstition, and idolatry, whose rites were mystic, and whose success and extension were in proportion to the degradation of humanity? If it be so, then do we acknowledge that our attempt to shew the development of mankind has been utterly fruitless, and that we have entirely failed in our argument; but if, as we believe, the Christian religion is at once better, nobler, grander, and more exalted in its nature than the heathen creed which preceded it, we venture to urge that our labour has not been entirely wasted, nor our efforts in vain and useless. To admit, therefore, the superiority of the religion of Christ over that which obtained in previous ages is at once to allow a marked progression in the human mind, for it follows as a necessary condition that those thoughts and ideas which tend most to the ennoblement of our nature tend also most to its expansion and development. Now it is evident that that which testifies advance and development must be of a superior nature to that over which the advancement is shewn, and it must be therefore regarded as even a logical conclusion that the architectural features of the age marking the extended condition of humanity must necessarily themselves have advanced in a corresponding degree, and we, therefore, contend that we have satisfactorily proved the progression claimed for the sixth age in common with all the other periods.

Let it not be for a moment imagined by our readers that we attempt to claim a superiority for this age in points of *pure beauty* of the art: in *that* quality we have already specified the Greek period as the climax—an opinion to which we adhere, but we reiterate that we treat the subject of the art in this paper, in an ethic rather than an æsthetic point of view, and that we regard its adaptation to the welfare of society as the highest attribute of architecture in common with every other branch of human wisdom. "Knowledge," says Dr. Combe, "only becomes valuable in proportion as it is rendered subservient to the improvement and happiness of man." All art can therefore only pretend to the highest claim in proportion as it tends to the advancement of this.

We have called this the religious age, nor was the prevalence of priestcraft amongst the least of the peculiarities which demonstrated advance, for we have seen that the Roman epoch was one peculiarly marked by a purely physical character. "It is better," says Macaulay, "that men should be governed by priestcraft than by brute violence; by such a prelate as Dunstan, than by such a warrior as Penda. A society sunk in ignorance and ruled by mere physical force has great reason to rejoice, when a class, of which the influence is intellectual and moral, rises to the ascendancy; such a class will doubtless abuse its power, but mental power, even when abused, is still a nobler and better power than that which consists in mere corporeal strength."

We have, then, before us the most undoubted proofs of the superiority of this over the fifth age. We have architectural structures marking a religious era in contradistinction to the physical one which preceded; nor is it to be supposed that these edifices record the advance of society in a religious light alone. The life of comparative leisure followed by the professors of religion led naturally to the study of both the physical and moral sciences, to which the seclusion of a monastery was eminently favourable, and in these hours of leisure and relaxation were made many of those grand discoveries of which posterity has reaped the benefit. New truths were discovered, which were to guide the intellects of future generations, and in those lonely silent cells was it that often were brought to light many of those wonderful relations of science that have from time to time effected a marked change in the condition of humanity. Attracted by the sanctuary of the monastery, and by the employment to which it naturally gave rise, numerous and powerful communities had generally established themselves in the vicinity, and in most instances these have formed the nucleus of those towns, whose rapid extension is a feature so remarkable in the present day, and as each one of these communities were assembled and increased, so were tightened the bonds of society, so was liberty developed and oppression resisted; each man, allying himself with his fellow for the preservation of liberty and property, and for security against the rapine and tyranny of the lawless and powerful nobles, valued his freedom the more as its certainty was thereby secured to him, and he could demand those rights to which he was justly entitled; and it was this consciousness of gradually increasing power and importance which gave to the burgher of the middle ages that spirit of manly independence and maintenance of his rights against tyranny and oppression which is at once a remarkable feature of the age and a striking instance of mental progression, and which at length established a system,—again we quote Macaulay,—"which taught the fiercest and mightiest ruler that he was—like the meanest bondsman—a responsible agent."

And now, in concluding this age of architecture, let us remark, that the impression conveyed by the edifices of the period are eminently those which fit the mind for objects of a devotional character. "It is difficult," says a modern writer, "for the noblest Grecian temple to convey half so many impressions as does a cathedral of the best Gothic taste." The essential difference in this respect is, that the first calls forth our admiration, whilst the latter ever inspires us with a sentiment of adoration, and infuses into our minds that devotional feeling of awe which the *infinity* of Gothic architecture is wonderfully calculated to produce.

We hope and believe that we have now rendered clearly manifest to our readers a marked superiority of the religious over the Roman period and the preceding one; and although the earlier portion of the Gothic era embraces the period of history known as the "Dark Ages" ("so called," observes a caustic and observant writer, "because we are so little acquainted with them"), yet we trust we have shown that although without those brilliant minds which shed a lustre on preceding ages, the condition of mankind had advanced on the whole to a far higher standard; the wave of progression had still rolled on, impetuous and resistless; the destiny of man was yet higher and nobler.

A marked change was approaching; silently and imperceptibly the distinctive features of a religious age of architecture were giving way before a state of things, in comparison to which the wonders of all preceding periods sink into mere insignificance. It was not to be supposed but that the grand discoveries which the deep thought of the mighty minds of an eminently studious epoch had made known, were to pave the way to an order of social existence which the philosophy of the ancients had never dreamt of. The boasted structures of Egypt; the majesty and dignity of Greek art; the monuments of the power and grandeur of old Rome, and the dim mystery and deep sentiment of Gothic architecture were now to be embraced in one

mighty fusion, one vast concentration of excellence, which, whilst it at once bewilders and perplexes, bears a testimony, aye, a living, breathing witness to a development of the powers of the human mind, which the sages of past centuries might have looked upon as fabulous, and which, even to the thinking mind of the present generation, is an almost inconceivable reality. The romance of antiquity is the realisation of the present, and these few words comprise the whole history of social progression. And yet how strange that with proofs of advance so simple there should still exist advocates of human retrogression. To advocate the latter is to reduce humanity almost to the level of the brute creation; it is to place the instinct of the brute on a par with the reason of man, inasmuch as whilst the one is stationary the other has undergone a continual recession and degradation, and seems (according to this theory) to promise an existence of hopeless idiocy to some future generation: such a theory is almost too absurd to be dwelt upon, yet something closely akin to this must surely be contended by the enlightened advocates of the inferiority of existing society to that of antiquity. We would refer such to the historian already quoted, and whose study of the byeways of the past has been so wonderfully shown in the reflection and depth of his writings. "Those," says the writer in question, "who compare the age on which their lot has fallen with a golden age which exists only in the imagination, may talk of degeneracy and decay, but no man who is informed as to the past will be disposed to take a morose or desponding view of the present."

In treating of the seventh age of architecture, and which, from its peculiar features, we believe we may justly denominate the Utilitarian age, there is apparently but one plan to pursue. To notice individual examples will be totally unnecessary, and altogether at variance with an epoch whose spirit is peculiarly diffusive: it therefore remains only for us to compare its general features with those of the preceding eras, nor must we attempt to fix any precise period from which to date its rise, the transition was so gradual and imperceptible; for the erection of a mighty edifice, the due settlement of the foundation is of incalculable importance; without it the solidity of the structure is endangered, its permanence doubtful.

The grand distinctive feature of the seventh age is the extraordinary rise of cities with which it is marked. That great cities had previously existed is unquestionable; but it is equally unquestionable that the great cities of antiquity were units which, although exercising a vast influence on society, can barely be recognised as a distinctive feature in the history of social architecture. "Our age," it has been stated, "is pre-eminently that of great cities. Babylon, Thebes, Carthage, and Rome were great cities, but at no period has the earth been so covered with cities as at the present time, and never has society generally been so leavened with the spirit natural to them." And certainly at no period has there existed a corresponding association of those excellencies which are at once the highest attributes of the art. On every side we behold edifices destined for some grand, or noble, or useful end, and to which architecture has lent graces whose charms are doubly enhanced by utility. And as the truest ornamentation is that which is made subservient to utility, it consequently follows that an art of the nature of architecture is of the higher development, as the services it renders to mankind are increased and multiplied. The graces of Greek architecture existed only in her temples; in Rome we have marked an extension of the adaptation of the art to her palaces and public edifices; we have observed the fresh impulse received in the sixth age; but in the present age alone do we find its general diffusion over structures of every class and description. What an impression is to be conveyed to the thinking mind by the edifices surrounding us; their name is legion, their ends the same. Religion, education, arts, sciences, manufactures, and charity are alike represented, at every moment break on our view, and mark the architecture of the day with a character which belongs to no other period. And yet how strange to hear it repeated at all times that our age is peculiarly deficient in any distinctive feature of the art! Is it possible that those in whose mouths the assertion is constant, can have thought for a moment on the mighty and glorious institutions which surround them, upon the noble development of the intellect of man which is everywhere visible, upon the vastness of our commercial institutions, and the splendid benevolence of our charities, each moulded as it were in stone? Is it possible to be cognizant of these, and yet to assert that our age is wanting in architectural character? Such an assertion must surely be regarded as a palpable denial of facts, and which a moment's reflection must refute. Our age, it cannot be denied, has witnessed to an unprecedented extent the application of the principles of architecture to those ends which are the best calculated to serve and advance the interests of humanity, and to increase its moral and physical well-being; and if, as we assume, an art reaches its highest standard only in proportion as it tends to the amelioration and elevation of the condition of mankind (and which we feel confidently assured is the highest merit to which any art can pretend), then do we claim for the architecture of our day, precedence over that of all past ages in which its application was more partial, its limits more narrow and confined.

We have now arrived at the conclusion, but not, we trust, without having made evident to at least some of our readers the fallacy of the remark, that our architecture can claim no distinctive attribute, whereby posterity shall class it, a remark which we rather suspect arises from that want of comprehensiveness of general principles, which, whilst it can discern and distinguish the spot of sunshine and of shadow, is totally incapable of rising to the recognition of that grand breadth of light and shade, which is the surest mark of extended genius, and widely developed mental power.

We trust that throughout we have made evident the gradual and progressive development of the condition of society, contemporary with an advanced condition of architecture, that we have read aright the lesson taught us by its impressive records which speak to us so truthfully of the bygone, and which evidence so plainly the present. There are thoughts equally sublime, aye, and grander and nobler, and impressions as deep to be conveyed in dwelling upon the living structures of the present as upon the ruined monuments of the past. The past is beyond recal, the present is ours to improve; we can gaze earnestly and hopefully upon the bright dreams of the future. It is a far nobler philosophy which looks forward to the perfection of our species than the mean, narrow doctrine of man's moral degradation; to encourage the latter is to silence the better promptings of our nature; the glorious spirit of the former is the surest incentive to moral purity; the spirit which makes our bosoms yearn with nobler aspirations and with loftier feelings.

W. M. BUCKNALL.

ON THE TOPOGRAPHY OF THE ROMAN FORUM AND THE CLIVUS CAPITOLINUS, AND THE NOMENCLATURE OF TEMPLES THEREON.*

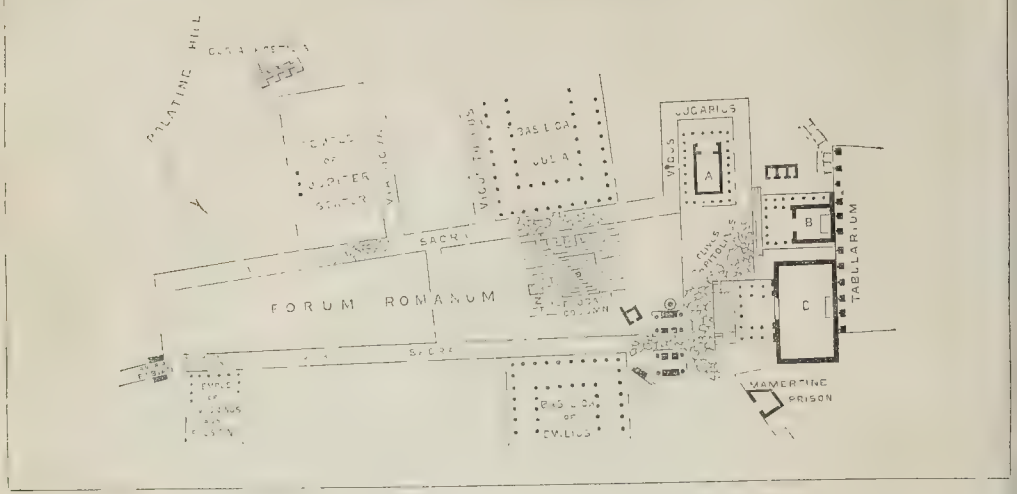
IT will be remembered that at the ordinary general meeting of the Institute on the evening of the 31st May just past, some extracts were read from a letter addressed by one of our fellows to one of our vice-presidents, in which it was stated that a good deal was going on at Rome to interest the architect and the archæologist.† The author of that letter, Mr. Tite, whom we are all glad to see again amongst us in restored health and vigour, has been surveying with the eye of a man of taste that interesting "field in which a thousand years of silenced factions sleep," *The Roman Forum:* he has given us a sketch of the indiscriminate slaughter made by the *Republic* of 1848, on that sacred ground, which equally exerted its short-lived energy in pulling down the houses which obstructed the view, and uprooting the trees which graced the classical landscape. The only satisfaction we have is, that, as on the Boulevards of Paris, so along the margin of the Via Sacra, the trees may grow again before the next revolution, while the houses which obstructed the view and concealed the ancient topography are gone for ever. Upon the whole, therefore, the future student and antiquary may be indebted to the Republic for a better view of the Palatine Hill, where despotism had its seat, and clearer conceptions of the limits of the Forum, where liberty luxuriated into license. Our learned friend and fellow observes, that the foundations of the Basilica Julia are cleared out, and the ascent of the Via Sacra to the Capitol is quite distinct. He adds, that the result of all these excavations certainly tends to clear away all doubts and difficulties as to the Forum of the emperors, the Forum as it was from the time of Julius Cæsar. These observations of our learned colleague have induced me to take up a subject which some may consider to be worn out,—"The Topography of the Roman Forum;" but I flatter myself that at an Institute of Architects anything that tends to illustrate that classical ground, and the models of architecture which once stood upon it, and whose remains still exist, can never be unacceptable. The object I have in view in this paper, is to assign to what Mr. Tite calls the Forum of the Emperors its proper limits and dimensions, which have so long been a matter of antiquarian controversy,—not that I presume to set that controversy at rest, but I mean to offer such proofs from the present state of the ground and ancient authorities and other monuments, as appear to me to assign the proper limits: you will still have to judge for yourselves whether these proofs be satisfactory or not. For the sake of perspicuity and rendering the subject more accessible to your attention, I lay down the order in which I propose to treat this question. I shall first glance at the various opinions of antiquaries, and the commonly received opinions up to the period of the modern excavations as to the limits of the Forum; but inasmuch as the question of limits is materially affected by the adjacent places, and especially by the Clivus Capitolinus, I shall have to examine the names and positions of the three temples whose remains still exist upon it, and then bring the argument to bear upon the limits of the Forum, with special reference to the discovered basement of the Basilica Julia.

I do not mean, by referring you to the various opinions of antiquaries, to bring up those opinions for the sake of refuting them, but simply to state what they are, for the purpose of showing the few points in which they agree, for this will be so much gained towards the object I have in view. They all agree, for instance, from Camucci in 1500, to Professors Fea and Nibby in 1840, that one angle of the Roman Forum was at the Mamertine Prison, which now exists beneath the Church of St. Joseph, near the Arch of Septimius Severus. Marliano, one of the earliest of antiquarian writers who deserves attention, considered the Forum to be 100 paces in length, extending from the Arch of Severus to the Temple of Antoninus and Faustina; and he took the width of fifty paces across to the north angle of the Palatine Hill, including the three celebrated columns now standing: he even prolonged it, but by another name, as far as the Arch of Titus. Donatus, the Jesuit, showed this to be an error, from the authorities of Dionysius and Livy, who describe the Forum as occupying the space between the Palatine and Capitoline Hills; and so completely has this portion of the argument prevailed, that a second angle of the Forum, with the consent of all, has been fixed near the Temple of Antoninus, in a line with the Arch of Septimius Severus, and where the Arch of Fabius, who conquered the Allobroges, once stood: the question of limits was then reduced to this,—whether did these two angular points, upon which all were agreed, define the length or the width of the Forum. Until Nardini came, all unanimously said the length: since the time of Nardini, by far the majority of antiquaries

* Read at the ordinary meeting of the Institute of Architects, June 28.

† See p. 383, *ante*.

SKETCH PLAN, FORUM ROMANUM.



have said the width; but within the last quarter of a century, the German antiquaries and architects, led on by the great name of Niebuhr, and followed up by the learned diligence of Bunsen, have unanimously returned to the opinion of the old antiquaries.

Vitruvius informs us that the Greeks made their fora square, with wide and double porticoes, but in the cities of Italy, he adds, they were of a different form, on account of the gladiatorial shows which custom had introduced into them. They ought not to be made, he says, too large, so that a crowd would appear lost in them, nor too small for the population; and the length should be in proportion to the width as three to two:* this proportion, however, was not always observed, for the Forum of Pompeii is only one-third of its length in width; but still we may infer that if the Roman Forum had differed from those proportions laid down by Vitruvius, he would at least have remarked the circumstance: it is therefore fair to conclude that the Roman Forum was a rectangular space in the Vitruvian proportions. Now, to apply them to the ground, it should be observed, that between the Arch of Severus and the supposed site of the Arch of Fabian, is a distance of about 400 feet: if this be taken for the length of the Forum, then 270 feet across for the width will bring us near the large brick fabric supposed to be the Curia, and the rectangle completed will join the Clivus Capitolinus just behind the Temple of the eight columns. If on the other hand 400 feet be the width, then the Forum will be laid out according to the doctrine of Nardini, that is to say, it will be a rectangular space about a diagonal drawn from the Arch of Septimius Severus to the Church of S. Teodoro. I have already said that the first is now the favourite theory of the Germans. The Italian antiquaries have not yet relinquished the second, but Canina (whose plan is now before you), an architect, but not an archæologist, appears to agree mainly with the Germans. The numerous passages cited by all parties from ancient authors have, of course, been applied according to every one's theory: it is not my intention to trouble you with many of these, but rather to see how the modern excavations may be cited to bear evidence upon the subject. The important discovery of the Basilica Julia will throw great light upon the limits of the Forum, but this object must be taken in connection with the adjacent Clivus Capitolinus, and therefore I proposed as the next step in our argument to call your attention to the three temples whose remains will be familiar to every one who has visited Rome. Those temples are marked upon the plan A, B, C. C is the Temple of Concord, about which there is no longer any dispute. There were found in 1817 several inscriptions amongst its ruins with the word Concordia, and happy it is that the temple of such a goddess should afford no matter of discord, even "where her altars are no more divine." The other two have, however, frequently changed their appellation, and are yet destined to undergo more changes. A, with the eight granite columns, still standing, had usurped the name of Concord ever since 1431, when Poggio Bracciolini saw it nearly perfect in the last days of Pope Eugenius. That learned Florentine ascended the Capitoline Hill with a friend, and sitting down on the ruins of the Tarpeian citadel, he moralised on the vicissitudes of all human things, and has left his reflections in a book entitled "De Varietate Fortunæ." "The Forum of the Roman People," he says, "where they assembled to enact their laws and elect their magistrates, is now enclosed for the cultivation of pot-herbs, or thrown open for the reception of swine and buffaloes. The public and private edifices that were founded for eternity lie prostrate, naked, and broken, like the limbs of a mighty giant, and the ruin is the more visible from the stupendous relics that have survived the injuries of time and fortune." The description which the learned Tuscan then gives of the ruins shows that a moralist and an antiquary are not always combined in the same person, and among other rash conjectures upon the names of the ruins he saw, he fixed that of *Concord* upon the eight columns on the Clivus, the site of the Temple of Concord being, however, discovered, as I have already intimated. His own goddess, Fortune, succeeded to the honours, by common consent, of the Roman Ciceroni. Fortune, however, has her day, and what could this goddess expect but vicissitudes, who had herself brought vicissitudes on so many of her votaries. She has of late years been obliged to yield up her honours again to Vespasian; but Vespasian must yield again, according to the German theory, if Canina is right, to a god no less venerable than old Saturn himself. The three columns which remain of the temple marked B. have long been invested with the title of Jupiter Tonans.

The origin of the thundering Jove is this. Augustus, during his expedition in Spain, was travelling one stormy night, when the litter in which he was conveyed was struck by lightning, and the slave carrying the torch before him was killed on the spot. The emperor, grateful for his narrow escape, vowed a temple to the master of the thunderbolt: it was built, according to the expression of Suetonius, on the Capitol, *in Capitolio*. Dion Cassius describes it as occurring in the ascent to the Capitol. Pliny, who often mentions it, says it was on the Capitol. Publius Victor, in the fifth century, says it was on the Clivus. It is exhibited on a medal extant, with six columns in front; and the statue of the god, which was a *chef-d'œuvre* of Leocars, is represented standing in the midst. As soon as the temple was erected, the worship of Jupiter Tonans, out of compliment to the emperor, became very popular,—so much so, as to cause inconvenience about the passage: it was considered desirable to turn the tide in another direction: for this purpose Augustus had a dream: Jupiter Capitolinus appeared to the emperor asleep, and complained that he had taken away all his worshippers by setting up a rival Jupiter: the emperor consoled the Optimus Maximus Jove, by assuring him that he intended Tonans to be nothing more than a porter's lodge to his Capitoline majesty; and shortly after he put bells upon the pediment, to show that it was a mere entrance. Now all this would appear to take Jupiter Tonans higher up the hill than the three angular columns, and I conceive we are at liberty to make some changes among these imperial deities. I shall this evening have to remove the Thunderer from the place he has usurped, and put Vespasian in possession of his honours. You will now very naturally require that I should produce my reasons. It is the custom among the Roman antiquaries, before they proceed to deliver their own opinions, and give their proofs and reasons for them, to summon up one by one the opinions of antagonists, and dispose of them as mere dreams, or as the baseless fabric of a vision. I should not have time, nor you patience, to allow of proceeding after that manner, but I shall be content with stating why I think the three columns called Jupiter Tonans ought to be called the Temple of Vespasian, and the eight columns, commonly called the Temple of Fortune, should belong to the Temple of Saturn.

Mabillon found a MS. in the Convent of Einsiedlen, in Switzerland, which has turned out to be one of the most valuable documents to the Roman antiquary of any that time has spared. It bears no name, but appears to have been the faithful record of a pilgrimage of a pious German or Swiss who visited Rome in the eighth century. To perform his devotions according to the prescribed canons of those days, he visited all the seven Basilicæ, and in going from one to the other registered every building and inscription that came in

* Latitudo autem ita finiatur, uti longitudo in tres partes quum divisa fuerit, ex his duæ partes ei dentur.—Lib. V. c. i.

his way. This curious document is published by Mabillon, in the fourth volume of his 'Analecta Vetera;" but Niebuhr made a journey to Einsiedlen on purpose to seek out the MS. again. He found it, and I was permitted by his successor at Rome to copy from the facsimile the portion I now design to use. The anonymous pilgrim arriving at the Capitoline Hill, copies the inscriptions which he read on three temples, but all these inscriptions are written in the MS. without any more marked divisions of the words and lines than that which the context points out. They read thus: "Senatus Populusque Romanus incendio consumptum restituit. Divo Vespasiano Augusto Cæss. S. P. Q. R. Impp. Cæss. Severus et Antoninus pii felic. aug. restituerunt." I need not insert the rest, which relates to the Temple of Concord. Now upon the entablature which rests upon the eight granite columns we still read the words which Anonymous read in the eighth century—"Senatus Populusque Romanus incendio consumptum restituit;" and we read nothing more. The German antiquaries say we ought to go on, and add the three following words of Anonymous, Divo Vespasiano Augusto, and then the portico of the eight columns would be the Temple of Vespasian. But it is triumphantly asked, where is the space for the additional words? the frieze is filled up, and who ever saw an inscription upon an architrave or a cornice? Oh, but they say, Divo Vespasiano was inscribed on the other elevation, which is now demolished, and so we should have to send Anonymous to the other end of the temple to discover the three additional words before he proceeded with the other inscriptions which were before his eyes: besides, whoever saw the name of an emperor to whom a temple was dedicated inscribed on the back elevation? or if it be alleged that the demolished part was the front elevation, then it may still be asked, who ever saw the senate and the Roman people, the awful S. P. Q. R. put behind a temple? We, therefore, take the three words for the beginning of the second inscription, and then it reads, Divo Vespasiano Augusto, S. P. Q. R. Impp. Cæss. Severus et Antoninus, pii felic. aug. restituerunt. This inscription belongs to the three angular columns supporting a beautiful piece of entablature, on which is read ESTITVER, being part of the word restituerunt; from all which it appears that Septimius Severus and his son Caracalla repaired that temple to the honour of Vespasian the Emperor. I think this a sufficient proof, but I shall have occasion to add another when I take you down into the Forum. To return now to the portico of eight columns. It is true we learn neither from Anonymous, nor from the inscription as it exists, to what divinity this temple belonged, for that inscription never said any more than it now says, that the Senate and Roman people repaired the temple after it had been destroyed by fire: we must, therefore, have recourse to some other mode of proof. I could cite passages from various ancient writers to show that the Temple of Saturn was situated at the entrance of the Clivus, or, as Varro's expression is, "in faucibus Clivi." Servius describes it as being "ante Clivum juxta Concordiæ templum." It was also very near the Milliarium Aureum. There was a difficulty in applying these descriptive passages to the eight columns before the excavations were made, because the portico appeared to be standing on a basement considerably elevated above the level of the Forum, and consequently some way up the Clivus; but now that the ground has been cleared, we see that basement magnificently constructed of peperine and travertine stone, rising from the very bottom of the Clivus, where the ascent began, and there is now no longer any difficulty in saying that the temple marked in the plan A stands in "faucibus Clivi," or "infimo Clivo;" nor is there anywhere space to be found where another temple could have stood. I am, therefore, inclined to believe that the temple which has so long been called the Temple of Fortune is really the Temple of Saturn, and that commonly called Jupiter Tonans the Temple of Vespasian. I may not conceal the fact that I am here in conflict with all the German school of antiquaries, who insist upon the temple B as being the Temple of Saturn, and they rely upon the words, "juxta ædem Concordiæ;" and upon a votive altar, found in the narrow space between the temples B and C, on which were the words, AB. AER. SAT.*

RICHARD BURGESS, B.D.

MODERN APPLICATION OF GREEK ARCHITECTURE.

WHETHER, earnest as it is, Mr. Huggins's advocacy of Greek architecture as a very suitable style for modern churches will stir up formal opposition to it on the part of ecclesiologists and mediævalists is as yet doubtful. After what he has said they must do something more than reiterate the usual claptrap vapouring about our ancestors, &c. and raising the bugbear cry of "No Paganism." Should they think proper to reply to, or notice him at all, one prominent argument brought against him, perhaps, will be that the style which he so strenuously recommends has been tried by us already, and with so little success, that we ought now to be fully convinced of its actual unsuitableness, at least for religious edifices; whereas Gothic supplies us with innumerable examples of buildings of that class, all stamped with unmistakeable character.

Now, it certainly must be conceded, first, that among all the extant monuments of classical architecture, there is not one which offers an express model for a Christian church; secondly, that all our *soi-disant* classical churches are more or less very unsatisfactory—some of them decidedly anti-classical in every respect, and of terribly Cockney physiognomy. Well, what then? unless it be, *Tant mieux!* since there is still something to be for the first time accomplished,—a fortunate discovery to be made, a signal victory to be gained, where others have hitherto met only discomfiture and defeat. It is said of a certain personage, that when he cannot swim, he throws the blame on the water; and such has been pretty much the case with those who practised during our Greco-mania. They fancied that the style itself would do everything for them, without their endeavouring to do aught in return for the style. They made a perfect milch-cow of Stuart's "Athens," adding to what they extracted from it just so much of their own as to make very "milk-and-water" messes, till the public began to tire of thrice-skimmed classicality, and the frigid artificial enthusiasm of those who, affecting to admire, were fain to accept double-distilled dulness for due decorum of design. Accordingly, the style got an ill name, fell into discredit, and was dismissed,—of course, very deservedly, seeing that, instead of exciting imagination and stimulating to kindred inventive power, it rarely enabled those who employed it to achieve anything at all better than respectable humdrum, tricked out in a livery of Doric or Ionic columns, indisputably orthodox because stereotyped. In a word, the style was in many instances absolutely *Pecksniffed*, Greek features and details being applied quite as blunderingly as Mrs. Malaprop's fine words.

Strange to say, although not liberty merely, but downright licentiousness of design, has been tolerated in other respects, the dread of being reproached with the unpardonable heresy of innovation has deterred architects from attempting to give such further development to Greco-Romano architecture as would render it a more copious yet equally consistent style,—one susceptible of greater variety of expression and readily accommodating itself to our actual purposes and increased requirements. Under the specious pretence of preserving the purity of the style, but rather, it may be suspected, for the same reason which deterred the fox from taking the grapes, those who have set themselves up for legislators in architecture, have deprecated the least exercise of inventive talent, and insisted upon the most servile and plodding copyism with regard to the orders. At any rate, this is not according to the practice of the ancients themselves, because of the comparatively few examples of one and the same order which have come down to us, scarcely two will be found precisely alike, some of them so widely different from others that they might be reckoned as quite distinct species, though belonging to the same general class. Undoubtedly, a certain normal configuration, proportions, and character are to be observed for each order, but there is as surely a sufficiently wide scope for diversity in all other respects.

This, it will be said by some, is an exceedingly latitudinarian doctrine, and would open the door to all sorts of crude fancies and wild caprices, which is very much like saying that architects are not to be trusted with any degree of rational freedom, as they would be sure to abuse it; nay, that they are and ever must continue to be so destitute of artistic feeling as to be incapable of producing anything but monstrosities, if permitted to originate any fresh ideas for columns and entablatures. Little wonder is it that inventive talent of that particular kind should be so exceedingly rare in modern times, when, instead of encouraging and fostering it, the utmost pains have all along been taken to repress it by decrying it as pernicious, and stigmatising it beforehand as the evidence of a corrupt and barbarous taste. Repeal the unlucky prohibition now in force: proclaim *free trade* in design for those who choose to avail themselves of it: depend upon it, we should, sooner or later, obtain something better than mere novelty,—even sterling originality. And here it may not be wholly unnecessary to remark that there is a wide difference between mere novelty and originality. While the former turns out as frequently as not to be extravagance or absurdity—or if tolerably good, to be so only by haphazard and good luck,—originality is the result not of chance, but of earnestness of intention and genuine feeling, whether it be appropriated with good taste or not; also, whether it exhibit or not anything strikingly dissimilar from what has been before done. There exists, too, this further difference between them, that the novel is so only for a time, while what is genuinely original, bearing on it the stamp of *gusto* and mind, is so for all time.

Now, that excessive timidity and over-cautiousness which would keep the door fast bolted against everything in the shape of innovation, no matter of what kind it may be, keeps it shut against originality also; or should the latter attempt to force its way in, an alarm is instantly raised, and a bucketful of the cold water of prejudice is flung in the face of the unluckly intruder who presumes to disturb the comfortable apathy of the drowsy conclave of our architectural police.

The insisting upon the strict observance of precedent as far as it can possibly be followed —which, by the bye, is not much unlike insisting upon plagiarism — in order to preserve purity of style, is, after all, unavailing, since we often find such would-be purity, be it either Greek or Gothic, merely superficial, floating like oil upon water, on what, but for such admixture, would show itself to be very honest, unsophisticated John Bullism of taste and design. Equally inveterate and irrational prejudices, and a morbid dread of "fancies," have gone far to suppress all exercise of fancy itself, and of creative imagination, thereby reducing what should be artistic design to little better than a mechanical process; which being the case, we need not wonder, however much we may grieve, that we so rarely find aught of real, unborrowed artistic feeling and spirit, even in our best buildings. As to "crude fancies and mere caprices," they certainly cannot be too strongly deprecated; yet wherefore need "fancies," so to call them, to be crude, or fresh ideas be no better than caprices? We ask only for such as shall be the result of diligent, *con amore*, æsthetic study and cultivated taste. If architecture is now incapable of receiving any further accession of ideas, if it does not admit of any further exercise of imagination, it is either not a fine art at all, or is one that, having lost its former vitality, is now reduced to the condition of a dead language; as, indeed, we do not scruple to let people see; for many a building with its portico "after the Parthenon," has about as

* To be continued.

much of Greek character as 'pothecaries' Latin has of the style of Cicero.

Although I have not given utterance to half that I intended to say, and that the subject suggests, I must now lay down my pen, and trust that Mr. Huggins's last paper will elicit something further from others; for it cannot but have struck those who have read it as the production of an unprejudiced thinker, and as being highly worthy of attentive consideration.

Q. E. D.

INTERIOR DECORATION OF ST. PAUL'S CATHEDRAL.

THROUGH various circumstances, there was little real discussion of this subject at the Institute of Architects on the 5th; and as I feel deeply interested in the success of a reasonable scheme for completing the decoration of the interior of St. Paul's, I venture to endeavour to show why there could not be any vote of recommendation of the project as at present developed. Sir Christopher's views are not clear upon the subject of decoration, and any views of his contemporaries may be thrown aside as merely rubbish: they only complicate, without helping, the matter in hand.

The mode adopted for bringing the matter before the Institute was too equivocal. The affair was not propounded as based upon a report by Mr. Cockerell, susceptible only of an approving vote, nor as based upon a scheme to which Mr. Penrose would commit himself in furtherance or contradiction of that report, or as a collection of schemes for choice; the parties most interested did not seem to be agreed with each other; and all that did appear to be unsusceptible of discussion, but in fact the actual topic of the evening, was the restoration of the dome, as agreed upon by the promoters.

Now this restoration of the dome appears to my mind the point which determines everything else; and I cannot even agree with Mr. Penrose's idea of beginning and finishing a portion, say the choir, by way of experiment; because we might live to see every portion of the building treated in a distinct manner, and nobody left wise enough to wash off all that was wrong. The Very Rev. Archdeacon Hale enchanted the minds of his hearers with an idea of something in the dome perfectly dazzling with glory,—it may be supposed with gold; and Mr. Parris tried to solve the difficulty of taking the dome in either case for a key, by recommending the panacea of house painters, viz. monochrome white and gold, which Goethe has pronounced to be the refuge of an infirm taste.

It would seem to be too easy to be necessary to show the fallacy of adopting the dome at once for restoration, and then discussing the question of decoration; but as I suppose that the archdeacon, as well as others, did not use that word in its technical sense, I beg for space sufficient to point out that the question of *decoration* involves the consideration of everything,—propriety, light, destination, magnificence, solemnity, &c.; while the system of *ornamentation* involves simply the proper mode of working upon the key given by the determination of the *principle of decoration*; and no same artist would surely ever decide upon his principle of decoration without regard to his system of ornamentation. It is, therefore, much to be lamented that Mr. Cockerell's report did not contain anything calculated to lead his auditors to a sense of his views upon the subject of ornamentation, for from him they might have received notions different from those usually held,—notions not couched in the vague terms in which "decoration" is usually spoken of, and notions which might have upset previous opinions. For want of such guides, those who had preconceived ideas felt bound either to be silent, or to appear to oppose the Professor, when, after all, it was not evident that any one was speaking to the purpose, which really was, "Shall *anything* be done?"

The next point was the proposal of the Very Rev. Archdeacon Hale to ornament the whole of the Cathedral with a series of illustrations from the Bible, consisting of types and antitypes contrasted with each other. Now there exists in this an enormous difficulty, viz. the want of appropriate spaces for such pictures: hence they can only be comparatively cabinet paintings, and thence the Cathedral will be simply a gallery of art; but where are the artists? No one will presume to say that works of the class of merit of those in the Palace at Westminster are too good for the church, or are in the right style for it, and in that case is Mr. Parris, "the eminent painter," as the opener termed him, to be considered as able to supersede even these attempts at fine decorative paintings? But the Archdeacon talked of teaching the Scriptures to the visitors of the new gallery by means of these paintings; and Mr. Penrose quoted, with apparent satisfaction, an opinion that the portraits of saints should be introduced as appliances to excite veneration in the spectators. Apart from the fact that such tuition may be all very well in countries like Italy, where the holy Bible is not allowed to be seen in the vulgar tongue, while the very persons supposed to be influenced by such pictures here would be absolutely repelled by conscientious feelings from being pleased with the position of such images on account of the shock given to their sense of decorum, propriety, and truth; let us hear how the visitors, as imbued with the power of appreciating the beautiful, would be disposed to consider such works of art as might be worthy of a place in the Cathedral, and for this purpose it is not necessary to imagine observations: it will be possible to translate an enthusiastic rhapsody by one of the most eminent German professors, a director, too, of a royal gallery, upon no less a subject than the Madonna, S. Sisto, by Raffaello.

"Among all the Madonnas created by the sublime pencil of the great master of Urbino, none is more divinely conceived than this. What human talent and skill are capable of accomplishing has been achieved in this picture, which may be pronounced truly unique. In all the other Madonnas and Holy Families by this master, he has mingled with the tenderest expression of maternal love an infantine innocence, and the graceful sportiveness of buoyant youth, which always operates irresistibly on pure minds—nay, a certain emanation of the divine nature; but still he adopts ordinary circumstances as motives of action in these compositions. Even the Madonna della Sedia, though so highly extolled, is only a young and blooming mother, animated with ardent affection for her child, such as the painter had probably met with in real life; but this Madonna is from head to foot a genuine Queen of Heaven." Two saints, Barbara and Sixtus, "are seen invoking the Queen of Heaven in fervent prayer. They are the representatives of the whole human race in the adoration of the Blessed Mother, whose celestial coronation Raphael has depicted with such magnificence. . . . . The Salvi Regina resounds from the choir of cherubs composing the glory which overarches her. No earthborn child ever looked like this divine infant, nor did merely human mother ever appear in such mingled majesty and mildness. Here all mankind must bow the knee. . . . . The tiara or papal crown—the most exalted of the insignia of Catholic Christendom, is removed from the head of the Pope and deposited, by way of homage, on the ground. . . . . Two angels underneath, absorbed in contemplation, poetically fill the remaining space: one of them, with an extremely intelligent countenance, and supporting his head with his elbow, looks upward, while the other, whose mien betrays more of childish curiosity, lolls at his ease upon both arms."

Now, if an extremely sensible man can write advisedly nothing better than such a droll mixture of verbiage, we may fairly infer that the majority of the future visitors are not likely to be much improved by an inspection of the proposed gallery of historical pictures in illustration of the Bible; which sounds very fine, but leads in no way to the determination of what is the proper mode of decorating the interior of St. Paul's. Although made by the archdeacon the *point d'appui* of his appeal to public sympathy, we shall judge how the case stands by the views of another eminent German critic, who says of Protestant Europe, that in addition to the sense of a need of religion, the nations have come to want a means of externally imbibing a devout feeling!

Without entering into doctrinal controversy, we may safely assert the falsehood of such a proposition. The merely curious spectator is not to be warmed into a state fit for devotional exercise by the finest works of art; and the most careless worshipper will not be recalled to his duties the better for having to abstract himself from pictures literally obtruding themselves upon his attention.

In the same manner, and equally unacceptable, as inapplicable, with sound sense, to our cathedral, should I venture to consider the employment of stained glass, if it were to receive figure subjects, as was evidently intended both by the report made by Mr. Cockerell, and by the verbal recommendations of Messrs. Penrose, Hale, and Scott. I should in justice observe, that Mr. Penrose did not express himself as if quite at ease upon the subject of figure illustration, as he carefully excluded apocryphal subjects, by which may be inferred legendary and traditional passages, and also every incident and detail in any subject which he could point out; for if the present mania for representing Scripture stories by means of Egyptian fellahs of the present day be adopted by the painters and glaziers, we are likely to see even more extraordinary parodies upon our general views than anything yet exhibited on the walls of the Royal Academy, and not much less offensive than the unintentional carelessness of Rubens.

The floor was never mentioned.

In conclusion, I may expect that you will steadily and frequently enforce the necessity of architects showing themselves masters in decoration. A fair opportunity was lost the other evening, for only Messrs. Garling and Scott took up the ground in that manner. If the architects do not take into their hands this and similar branches of art, the profession will never be consulted upon them.

At present our chief decorators are almost spoiled for Italian works by their exclusive employment in the mediæval styles. This will for some time cause Mr. Cockerell no little trouble; for I dare to say, that unless he will give a constant superintendence, his views will be thwarted, and his remonstrances received with a contempt which can only be disgraceful to those who may run contrary to the direction which he gives.

I should like to notice other features which present themselves, but I must not occupy more of your columns. Let me add, with no intention of putting forward a scheme of my own, that I foresee a steady and irreconcileable opposition to any plan for the decoration of St. Paul's which does not possess the merits of avoiding pictures in improper places, whether in glass, fresco, mosaic, oil, or distemper; including cleaning the dome: indeed, I believe that a resolution moved to that effect would have been almost unanimously adopted by the meeting of Monday week; but this would have been decidedly an attack upon the promoters, without giving an answer to the question, What shall be done? which is more important than, "Shall anything be done?"

JOHN W. PAPWORTH.

MARGATE JETTY COMPETITION.—If it be true that, according to the plans and estimates of the successful competitors for the Margate Jetty, the cost will now be 15,000*l.* instead of 12,000*l.*—the limit to which competitors were restricted by the instructions forwarded to them for making their designs,—the directors, unless they wish to forfeit all character for fair dealing, will either re-open the whole matter, and adopt the best design, fulfilling the conditions of their instructions, or, as they have employed Mr. Rendell as consulting engineer, let them recall all the designs; and as they do not appear to understand much about the matter themselves, submit them to him to name the best design.—J. B.

THE MARBLES OF CONNEMARA.*

THE Marbles of Connemara are worthy of a place in the foremost list of the beautiful productions of the earth. It is deeply to be regretted they are so little known.

The "kingdom" of Connemara—for thus was this wild region once styled, before the *curiosities* of good roads were introduced there,—embraces a wide expanse, extending from the old Spanish-built town of Galway to the harbour of the Killery. The mighty Loughs of "Corrib" and "Mask" form interesting features in the district.

In the immediate neighbourhood of Ballynahinch a quarry has been slightly worked, containing very beautiful varieties of green and often rose and white coloured marble. These, with similar found at Clifden, are the most beautiful in Connemara. Beyond the making of such ornaments as rings, brooches, seals, inkstands, and bottles, little has been done in its manufacture.

Occasionally one meets with a "slab" or "chimney-piece," but only often enough to create regret that so much real beauty lies for the most part neglected. I may perhaps be pardoned if I introduce a paragraph from an article I met with a short time since, and which observes,—"So far as stone is employed in large blocks for the construction of buildings, strength and durability are the chief qualities for which the material is valued; but when we have a substance such as marble, in which delicacy and purity of colour are combined with a susceptibility of receiving a high polish, and of being cut into elegant forms, a new measure of value is obtained, our notions of *taste* and *beauty* are at once appealed to, and the refining influence which objects of taste exert on mankind is shared by this substance in common with some others.

At Clifden, nine miles from Ballynahinch, other quarries yielding similar coloured marbles have also been slightly worked, but only slightly. It is in this town that all the ornaments are made. Clifden is an exceedingly pretty town, small and very clean; within two miles of it is Clifden Castle, the seat of Hyacinth Darcy, esq.: on one side the grounds rise to a perpendicular, against which the Atlantic throws up its waters. As a pleasing proof of unremitting industry and perseverance, it may be gratifying to give a brief sketch of the fancy workers of Connemara marble: they consist but of *two* men, Alexander and James M'Donnall (genuine Connaught men, although the name has a northern sound): they cut from the quarry with a chisel and mallet the portions of marble their ingenuity turns to such tasteful articles: their only working tools are a chisel, small saw, and files: with these they perform their work to the admiration of all visitors, if we may judge from the rapidity with which the articles are disposed of; and, taking into consideration their extreme toil, *their charges* are very moderate.

Unmistakeable proofs are to be found of the existence of marble in many parts of Connemara, besides the two I have alluded to. Nature invites man's *art* to bring it forth for his own benefit and a world's admiration. *Serpentine* and *talc* are greatly intermixed in all the rocks of Connemara, thus at once forming a distinguishing mark from any others of Ireland. Precious serpentine, of various shades of green and yellow, often striped and somewhat mottled, is met with, intermixed with the white and rose coloured marble; and so beautiful a marble does this then become, that I question much whether anything of the kind to surpass it can be found at home or abroad. It may not be generally known that the splendid chimney-piece presented to George IV. and now to be seen in the Carlton Club-house, came from a quarry in Connemara. In the vicinity of Outerarde, between that town and Lough Corrib, very pure black marble is largely found, resembling much in appearance the unrivalled black marble of Kilkenny. Black marble owes its colour to a slight admixture of iron: some has been found to contain five per cent. of that metal; notwithstanding which, the lime prepared from it was white; in time however it became an *ochrey* or *reddish* yellow colour.

The first process in working a quarry is "stripping,"—that is, in removing the limestone in beds or layers of one or two feet thick: here the aid of powder must be called in: a range of ground is laid out, and "stripping" is continued the entire length, until the beds of marble make their appearance: the rubbish, such as the so-called quarryings, namely, the small pieces, which are broken or chipped off from the different kinds of materials which are found, and wrought in quarries while they are undergoing their different preparations for various uses,—these substances when they are of the hard description, are extremely well calculated for the purpose of forming and repairing roads, as they are nearly, if not quite, in a state fit for immediate application in that way: hence it follows that materials of this kind ought not to be neglected, where they can conveniently be had, by those who have the care of roads, as they will save much expense and trouble in a great number of cases. Quarries are kept dry by draining and by pumps: in using the pumps, the water gained by cutting the drains may be of great use: however, I may add, without the aid of natural streams, which are capable of being converted to this purpose, it is rarely possible to find, by means of drains, a quantity of water sufficient to drive weighty machinery in a situation of proper height to have the full and necessary command of it.

HENRY BIRD.

* Condensed from a paper read at a recent meeting of the Kilkenny Scientific Institution.

NOTES IN THE PROVINCES.

Colchester.—A valuable collection of antiquities has been bequeathed to the town of Colchester by the late Mr. Henry Vint, on the very proper proviso that a fire-proof building shall be provided for their safe keeping within three years from the date of the bequest.

Pinner (Harrow).—A site has been purchased at Pinner, on which, within the next two years, a building will be erected for the Commercial Travellers' Orphan Schools, now at Wanstead. These schools were established in 1845, and have a sum at present in hand of 25,000*l.* with an annual income of 4,000*l.* The present building is inadequate to the increasing wants of the institution. Towards the cost of the new building, 10,000*l.* have already been collected.

Swindon.—The new market-house will be completed, it is thought, in about seven months. "Swindon," says the *Reading Mercury*, "is certainly making progress as regards architectural improvements. Besides new private houses and buildings, no less than three important public edifices will have been erected within the brief period of three or four years, *viz.* the New Church, the Savings' Bank in Victoria-street, and now the Market-House."

Sevenoaks.—The foundation-stone of a new Wesleyan chapel, adjoining the County Court-house here, was laid on Friday in week before last.

Oare (Newbury).—The chapel of St. Bartholomew in this village has been restored and reopened, and the graveyard added to it consecrated by the Bishop of Oxford. The restoration has been effected under the direction of Mr. Hugall, of Cheltenham, and from plans furnished by him. A stone bell cot has been placed on the west wall, and new windows, and an enlarged south doorway have been inserted. There are open benches and other fittings in oak, and open timbered roofs, a new chancel arch, and stained glass windows. The east window, of three lights, is filled with Wailes's flowered quarries; the two-light south window is made a memorial to four children of the incumbent, and contains subjects illustrative of our Lord's love for children, executed by Wailes. The floors are laid with Minton's tiles, and the windows in the nave are filled with Powell's glass. In addition to the cost of the restoration of the chancel, the vicar has also re-built the west wall, with its stone bell-cot. The parish have borne the cost of roof to nave, and the expense of the remainder was undertaken by Mr. W. Mount, of Wasing-place, and Mr. J. T. Wasey, of Prior's-court. The former has inclosed the graveyard with a wall at his own cost.

Chichester.—The new church recently erected in West-street, Chichester, for the subdeanery, was consecrated on Thursday week.

Winchester.—The ancient east window has now been restored by Mr. Edward Baillie, of Wardour-street, London. The window, as some of our readers may remember, comprises figures of Our Saviour and the Virgin, St. Swithin (Bishop of Winchester in the ninth century), St. John the Baptist, St. Peter, St. Andrew, and St. Paul, the prophets Jeremiah and Haggai, Bishops Wykeham and Fox, Ethelwold, Henry VII. (?), &c. &c. The tradition is, that the original window, representing the Day of Judgment, was destroyed during the Commonwealth, the angelic choir alone surviving, and that the present window was subsequently formed from other windows. "Mr. Baillie," says the *Gateshead Observer*, "profiting by his opportunity of examining the glass in the work of restoration, ascertained that it had been variously manufactured. The ruby, for instance, was of three kinds:—1. Half the thickness ruby, half white; 2. Ruby between two thin layers of white; 3. A thin coating of ruby on white. Purple glass was found to be formed of a layer of light blue on a layer of light ruby. In another instance, a layer of ruby was placed between two layers of light blue. Some of the colours were pot-metal, others flashed. Where yellow stain was used, the glass was more perfect than the surrounding portions, owing, it is supposed, to the greater resistance offered by the silver (of which the yellow stain is made) to the action of the atmosphere." It is to the Exhibition of 1851, according to the same authority, that Mr. Baillie is indebted for being selected to perform this task, the Dean of Winchester having chosen him as the artist who contributed the painted window "Shakspeare reading a Play to Queen Elizabeth and her Court."

Roehampton.—The foundation-stone of a new Roman Catholic chapel, in connection with the Convent of the Sacred Heart of Jesus, at Roehampton, was laid on Saturday week. This convent was formerly the residence of Lord Ellenborough, but for the last two years has been occupied as a convent. The chapel is intended to accommodate between 400 and 500.

Pembroke Dock.—"It is remarkable," says the *Nautical Standard*, "to what an amount the sale of refuse or waste timber rises at the monthly sale at Pembroke Dockyard. Some lots of valuable mahogany, which originally cost 90*l.* reached the unusual price of 12 guineas, and other lots went a few pounds lower—which cost the country some hundreds of pounds. There is a contractor for the purpose of executing repairs in this dockyard; and it is a fact, that the timber rejected as useless is again repurchased, in order to effect repairs in the very yard from which it has been rejected!"——According to the *Devonport Independent*, a new tower, designed by Mr. J. Clark, Board of Ordnance superintendent, has been completed on the Stack Rock, at the entrance to Milford Harbour, for the defence of the approaches to Pembroke Dockyard. It speaks of another of larger dimensions to be erected on a contiguous island.

Ross.—The noted spire of Ross Church, Herefordshire, has been greatly shattered by lightning in a recent storm, and now shakes in the wind so that the work of repair will be one of much danger, requiring a large outlay. The height of this spire is about 204 feet. Our contemporaries of the newspaper press have extensively circulated our last note on lightning conductors, which it is to be hoped may do some good.

Tividale.—The *Birmingham Journal* states that a number of houses here have been undermined and cracked to pieces, as if by earthquakes. The reckless and mercenary system of extracting the supports or pillars usually left in mines is said to have led to this, and the house owners look to the mine-worker for compensation.

Liverpool.—The foundation-stone of a new school, in connection with St. Joseph's Roman Catholic chapel in this town, was laid on Monday week. The site of the intended erection is at the corner of Edgar-street, Marybone. The building will be of stone, the style chosen being the Gothic, and the estimated cost 1,600*l.*

Rotherham.—Tenders have been lodged for the erection of the new Mechanics' Institute in this town, designed by Mr. W. Blackmore, architect. The building will comprise a lecture-room, with two laboratories, and a dwelling-house for the librarian. There will be an assembly-room, built in form of an amphitheatre. There will also be a news and reading room.

Blackburn.—The contract for the erection of the new building to be occupied by the District Bank, in the New Market place, has just been taken by Mr. W. Stones, and the building will be proceeded with immediately.

Coventry.—The new baths in Hales-street, Coventry, have been opened to the public. The plunge bath is 60 feet by 30. The prices charged are 1d. for the plunge bath, and 2d. for a warm private bath with use of towel. There were upwards of 1,000 bathers on the day of opening. The committee, according to the local *Herald*, contemplate the formation of two large private and two more plunging baths of a superior class, one for women and the other for men.

Derby.—A meeting of the supporters of the Midland Institution for the Blind in the counties of Nottingham, Lincoln, Leicester, Derby, and Rutland, was lately held at Derby, when it was stated that land for the erection of suitable premises has been obtained, and the sum of 3,100*l.* subscribed or promised for this purpose, but from 700*l.* to 1,000*l.* more is requisite to complete the buildings. In the first instance it is intended that the building shall be fitted to receive sixty inmates, and so constructed that additions may afterwards be made as the number of applicants may require, and the finances of the institution may admit.

Clifford.—The formal opening of the Wesleyan Training Schools took place on Friday week. The school is 41 feet by 21 feet within, and has class rooms and a master's house contiguous. Messrs. Roberts, Bateson, Wharton, and Jennings, were the contractors.

Doncaster.—Mr. M. E. Hadfield, of the firm of Messrs. Weightman, Hadfield, and Golby, has given it as his opinion that the memorial glass for the west window of the parish church ought not to be put in without extensive reparation of the stonework, much of the tracery being disjointed and fractured, and the keystone of the arch separated. Settlements have taken place in the side walls of the nave, from the weight of the organ and west gallery, which are to be removed. The organ is recommended to be placed in the north chapel, and some other requisite alterations and improvements are pointed out.——The first stone of a sawmill was laid on Wednesday week, in presence of the mayor and others, by a boy, the son of Mr. Elwis, the proprietor. The chimney will be 20 feet square towards the base, and the rest rounded, with cast metal cap, and will be 90 feet high, and formed on the smoke-consuming principle.——The *Doncaster Gazette* recommends the re-erection and enlargement of the Grand Stand of the Doncaster races, with other improvements on the course.——A building committee has been appointed, to prepare a suitable site and estimate of costs for the erection of an infirmary for Doncaster.

Edinburgh.—The City Council have had submitted to them by Mr. Charles Millar, of Dundee, a proposal to move the public clocks and ring the church bells by means of water. He stated that as much water as would pass through a goose-quill, with three feet of a fall, would be enough for his purpose. The proposal was referred to the plans and works committee.——The capital expended on the Pilrig model buildings, according to the local *News*, amounts to about 4,000*l.* and the dwellings to forty-four in number, while the rental is upwards of 300*l.* a year, or more than 7½ per cent. on the capital expended.——In the Victoria lodging-houses there are now at the rate of 5,796 men, 756 women, and 214 children, a month, as lodgers.

Glasgow.—Preparations have been commenced by the contractor of the Victoria-bridge for the casting of one of the arches. ——A weir is in course of construction above the jail-bridge, where it is proposed, by a correspondent of the local *Gazette*, to form a plunge bath on a large scale, flagged with stones and from 2 to 5 feet deep. Other improvements about the Glasgow-green have been suggested, and some of them carried out, within the last two or three years.

RAILWAY JOTTINGS.

THE gross receipts of railway traffic for week before last, according to *Herapath*, amounted to 305,869*l.*; for corresponding week of last year, 329,441*l.* The number of miles travelled over same week was 6,729; against 6,377 in corresponding week of 1851. The amount received per mile per week was 46*l.* 3*s.*; for corresponding period of 1851, 51*l.* 13*s.*; showing a decrease of 5*l.* 10*s.* The total amount received from January 1st is 6,918,524*l.*; corresponding period of 1851, 6,626,444*l.*; showing an increase over 1851 of 292,080*l.*——Report, states the *Sunderland Times*, "says, that the York, Newcastle, and Berwick Railway Company will undertake to make the new dock at Stockton. The site of the dock is close to the station of the Stockton and Darlington Railway, and through that line a communication opens to the York, Newcastle, and Berwick Railway. The Chairman of the Leeds Northern line says that when the Tees Conservancy Bill is passed, which would secure a site for the dock, that company would make suitable approaches to it from their line. These great rival companies are now vieing with each other for the traffic of this new district: the public are reaping the advantage; and passengers can travel from Stockton to Leeds, a distance of sixty-one miles, for two shillings."——A correspondent, "R. A." suggests, for the self-acting time-signal proposed by us to be invented, a revolving light, showing a full red circle instantly the train passes, and gradually receding (diminishing?) for ten minutes, until no light whatever is visible to the following train. The apparatus required, he remarks, would be very simple, and the intimation more likely to be correctly judged of by the driver of the coming train, especially in running down a curved incline, than by the invention alluded to in our last notice of the subject. Signal lights of any kind of course would be suitable mainly at night, except in fogs, snow-storms, &c. ——The same correspondent suggests the use of lamps over the doors of carriages, worked by springs inside, as a signal from passengers to guards. There must really, however, be first of all some mode of transit invented whereby the guards may have it in their power to pass along to the carriage signalled from.——It has lately become the practice, it is said, on Austrian railways to place a looking-glass on the top of the locomotive, inclined in such a way as to enable the engine-driver to see the whole train reflected, so that he can at once stop in case of accident. This plan has just been adopted on the railway from Brussels to Antwerp.—— An official statement concerning the railways of the United States gives the following particulars:—The number of miles in operation in the States, on 1st January, 1852, was about 10,814. At same time there were in course of construction about 10,898 miles. Most of the new lines will be in operation in about five years. The length of line opened since January 1, 1848, is 5,224 miles. During 1851 2,153 miles were completed. About 1,000 to 1,500 miles will be put under contract this year. The management of the American, like that of the English railways, is entirely in private hands. Their concerns are managed by corporations, chartered by the respective states, and having for officers, a president, secretary, and directors. Each of the directors must be a stockholder. The president and secretary have liberal salaries, but the services of directors are gratuitous. The rate of speed in America is not so great as in England. The ordinary velocity of a passenger train is twenty miles an hour. Special trains frequently keep up a speed of forty-five miles an hour for a long distance. In New England the average price per mile, first class, is about a penny. The second class throughout the country is only used by railroad labourers, emigrants, negroes, and other persons of the same class. From New York to Boston the fare is about a penny farthing per mile; from New York to Philadelphia about a penny three farthings; and from Philadelphia to Baltimore three halfpence.

CAST-IRON GRAVE PLATE.

THERE is a cast-iron mural grave plate about 4 feet long, 15 inches wide, and 1 inch thick (measured by eye), fastened against a buttress at the east-end of Withyham Church, near Tonbridge Wells, Kent, and thus inscribed:—

HEARE · LIET
H · WILLIAM · A
LFREY · LATE
· OF · WYTHIH
AM · YEOMAN ·
WHICH · ENDE
D · HIS · LIYE
THE · 15 · DAY
OF · IVNE · AN
NO · DO · 1610.

The letters are raised from the plate, and are one inch long, with spaces of ¼ of an inch between. The whole is in good preservation, though fixed now (if put up at the time) upwards of 240 years ago, and is curious, as an early instance of cast-iron in a part of the country where much iron ore exists, and where casting in iron was practised, and also as an instance of the durability of cast-iron in a pure air, as it appears never to have been painted. The lower part of plate is blank, and a raised diamond mark separates the words.

RUS.

PINE TIMBER.

ALLOW me to amplify your recent reply to a querist about red and yellow pine. The red fir or pine is the "Pinus Sylvestris" common to the north of Europe,—by our people called Scotch Fir: in commerce, it is called Baltic Fir, Riga Fir, Memel Timber, &c. It grows also in British America and the north of the United States; and is called Red Pine in commerce: it appears to be identical with the Red Fir of the north of Europe, but seems to grow quicker, being a freer wood, with fewer knots. The European is always called, in shipbuilding, Fir; the British American, Pine. The White Pine is the "Pinus Strobus," and is a softer and much freer wood, shows scarcely any fibre, and is indigenous to the North American continent *only*, especially to Canada and New Brunswick. This is the largest of the pines or firs of commerce, and *par excellence* the house-carpenter's wood. The deals from it are the largest import of wood stuffs. The finest growth is from the entrance of the Gulf of St. Lawrence to Quebec, and frequently called Yellow Pine: its colour inclines to a pale yellow: perhaps its vicinity to salt atmosphere and the sea may have some influence on it. The white wood of Europe is the Norway Spruce ("Abies"), from which the ordinary deals of commerce, called White Spruce, are manufactured—the inferior qualities being very knotty. The same, or very nearly the same wood, is found in North America, especially in New Brunswick; but the reduction of the duties on foreign wood is greatly interfering with their import. As to strength and value in ship or house building, the *red and the white differ greatly*,*—the Red Fir and Pine being the

* We spoke of the Red and the *Yellow*.—ED.

TOWN-HALL, ST. MATTHEW'S, BETHNAL GREEN.—Mr. Simmonds, Architect.



hardest, the strongest, and least subject to decay or rot. The White Pine is far inferior in strength, and more subject to rot; but, in fact, the most useful. The Spruce seldom comes in size for timber, and, when used in shipbuilding, is given to very early decay.

N. G.

NEW TOWN-HALL, ST. MATTHEW'S, BETHNAL-GREEN.

This building, one of the first of the kind built specially for the purpose of rendering it unnecessary to hold meetings in the church, has been recently erected by the Commissioners for Improving the Parish, from a design by Mr. G. H. Simmonds. The builder was Mr. John Perry, of Hackney. The building consists of a board-room on the upper story, 38 ft. 6 in. by 26 ft. in clear of main walls, with four bays with tracery-headed windows, one being in front over the porch, and three at the rear. On the ground story there is a committee-room, 26 ft. by 13 ft. 6 in. with three bays; at the rear of the board-room a waiting-room, 20 ft. by 9 ft. 6 in.; a clerk's office, 11 ft. 6 in. by 9 ft. 6 in.; and a fire-proof closet. Domestic offices and cellars are formed under the whole. The entrance to the committee-room, &c. on the ground story, is in the centre; that to the board-room at the side (which is approached by a stone staircase). The front of this, as also the residence for the surveyor of pavements on the other side, is finished with red bricks and stone dressings, which, with the front of the board-room and offices, are of Caen stone. The cost of the erection, including the surveyor's house, inclosure walls, and fittings, was 3,200*l.*

SCULPTURE FOR THE MANSION-HOUSE, LONDON.

Our readers were informed that the attention of the Common Council had been drawn to the entire absence of any specimens of the fine arts in this building, even where the architect had evidently originally designed convenient situations for such ornaments. In the Egyptian Hall, which forms the principal apartment, there are sixteen niches in the side walls, where doubtless the architect intended sculptured groups or figures should be placed. The City architect, Mr. Bunning, proposed "That some of our first-rate sculptors be applied to for statues in plaster, so that the niches be at once filled, and that they be remunerated for so doing by giving an order to one or more of them in each year for a statue in marble (to displace those in plaster) representing some passage from our national history, or from the works of our English poets."

He has since reported that the proposal could be carried out at an expense of about 700*l.* per subject; and adds,—"I cannot refrain from expressing the delight I feel that the corporation, in the midst of their important business transactions, should consider the encouragement of this branch of the arts as worthy of their attention and patronage; and I am sure it will reflect great credit on this committee, that from them the suggestion will have emanated. The patronage of the corporation will excite gratitude in artists, admiration in the public, and give encouragement (so much required in this country), to art in general."

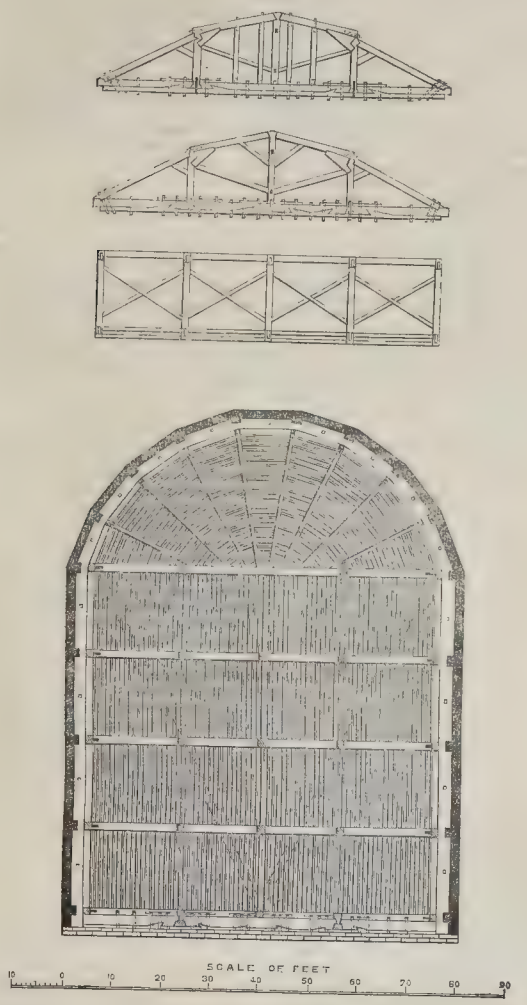
The General Purposes Committee have recommended the Court to adopt the proposition, in which recommendation we sincerely concur.

Thames Embankment.—The Commissioners of Works are empowered by an Act of Parliament, which has just been printed, to construct an embankment and public road, to extend from Vauxhall-bridge to the Chelsea-gardens. What improvement this may be for the public has yet to be seen.

Monumental.—Rauch, the sculptor, has finished a design for a monument of the late King of Hanover, which, having been approved, is to be immediately executed in marble.

ROOF OF THE SHELDONIAN THEATRE, OXFORD.

SIR C. WREN, ARCHITECT.



ROOF OF THE SHELDONIAN THEATRE, OXFORD.

ANNEXED, are illustrations of the roof of the Sheldonian Theatre, Oxford, designed by Sir Christopher Wren. These explain the construction, and for a more detailed explanation the "Parentalia" may be referred to.

G. T. JARVIS.

"TOM SPRING'S" MONUMENT, AND OTHERS.

WE find it stated that it has been decided to entrust the execution of the monument in honour of the late boxer to Mr. Carew, jun. "It will be a square pillar surmounted by a model of the cup presented to Spring by his friends at Hereford, on the top of which is *a beer barrel!* At the base are a lion and lamb reposing together, and in the centre is a medallion of the ex-champion." Surely it is time to leave the barrel when we reach the bier; to give up the "fancy" when we deal with the grave. Let those who have the ordering of it think again and spare us the contemplated error.

YOU have recently done much good service by exhibiting, for public condemnation, some of the wretched effusions which so discredit our churchyards, in the shape of "epitaphs." This morning, as I passed the workyard of a statuary near Kennington-cross, I observed a newly-executed headstone, about to be placed by the grave of two men, a driver and a fireman, lately killed on some railway. The usual inscriptions, including the circumstances under which the deceased met with their deaths, were followed by these couplets:—

> "The two that lie beneath this sod
> Were suddenly summon'd to meet their God:
> The rail of life no more they'll travel,
> Called the reveal'd future to unravel."

I had thought the age of such doggerel nonsense had passed away with a former generation; but we seem still to have among us some "grave" poets, emulous of sharing the honours of their predecessors. It is a great pity no authority exists to prevent the introduction into the sacred repositories of the dead of what must only tend to excite ridicule.

D.

[The incumbent has, surely, power to prevent it.—ED.]

THE METHOD OF DETERMINING THE BEVELS IN THE QUOINS OF AN OBLIQUE SEMICIRCULAR ARCH, IN WHICH THE SEVERAL COURSES RUN IN THE SAME DIRECTION AS THE ABUTMENTS.

VARIOUS theories of the oblique arch have been proposed by different individuals. It is not, however, our present object to inquire into the merit of any particular scheme, but simply to show the method of finding the proper bevels, and constructing the moulds for the quoins of an oblique semicircular arch, when the several courses run in the same direction as the abutments; the obliquity of the plan or its deviation from the square, and the number of courses being known.

In resolving this problem, it is necessary to consider the form of the coursing-joints or beds of the courses, and also the angles that the face of the quoins makes with these beds, the planes of which being all conceived to meet in the central line of the plan when extended to that plane, the central line being parallel to the abutments.

This leads us to the contemplation of a right-angled triangular pyramid; that is, a pyramid formed by the mutual intersection of three triangular planes, two of which are at right angles to each other, and the third subtending the angle of their inclination, and which may, therefore, be termed the hypothenusal plane. It is on the nature of the triangular pyramid formed in this way, that the solution of the problem depends; and we shall, therefore, in the first place, proceed to consider the pyramid as being developed upon a plane.

It is a well-known principle in solid geometry that the inclination of one plane to another plane *is measured by the angle contained under the two straight lines, which being drawn one in each plane, to the same point of their common section, is at right angles to that common section.*

Let AVB and CVB (Fig. 1) be the two perpendicular triangular planes, expanded upon a plane surface by turning about BV, the line of their common section; and let CVD be the third plane of which the pyramid is composed, expanded upon the same flat surface by turning about CV, the line of common section of the planes CVB and CVD; then is VABCD the expanded pyramid, of which V is the vertex; and the parts to be determined are the angles BEC and CVD or their supplements, the one measuring the inclination of the planes AVB and CVD, and the other being the angle at the vertex of the hypothenusal plane DVC.

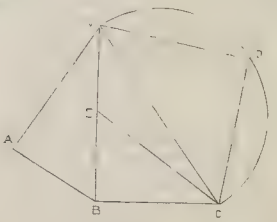


Fig. 1.

Take any point C in the straight line VC, and from the point C thus assumed, demit the perpendicular CB on the line VB; and in like manner, from the point B thus determined, demit BA perpendicularly to VA; make BE equal to BA and draw CE; then does the angle BEC measure the inclination of the planes AVB and CVD, which is one of the parts required to be found.

Upon CV as a diameter describe the semicircle CDV, and inflect VD equal to VA, or CD equal to CE: they will meet in the point D, and DVC will be the angle at the vertex of the hypothenusal plane, which angle, or its supplement, is the other part required by the problem.

The truth of this construction will be clearly comprehended by recomposing the pyramid as follows:—Let the planes AVB and CVD be conceived to be turned about the lines BV and CV, until AVB be perpendicular to BVC;

then will the lines VA and VD coincide in every point, for they are equal by the construction; and in like manner, let the plane BEC be conceived to be turned about the line BC, until BE coincides with BA, and CE with CD; then will the plane BEC be perpendicular to each of the two planes AVB and DVC, for two sides of it, namely, BE and CE, or their equals, BA and CD, are perpendicular to the same point of the line of common section, AV and DV becoming one line on the elevation of the planes, and the points A and D coinciding.

In a similar manner the inclination of the planes BVC and DVC may be determined; but as that inclination does not enter the solution of the original problem, it is not necessary to consider it. We shall therefore now proceed to investigate the rules for calculating the angles BEC and DVC, the same rules being general for the several courses in the arch.

Put a = the angle CVD at the vertex of the hypothenusal plane;

Put b = the angle BVC at the vertex of one of the perpendicular planes;

Put c = the angle AVB at the vertex of the other perpendicular plane; and,

Put ϕ = the angle BEC, the inclination of the two planes AVB and CVD.

Here, then, it is manifest, that if the straight line VB be assumed as radius, BC will be the tangent of the angle BVC to that radius, and VC the secant of the same angle; while AB = BE is the sine and AV = VD the cosine of the angle AVB; therefore, by expressing these quantities in terms of our notation, we get BC = tan. b; VC = sec. b; AB = BE = sin. c; and AV = VD = cos. c; hence, in the right-angled triangle BEC, we have given the two sides BC and BE, to find the angle BEC; wherefore, by plane trigonometry, it is

BE : BC :: rad. : tan. BEC; that is,

$$\sin. c : \tan. b :: \text{rad.} : \tan. \phi = \frac{\text{rad.} \times \tan. b}{\sin. c.},$$

from which, by assuming the radius equal to unity, and substituting the term cosec. c as a multiplier, instead of sin. c as a divisor, we get the following equation, viz.:—

$$\tan. \phi = \tan. b \text{ cosec. } c. \qquad (A)$$

Now, this expression is common for the angle of inclination between the planes AVB and CVD, and it means, that the tangent of the angle of inclination between the hypothenusal plane and one of the perpendicular planes, is equal to the cosecant of that plane, multiplied by the tangent of the other perpendicular plane.

We have next to determine the angle CVD at the vertex of the hypothenusal plane, and for this purpose we have given the sides VC and VD in the right-angled triangle CVD: hence, by plane trigonometry, it is

VC : VD :: rad. : cos. CVD; that is,

$$\text{sec. } b : \cos. c :: \text{rad.} : \cos. a = \frac{\text{rad.} \times \cos. c}{\text{sec. } b.},$$

from which, by assuming the radius equal to unity, and substituting cos. b as a multiplier for sec. b as a divisor, we get the following equation, viz:—

$$\cos. a = \cos. b \cos. c. \qquad (B)$$

The meaning of this equation is, that the cosine of the angle at the vertex of the hypothenusal plane, is equal to the product of the cosines of both the angles at the vertices of the perpendicular planes.

Having thus shown the method of construction, and determined (A and B) the formulæ of calculation, we must now proceed to show how they are to be applied in determining the bevels of the quoins in an oblique semicircular arch.

EXAMPLE.—Required the bevels of the quoins, and the form of the coursing joints, in an oblique semicircular arch of 25 equal courses, the span being 38 feet, and the obliquity 45°.

In resolving this question, it will materially assist the conception to consider the bed of each course as a parallelogram, one side of which is the line of joint down the face of the arch, and the other the corresponding line along the soffit; and the object to be determined, is the inclination of these two lines, which for one half of the arch will be obtuse, and for the other half it will be acute, the opposite halves reversing the inclinations.

By the question, there are to be 25 equal courses in the arch: this gives twelve courses on each side of the crown course; but in resolving the problem, it is only necessary to determine the moulds for twelve courses, as the same moulds can also be accommodated to the other twelve on the opposite side of the crown course. In order, however, to avoid confusion in the figure, we shall only show the construction of the moulds for one course; and this we shall take at the sixth course or division from the abutment, which will embrace 43° 12′ of the arch, each course occupying a space of 7° 12′: hence the following construction.

Let BV (Fig. 2) be equal to 19 feet, or half the span of the arch according to the question; and at the centre V, make the angle BVC equal to 45°, the given obliquity; then is VC the central line of the plan, and in the direction of the abutments: make also the angle BVF equal to 43° 12′, the portion of the arch for which the construction is intended. In VC take any point C, no matter where, and from C demit the perpendicular CB upon VB, thereby determining the position of the point B. From B as thus found, let fall the perpendicular BA; make BE equal to BA and draw CE; then is the angle BEC, or its supplement CEV, the inclination between the face of the arch and its plan, according to the part of the arch for which the construction is made.

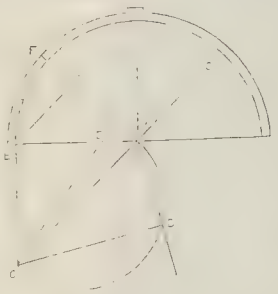


Fig 2.

Upon CV as a diameter describe the semicircle CDV, in which inflect the chord VD equal to VA; then is the angle CVD, or its supplement DVG, the inclination between the joint line in the face of the arch, and the corresponding joint line along the soffit.

It will here be seen that the figure VABCD in the second diagram as referred to the arch, is precisely the same as the expanded pyramid in the first figure, only here the vertex of the pyramid is at the central point of the span.

From what we have done above, it is manifest that the same mode of construction will apply to any point of the arch, whatever may be the number of the course; but it must be borne in mind, that each course in the semi-arch will require its own moulds, which moulds will also answer for the corresponding courses in the other semi-arch. It now remains to show how to apply the formulæ (A and B) in calculating the angles of bevel; and first, for the bevel between the face of the quoin and the coursing joint or bed of the succeeding course; this requires the application of formula A, and the rule, logarithmically expressed, is as follows:—

RULE.—*To the logarithmic tangent of the constant obliquity, add the logarithmic cosecant of that portion of the arch for which the angle of bevel is wanted, and the sum, less ten in the index, will be the logarithmic tangent of the required angle.*

The process of calculation for the sixth course from the abutment is as under:—

Given obliquity of the plan, 45° 0′ . .	log. tan. 10·000000
Given portion of the arch, 43° 12′ .	log.cosec. 10·164597
Required angle of bevel, 55° 36′, or 124° 24′	log. tan. 10·164597

Here the angle has two values, and the one or the other must be used according to the semi-arch in which the course occurs.

Next, to find the inclination between the line of joint in the face of the arch, and the corresponding joint along the soffit; this requires the application of formula B, and the rule, expressed logarithmically, is as follows:—

RULE.—*Add together the logarithmic cosines of the constant obliquity, and that portion of the arch for which the inclination is required, and the sum, less ten in the index, will be the logarithmic cosine of the required inclination.*

According to this rule, the operation is as follows:—

Given obliquity of plan, 45° 0′	log. cos. 9·849485
Given portion of the arch, 43° 12′	log. cos. 9·862709
Required angle of inclination, 58° 58′, or 121° 2′	log. cos. 9·712194

Here, as in the case above, the inclination is of two values, answering to the two semi-arches, the obtuse value answering to one semi-arch, and the acute value to the other. And exactly in the same manner may all the other angles of bevel be calculated for every point of the arch.

T.

IRISH BUILDING MEMS.

A NEW Roman Catholic church, with school attached, is to be erected in each of the districts of Glan and Derry. The expenses will be defrayed by subscription.

Alterations and additions are to be made to Drogheda prison, according to plans prepared by Mr. John Neville, Dundalk, architect, by whom tenders are being received.

The first stone of St. Catherine's new Roman Catholic church, at Meath-street, Dublin, has been laid by the R. C. Archbishop, Dr. Cullen.

The board of directors of the Clonmel Mechanics' Institute are about erecting additions to the present buildings. On the ground-floor will be an entrance-hall, 10 feet wide, with a reading-room and library to the left, and a museum to the right; and overhead an exhibition-room, 47 feet 6 inches, is provided, in connection with the present lecture-hall, which is 64 feet by 21 feet 6 inches. The style of the new buildings will be Grecian.

A new campanile of large dimensions is to be erected in connection with Trinity College, Dublin, and designs have been furnished for same by Mr. Charles Lanyon, of Belfast, architect.

A new Roman Catholic church is to be erected at Kilmoree, by subscription, and the designs, which we believe are in the Gothic style, are by Mr. John S. Butler, architect.

At Thurles a new schoolhouse is to be built.

Mr. Dargan's offered advance of 20,000*l.* for the purpose of erecting a building on the premises of the Royal Dublin Society, Merrion-square, for holding an extensive exhibition of the products of the United Kingdom in the year 1853 (if the scheme be carried out satisfactorily), will, no doubt, be a stimulus for the permanent establishment of periodical exhibitions on a much more important and extensive scale than hitherto attempted. And in the selection of plans for the proposed building (which, we understand, are to be competed for) we hope that the committee will display more business-like disposition than they manifested on a recent occasion when the plans of competitors were detained for upwards of twelve months while deliberating on the award of a small "premium" of 10*l.* It is to be hoped that no local influence will interfere with a fair spirit of competition. Upwards of 100,000 superficial feet are to be provided, and the cost of erection is not to exceed 15,000*l.*

The first stone of the new Church of Knappagh, near Westport, has been laid by the bishop, and the ceremony was witnessed by upwards of 600 spectators.

A new terminus, goods store, and engine shed are to be erected in connection with the Killarney Junction Railway at Killarney according to plans furnished by Mr. Joshua Hargrave, jun. architect.

The electric telegraph is now at work on

the Midland Great Western Railway between Galway and Athlone. We understand that the company intend establishing offices for telegraphic purposes at Galway, Athewry, Woodlawn, Ballinasloe, Athlone, Mullingar, Enfield, and Moate.

A new Roman Catholic church is to be erected in the parish of St. John, Limerick.

A committee of the Corporation of Dublin have waited on his Excellency the Earl of Eglinton respecting the erection of a new bridge near the Custom-house. The deputation was graciously received, and a favourable reply given. Alterations to the exterior of the Royal Exchange, which is now being converted into a town-hall, are in contemplation.

THE LIGHTING OF ROME.

Everything is now settled preparatory to commencing the works: the Pope and authorities have expressed themselves as much interested in the undertaking, and the ground is purchased for the works. It was with some difficulty that the sanitary committee could be brought to approve of a site, and where do our readers think the deed of enlightenment is to be begun? On the site of the *Circus Maximus*, in the valley between the Palatine and Aventine hills. Opposite what will be the entrance-gate, is the house of Cicero, and right above are the ruins of the palace of the Cæsars! Permission for the use of the ground is granted on condition that Mr. Shepherd build his works only in the arena of the circus: he is forbidden to touch the *gradines* or seats, which preserve perfectly the form of the whole, and convey a fine idea of the magnificence of the circus. If we may judge from some old engravings, the chimney will be erected on the spot where formerly stood the fine obelisk which now adorns the Place St. John de Lateran, and close to where, if tradition reports truly, Androcles extracted the thorn from the lion's paw! *Tempora mutantur.*

The inhabitants are all agog, also, about the railway from Rome to Ancona and Bologna. It is feared there will be some delay, but there seems every probability a road from Rome to the frontier of Naples will be soon commenced by a Belgian engineer, Courtine: the deposit is paid, and he daily expects the concession.

Notices of Books.

Great Artists and Great Anatomists. By R. Knox, M.D. &c. London, John Van Voorst. 1852.

We have here "two parallel biographies," or rather disquisitions on the lives of, first, Cuvier and Geoffroy, and secondly, of Leonardo da Vinci, Michelangelo, and Raphael. It contains much acute and interesting writing, but is, nevertheless, a disappointing book. The author says his object is threefold—

"1st. To establish the exact relation of descriptive anatomy to the science of the animal organic world, as it now is and as it once existed. In the life and labours of George Cuvier, as he views them, the author finds this relation fully made out. Before Cuvier appeared, geology was a farce, a subject of ridicule; cosmogony a myth; the history of creation a tissue of error and absurdities. 2nd. To trace transcendental anatomy to its essence, and to show, in the life and labours of Geoffrey (St. Hilaire), that the philosophy of the creation of animals is explicable only by descriptive anatomy. 3rd. To discover, if possible, in the life and labours of the immortal artist who painted the 'Cena,' and of his great rivals, Angelo and Raphael, the true relation of descriptive anatomy to art."

It is something even to attempt such a task. The main point insisted on in the inquiry, so far as it concerns art is, that anatomy has been wrongly studied by artists; that it

"Has unhappily induced the artist to display what he knows, instead of enabling him cunningly to conceal that knowledge, as Nature has done, from the gaze of the world. He begins where he should end, and by drawing anatomically he displays that knowledge which he should keep in reserve merely to prove the correctness of his power of observing living forms."

Our artists have mistaken the dead for the living.

"On canvas we have death-like dissected figures; in marble, cold, frigid, lifeless *statues*. Look at the sculptures in the Great Exhibition, and ask yourself how it is that so few of those marbles, single or in groups, rouse your sympathies and receive your admiration. I shall tell you. It is the almost total absence of that *life-like surface* which alone distinguishes the living from the dead; the Venus de Medici from ——. Art then at its origin, at its commencement, owed nothing to anatomy. Art, as it arose in Italy, and as it has existed since, endeavoured to assume a new position, to adopt another ally—science. One thing at least is certain, the canon of the Beautiful and the Perfect was already displayed to the Italian masters, in the remains of Antique Art; Niobe and her daughters; the Venus de Medici and of Melos; the Mars and the Apollo were not to be surpassed. They were disinterred at or about the time of Da Vinci. The question which it was for them first to solve was, how were these matchless remains to be read or understood. The grosser minds of modern men, at least of the European mind of that period, a compost of the barbaric races of the eastern and western worlds, minds sunk into conventionalism, brutality, and the most deplorable superstition, could not at first discover 'Nature in Antique Art.' This was natural enough. But the great Italian masters made the discovery at once. They did not exactly copy or imitate the ancient masters; they studied their remains, and tried to understand them."

Leonardo's Sketch-Book, now in the Queen's private library at Windsor, proves, the author says, that Leonardo never suffered his anatomical studies to mislead him for a moment as an artist.

"There is but one school of art—Nature. But to read her volume profitably, artists must study profoundly the antique Greek, and ancient Italian school, formed by the era of Leonardo, Angelo, and Raphael.

It may precede, or follow, or coincide with the study of the living figure; still these immortal works must be your guide; for, whether it be composition, or colouring, or design, you are likely to find that these masters read Nature more clearly than you ever can. But do not copy nor imitate them further than as objects of study.

Learn anatomy by all means; but do not forget its object. When you draw a dissected limb, be sure to sketch the living one beside it, that you may at once contrast them and note the differences. In drawing from the nude figure, contrast your sketch with the antique; you will find in it many defects. Never forget that perfection, the result of a high specialisation of Nature's law of individuality, is rare; the opposite, that is, imperfection, the result of a tendency to unity of organisation, is by far the more common."

Miscellanea.

Artificial Production of Fish.—A new and rather an extraordinary branch of manufacture has arisen suddenly in France, where a couple of poor fishermen of the Vosges, despondent on account of the decline of their staple article, the trout, set to work with a series of experiments devoted to the revival of their trade. The artificial production of fish (as well as of small reptiles, such as frogs or toads), has been long known as a scientific fact, and was at one time carried out to some extent in Scotland; but it is only now that the fact has been fairly and fully combined with practice. It is even said that the two fishermen alluded to have not only made practical use of the fact, but that they rediscovered it for themselves. However this may be, they appear to be fully entitled to be regarded as originators of the practical and successful manufacture of fish, which are now produced by millions — we had almost said by billions—every season. Of course, it is only by making use of the milt and the roe of the fish at the proper season, and disposing of these to the best advantage by artificial arrangements, that the young stock is collected. We cannot enter into the details of the manufacture here, however, but must refer to a recent little shilling pamphlet on "The Artificial Production of Fish," by Piscarius, published by Messrs. Reeve and Co. of Covent Garden. The poor men to whom France is indebted for this new and most important manufacture have been patronised by Louis Napoleon, and appointed by his Government to superintend the introduction of this new branch of industry into various parts of France; and we earnestly hope that our own Government will act in a similar spirit, so as to establish the fish manufacture, or pisciculture, amongst the lakes, ponds, rivers, and streams of Great Britain and Ireland. Paddy might thus have something else than "point" to his potatoes; and as his conscience revolted against the idea of "taking all the fish out of the sae," as a coasting fisherman, he may find it more easy to reconcile his Brahminical scruples by an artificial increase of the article which it would do him so much good to diminish by aid of his maxillary apparatus.

Institution of Mechanical Engineers.—On Wednesday week a special general meeting of this Institution was held at the rooms of the Society of Arts. Mr. M'Connell, engineer of the North-Western Railway, presided. A paper was read on the Principles of the Centrifugal Pump, by Mr. Scott, of London. The opinion of the writer of the paper, that practically considerably less than fifty per cent. could be obtained by centrifugal power, was combatted by the friends of Messrs. Appold, Bessimer, and Gwynne on the one hand, and by the advocates of the old system on the other. On the part of the former it was contended by Mr. Crampton and others that the result of the trials made at the Great Exhibition by Mr. Hensman showed a clear result of seventy-five per cent. and that pumps since constructed by Mr. Appold, had given from sixty-nine to seventy per cent. Mr. Vignolles stated that the whole question of the value of this class of pumps resolved itself into the profitable conversion of speed into power, and as no evidence had been given on the point they were unable to come to any conclusion on the subject. Further discussion of the paper was adjourned to next meeting. The remaining papers read were:—On the "Expansive Action of Steam in Locomotive Engines," by Mr. Daniel K. Clark, of Edinburgh; on the "Expansion of isolated Steam and the total Heat of Steam," by Mr. Charles W. Siemens, of London; on "Bourdon's Metallic Barometer, Indicator, and other Applications of the same Principle," by Mr. Charles Cowper, of London; on an "Improved Screw Propeller," by Mr. George Bovill, of London; and on a "New Direct-acting Steam-pump," by Mr. Wm. K. Whytehead, of London.

Visit of Liverpool Architects to Manchester.—The members of the Liverpool Architectural Society paid a visit to Manchester on Monday, the 5th inst. The excursionists proceeded along Strangeways, and spent some time in examining the wrought-iron gate and its piers of the Old Hall, Returning towards the centre of the town, they examined the exterior of the cathedral. The principal attraction in Salford was the Roman Catholic Cathedral, and the Presbyterian Chapel, as an adaptation of "cheap architecture." The old timber house, Smithy Door, received a passing notice; and the Exchange, Cheetham College, and Sir Benjamin Heywood's Bank, were visited. It is a subject of remark, that the architects of Manchester did not exhibit any desire to welcome their brethren from Liverpool. This surprises us the less, because we remember that when the British Archæological Association visited Manchester, the architects of that town, with one or two excellent exceptions, neither shewed the slightest interest in the objects of the meeting, nor the smallest amount of good feeling towards the visitors.

Improvement in Gas and Coke Manufacture.—A patent has been taken out by Messrs. Newton, of Chancery-lane, for a method of producing a coal gas, free to a certain extent of bituminous oils, and a coke suitable for smelting, locomotive, and other furnaces. The apparatus is a modification of a patent secured by Messrs. Pauwels and Dubochet in April 1850.

A Tubular Iron Bridge, in the style of those in England, is to be constructed over the Ourthe, at Tilff, in Belgium.

NEW WORKHOUSE AT HULL.—On Wednesday in week before last the new workhouse at Hull was opened. It stands about a mile from the centre of the town, on the Anlaby-road. The style of the building is Elizabethan. The material is red brick, with stone dressings. The building presents a frontage to the Anlaby-road of 270 feet, and is covered with buildings and courts to the extent of 530 feet in depth. The entrance building, surmounted by an ornamental clock turret, contains the board and committee rooms, clerks' and relieving offices, with accommodation for male and female vagrants and probationers. The main building, 100 feet in the rear of the entrance-building, contains apartments for the master and matron, the able and infirm men and women, and schools and day-rooms for boys and girls. Connected with the centre, and at the back of the main building, is placed a dining-hall, 80 feet by 40 feet, capable of dining 550 persons at one time. Along the right side of the dining-hall, and connected with it by communicating doors, extend the matron's room, the kitchen, scullieries, larders, and bakehouse. The scullery contains a copper, capable of holding 300 gallons, for the supply of hot water to the baths, washhouses, and laundry. The chapel is a short distance in the rear of the dining-hall, and is connected with the main building by a covered way on each side. The chapel is a building 60 feet by 34 feet. The roof, which is slightly ornamental, is of open-dressed timber, stained and varnished. The workshops are on the side of the chapel, at the rear of the men's courts, and the washhouse and laundry is at the rear of the women's courts. The extreme rear of the premises is occupied by the infirmary, with a surgery, a kitchen, and rooms for the nurses. At the extreme rear is a piece of ground 1¾ acres in extent, intended for a garden, to afford some little work for the deserving poor, desirous of doing something for the sustenance daily afforded them. The building contains twenty-four courtyards. The building is erected from the plans of Messrs. H. F. Lockwood and W. Mawson, architects, Bradford. The house will contain 900 to 1,000 paupers. The whole has been erected at a cost of 10,411*l.* being 89*l.* within the estimate. The clerk of the works was Mr. James Ogilvie, of Hull.

FEES OF SURVEYORS AND ARCHITECTS.—In a case tried at the Birmingham County Court, on the 25th ult. and reported in the local *Journal*, the plaintiff, a building surveyor and architect, sued the defendant, a person engaged in building, for 1*l.* as a fee for advice given. Plaintiff, Mr. Cutts, had been employed by a solicitor, to examine defendant Price's houses weekly. Money became scarce, and Norton, a plaisterer, and contractor with Price, served his employer with a writ for sums due for labour, &c. Price afterwards saw Mr. Cutts, and asked his advice on the subject. Mr. Cutts, according to defendant, instead of giving his own advice, took him to Mr. Nichols, a solicitor, who said, "by all means compromise with Norton." This was subsequently done, and, as stated by plaintiff, he had assisted at such compromise and arrangement. Price added that Mr. Nicholls sent him a legal charge of 6s. 8d. for the advice given. The magistrate said the points on which Mr. Cutts, as surveyor and architect, had claimed, would not hold. They were properly the province of a solicitor, and therefore he should give his verdict for defendant. Curious law!

ARCHITECTURAL COMPETITIONS.—With reference to the behaviour to the competitors for the Aberdare market, Portsmouth savings-bank, and Warrington markets, a correspondent says,—"Would not this evil die a natural death if the liberal, hasty (?), and honourable men composing competition committees were to find their *opening* days a perfect *blank?* No doubt of it, but unfortunately, no matter what may be the terms, there seem to be always some persons ready to compete.

THE DUSTY CONDITION OF THE ROADS at the west end of London is very discreditable to the commissioners, and demands inquiry. In the Brompton-road, for example, the dust is flying in clouds three parts of the day.

ELECTRO-TELEGRAPHIC PROGRESS.—Another new route has been proposed for a sub-marine Atlantic telegraph between Europe and America, namely, from Norway by Iceland (120 miles), Greenland (60 miles farther), and Davis Straits (where 100 miles wide) to Labrador, and thence by land to New York; while from Norway, a short line would bridge across the Skager Rack, and put the main line *en rapport* with Calais, and hence with England, &c. It is said that "the comparative success of the telegraph across the Irish Channel has at length led some speculators to entertain seriously the project of laying down a telegraphic communication between Europe and America." This sentence was probably written before the recent misadventure which befel this Irish telegraph. Its quotation now may show the importance to the general progress of telegraphic sub-marine communication of circumspection and avoidance of haste; the probability of future progress being very much dependent on the way in which past efforts may be carried out. We do not speak in reference to the scheme just noticed, but to the extension of sub-marine communication in general.

WHITCHURCH, NEAR EDGEWARE.—Can any of your correspondents furnish a history or an account of the above church? It is a small church, which has, no doubt, originally been Gothic, but now for the most part rebuilt in the Italian or Roman style of architecture. The whole interior (as regards the walls and ceiling of the body of the church) is painted, in compartments, with various subjects from Scripture; the walls with representations of the four Evangelists, and with the subjects of Faith, Hope, and Charity; the ceiling, in scriptural subjects, and ornamental foliage, &c. The walls at the back of the communion-table are lined with tapestry, also in scriptural subjects; and the ceiling in stars of gold on a blue ground, and figures. There is a screen of columns at the east end, stated to be carved by Grinling Gibbons; and if so, might not the ceiling have been painted from designs by Sir James Thornhill, or that school? The church is worth attention.—W.

SOUTHPORT STATION.—The Liverpool, Crosby, and Southport Railway Company have just completed the extension of their line from Birkdale into Southport, and have erected a station for the accommodation of the many visitors to this watering-place. The style is Italian. There are wings on each side, and two porches, the right leading to superintendent's residence, the other to the booking-office, &c. The waiting and refreshment rooms and different offices are alongside the platform. Mr. George Latham is the architect; Messrs. Holmes, of Liverpool, the builders.

PRINCE ALBERT'S MODEL HOUSES.—The descriptive accounts of H. R. H. Exhibition Model Houses, with specification and detailed estimate, reviewed by us on its publication about twelve months since, has been translated into German, and published, with the plans, &c. by Herr Busse, director of the Academy, Berlin. This is only one amongst many proofs of the great interest taken by foreigners in this effort for improving the dwellings of the working classes.

PATENT PROFITS.—During the twenty-four years the American "Woodworth" planing machine patent has been in existence, one of the partners, it is said, has received 426,350*l.*; another nearly the same amount; and a third a very large sum. The first-named is now in receipt of 1 dollar per 1,000 feet planed in 100 mills, each of which turns out 10,000 feet per day.

EXCAVATIONS AT ATHENS.—The French Government, on the demand of the Académie des Inscriptions, has granted M. Ernest Beulé a sum of 1,200 francs for continuing his excavations in the vicinity of the Parthenon. A letter from Athens states that that gentleman has already discovered sundry walls and staircases of architectural curiosity, the entrance to the Acropolis, a subterranean passage, several fragments of sculpture, a basso-relievo, representing a Pyrrhic dance, part of a statue of Victory, and a number of inscriptions, very few of which are complete.

COLOGNE CATHEDRAL.—The ceremony of fixing the keystone of the arch over the western portal of Cologne Cathedral was performed recently by the King, aided by the Prince, of Prussia, with great pomp. A friend who has recently returned from Cologne says, there are about 300 men engaged at the cathedral, and that the work is going on with much spirit.

FIRE BY SUN'S RAYS.—A small wooden building at Camberwell is said to have become so heated by the sun's rays on Monday week, when the air was exceedingly hot and still, that it took fire and was almost entirely consumed.

CHEAP COAL FOR LONDON.—A company is said to be in course of formation for working the coal mines of Darlaston estate, near Coventry, only 90 miles from London.

GASOMETER.—One of the largest gasometers in the kingdom is now being erected at Messrs. Westwood and Wright's Ironworks, Brierley-hill. The diameter is 157 feet, depth 40 feet: the weight of iron necessary for its completion will be 400 tons, and it will contain about 800,000 cubic feet of gas.—*Wolverhampton Chronicle.*

TENDERS

For Merchants' and Tradesmen's Assurance Office, Martin's-lane, Cannon-street, City; Mr. A. Mosley, architect:—

Bunning	£2,490
Geo. Mansfield and Son	2,384
Pollock and M'Lellan	2,348
Myers (accepted)	2,300

For public-house in the Fulham-road, for Messrs. Elliott and Co. Mr. Stoner, architect.

Lawrence and Son	£1,384
J. and C. Rigby	1,320
Lucas, Brothers	1,349
Gammon	1,333

For a mansion to be built for Mr. C. de Murrieta Mr. S. Smirke, architect. Quantities furnished by Messrs Raggel and Wright:—

Haward and Nixon	£6,270
Lee and Son	6,112
Baker	5,967
Jay	5,890
Lawrance	5,772
Holland	5,619
Grimsdell	5,467
Lucas, Brothers	5,200

For a mansion for Mr. Au. De Arroyave. Mr. S. Smirke, architect. Quantities furnished by Messrs. Raggel and Wright:—

Lee and Son	£5,055
Haward and Nixon	4,964
Baker	4,924
Jay	4,874
Lawrance	4,736
Holland	4,597
Grimsdell	4,450
Lucas, Brothers	4,280

For the Norwich Diocesan Training School for Females. Mr. John Brown, architect. Quantities furnished by Mr. J. Roberts:—

Messrs. Cattermall	£1,280
Stannard	1,275
Adkins	1,260
Worman	1,248
Minns	1,235
Lucas, Brothers	1,220

For the erection of the Upton-on-Severn Bridge:—

Gordon and Bond, London	£3,669
Guest, Gloucester	6,760
Smith, Stourbridge	5,979
Rigby, London	5,442
Nowell, Birmingham (accepted)	4,650

The quantities were furnished by the engineer, Mr. Giles.

For villa residence, to be erected at Norwood, Surrey, for Mr. Frederick Coulson. Mr. Alfred Cook, architect:—

Messrs. Friend	£1,250
Barrett	1,147
Messrs. Coleman	1,090

For erecting the new Vestry-hall, Lambeth. Messrs. Willshire and Parris, architects:—

H. W. Cooper	£4,728
Haynes and Co.	4,535
T. D Carter	4,500
J. Ashley	4,503
J. Harding	4,387
M. W. Hovington	4,208
J. F. Faithfull	4,115
W. Reeding	4,023
Wm. Higgs	3,987

TO CORRESPONDENTS.

Blinds to Greenhouses.—A subscriber asks for "the best method for fixing outside blinds to greenhouses, so as to work easily and simply."

"C. M. P." "Old Subscriber" (under our mark), "J. C." "S." (has a wrong impression of the accident in question. Fear of offending never prevents us from doing what is really our duty), "C. F. D." (thanks. All right again), "H. C." (evidently an error), "G. & D." "Mr. B." "H. R." "Ignoramus" (the requirements in a town-hall vary with localities), "W. & P." "T. J. G." "St. Martin's," "A. C." "W. H." "J. W. B." "C. L." "H. A." "Subscriber," Carmarthen (stamps and order were not received), "J. F. E." (we have no further information).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

LIGHTNING CONDUCTORS.
R. S. NEWALL and Co.'s PATENT COPPER ROPE,
3 8ths diameter, 7½s per 100 feet.
Office, 130, Strand, London.
Manuf actory, Gateshead-on-Tyne.

AUSTIN'S IMPERIAL
PATENT SASH and BLIND LINE,
can be obtained of all
FACTORS AND WHOLESALE HOUSES IN
TOWN OR COUNTRY.

NOTICE IS HEREBY GIVEN, that a GENERAL QUARTERLY MEETING of Members of the INSTITUTION of BUILDERS' FOREMEN and CLERKS of WORKS will take place on WEDNESDAY EVENING next, at the Bay Tree Tavern, 88, Swithin's-lane, for the purpose of electing a Board of Directors of the Provident Fund, Officers of the Institution, and other general business.

THERE is a VACANCY in an Architect's Office for an IMPROVER, who will have the advantage of occasionally superintending works in progress.—Address, stating particulars, Messrs. AICKIN and CAPRO, 3, Furnival's-inn.

TO PARENTS AND GUARDIANS.
AN ARCHITECT and ENGINEER, in a large Town in the West of England, has a VACANCY in his Office for a PUPIL to be articled for a term of three or five years.—Premium, 100l.—Address BETA, Hayward's Library, Bath.

A FIRM conducting an old-established business in London, comprising a branch of the building trade, REQUIRES the SERVICES of a GENTLEMAN competent to undertake GENERAL MANAGEMENT and superintendence. It is desirable that he should be acquainted with the general duties of a builder's office, be conversant with the bookkeeping and accounts, the keeping men's time, payment of wages, the general management of workmen, &c. Security and first rate references are required. Apply by letter to W. W. Messrs. ROBINS, 35, Tooley-street, Southwark

BUILDER'S FOREMAN.—WANTED, immediately, SEVERAL FIRST-RATE PRACTICAL MEN, who have been accustomed to the management of large work. Address, pre-paid, B. V. Mr. Williams, Stationer, 29, Moorgate-street, City.

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WANTED, to APPRENTICE, in-doors, a respectable Youth, 14 years of age, to a CARPENTER and JOINER. A liberal premium will be given.—Apply by letter to Mr. W. PATIENCE, 17, Great Bath-street, Clerkenwell.

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WANTED immediately, in the Office of an Architect, ONE or TWO competent ASSISTANTS.—Apply by letter (post-paid) to C. E. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, by an Architect in London, the OCCASIONAL ASSISTANCE of a thoroughly qualified person to prepare working and detailed drawings.—Address (post-paid) A. B. C. Office of "The Builder," 1, York-street, Covent-garden.—None need apply who cannot have a testimonial of efficiency from parties by whom they have been engaged.

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WANTED, by a Young Man, age 30, a RE-ENGAGEMENT as GENERAL FOREMAN; by trade a Joiner; perfectly understands making out working drawings, &c.—Address H. R. 68, Charrington-street, St. Pancras.

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A YOUNG MAN, having recently completed his articles, is desirous of an ENGAGEMENT in an Architect's office. He understands perspective, and the general routine of the office.—Address T. G. B. No 9, Post-office, Stourport, Worcestershire.

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AN ASSISTANT, who has been engaged in the profession for the last five years is desirous of EMPLOYMENT in the Office of an Architect or Surveyor. References unexceptionable. Terms moderate.—Address N. U., Cresswell's Library, 121, Crawford-street, Marylebone.

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The FIFTH BONUS was declared in January last, and the amount varied with the different ages, from 24l to 53 per cent. on the premiums paid, during the last five years; or from 1l. to 2l. 10s. per cent per annum on the sums assured.
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Extract from the Table of Premiums for insuring 100l

Age next birthday	A MALE.	A FEMALE.	Age next birthday	A MALE.	A FEMALE.
	Whole Life Premiums.			Whole Life Premiums.	
	£ s. d	£ s. d		£ s. d	£ s. d
16	1 7 8	1 8 4	46	3 11 6	3 3 2
18	1 9 4	1 9 7	50	4 1 9	3 11 7
16	1 11 4	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
24	1 17 0	1 13 8	60	6 6 0	5 13 6
26	2 0 8	1 16 2	63	7 1 0	6 9 6
30	2 5 4	1 18 8	66	8 4 0	7 10 8
33	2 9 0	2 1 0	70	10 0 4	9 7 6
35	2 11 0	2 6 4	73	11 19 2	11 2 6
43	2 19 0	2 12 0	76		13 1 0
43	3 5 4	2 17 2	80		15 19 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1000l payable on his decease, for an annual payment of 23l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.
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These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.
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Hubbuck's paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.
As a guard to the painter against the substitution of the inferior paints, each cask is stamped
"HUBBUCK, LONDON, PATENT"
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The powdered White Z 7s 6d also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used in connection with sun-water, sulphureted hydrogen, or any gases, and preserves its original colour, which white lead does not do.
WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's colic, nor paralysis, &c. &c. to which dangerous complaints the workmen and manufacturers who use it are subject, and to which persons who inhabit newly-painted apartments are also liable. Since its introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over any other paint. The public is cautioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.
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2 inch	..	..	..	£3 13 0	¾ inch	.. .. £6 0 0
2½ "	..	..	..	4 5 0	4 "	.. .. 6 10 0
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Fine Pale quick-drying Oak	..	..	..	..	..	..	10s. per imperial gallon.	Fine Pale Carriage..	..	12s. to 14s. per gallon.
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1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for

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It being universally admitted that Glass in Roofs of a permanent character should not be less than one-eighth of an inch thick, weighing two pounds to the foot, Messrs. JAMES HARTLEY and CO. have directed their attention to the manufacture of a description of

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The PATENT ROUGH PLATE is manufactured in sizes expressly for Ridge and Furrow Roofs, giving a span of from 8 to 12 feet, at a price not exceeding weight for weight that of common Crown Glass. Not being transparent, blinds are unnecessary, and when used in fireproof buildings reflects NONTRANSPARENCY and strength render it eminently suitable for the Glazing of Corner stories and Roofs of all kinds; also Factories, Workshops, &c., for which purposes it is supplied in squares of all sizes, from 8 by 6 inches and upwards.

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N.B.—The Patent Rough Plate is supplied at a much lower cost than the common Rough Plate.—May 1, 1851.

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Of three thicknesses, in long lengths: an economical substitute for lead lights. The attention of Architects, Builders, and others is particularly requested to this beautiful article; samples of which may be seen at

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NEW PATENT SHEET GLASS, sold in cases, containing 25 sheets, 42 inches long by 26 inches wide—300 feet, at 2l. 9s. per case, net cash. Especial attention is directed to the size, 42 by 26 inches, containing 12 superficial feet, and weighing about 16 oz. to the foot, which is the largest ever made.

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TO BUILDERS, PLUMBERS, &c.

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E. and W. H. JACKSON beg to call the attention of Builders and the Trade to the LOW PRICES of their PATENT PLATE GLASS, BRITISH PLATE, silvered and for glazing, of unrivalled quality and finish; ROUGH PLATE, CROWN, SHEET, COLOURED, and ORNAMENTAL GLASS, in every variety of the best manufacture, at the lowest terms. Designs and estimates furnished for ornamental windows either for house or church decoration. All applications for estimates and lists of prices to be made at their warehouse, 315, OXFORD-STREET.

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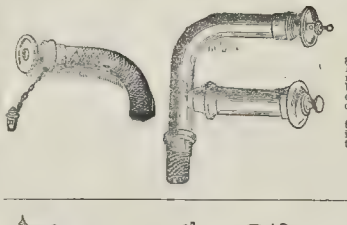
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SEVERAL large size SILVERED PLATES TO BE SOLD, at extremely low prices; sizes, viz. 133 by 80, 144 by 67, 168 by 70, 84 by 76, 93 by 66, which are all warranted of the finest quality. C. A. NOSOTTI would submit estimates for looking-glasses, in gilt frames and cornices, which could not fail to induce him orders at his extensive Manufactory and Show Rooms, 398, 399, Oxford-street.

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THOMAS ENGELBACK, Glass Bender, No. 10, Thrawl-street, Brick-lane, Spitalfields, begs to inform them that he has built a very large Furnace for Bending Glass, and can undertake to bend any size glass up to 12 feet long, by 7 feet wide, at low prices.

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IMPROVED TELEKOUPHONON

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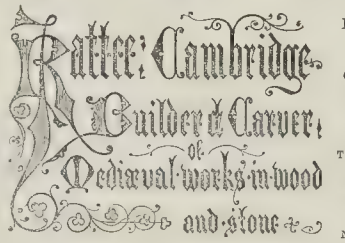
By means of this invention speaking-pipes may be rendered more generally available for Public Buildings, Club Houses, Noblemen's Mansions, City Warehouses, Offices, &c. &c. It consists of a whistle-mouthpiece of ivory, wood, or metal, with an indicator attached, by means of which, in case of two or more speaking-tubes being carried into one room, the mouthpiece from which a whistle proceeds is readily ascertained.

The newly-registered invention also embraces a plan (as shown in the right hand figure annexed) to supersede the necessity of blowing into a speaking-pipe when the whistle at the further end is required to be sounded.

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PROPER STYLE AND CHARACTER

(suited to the period of the design), and to introduce

THE TRUE SPIRIT AND FEELING OF ANCIENT WORKS,

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ESTIMATES WILL BE GIVEN AT THE SHORTEST NOTICE.

N.B.—TWO OR THREE GOOD WOOD CARVERS WANTED

LOANS.—Persons desirous of obtaining ADVANCES from 5l. to 200l. upon approved personal security, repayable by easy instalments, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3l. per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100l. is to bear interest after the rate of 3l. per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary Information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.

By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanized India Rubber Tubing, which is now manufactured from 1-8 inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.

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N.B. VULCANIZED WASHERS and SHEET RUBBER or Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

STEPHENS'S ORIGINAL DYES, for STAINING COMMON DEAL to imitate OAK, MAHOGANY, or SATINWOOD colours. For specimens of the effects of these Dyes the public are referred to the WOODWORK of the GREAT EXHIBITION, and particularly the ENTRANCE DOORS, which were coloured with the stains invented and manufactured by HENRY STEPHENS, of 54, Stamford-street, Blackfriars-road, who supplied to the workmen both stain and varnish, and who was the first person to introduce and call the attention of the public to this means of colouring wood, so as to bring forth the ornamental effect of the natural grain and thus save the expense of artificial imitation.—Prepared and sold by HENRY STEPHENS, 54, Stamford-street, Blackfriars-road.

The Builder.

No. CCCCXCIV.

SATURDAY, JULY 24, 1852.

THOSE who know Ireland only through the London newspapers, have a very different notion of the country from the right one. The most effective step that can be taken to interest the English in the prosperity of the sister-country is to lead them to visit it. They may be assured of finding everywhere pleasant looks, kindness, and attention. The means of transit are excellent, the roads good, and the objects of interest numerous. Up to this time the visitors from England have been comparatively few; but juster notions are spreading, the facilities are increased, and the visitors increasing.

Finer natural scenery is not to be found than many parts of Ireland present; and those of our readers who view with more pleasure the remains of earlier times,—the cromlech, the chambered mound, the sculptured cross, the ruined church,—will find here no want of objects for examination. You may breakfast in London, and be in Dublin by half-past ten the same night; and those who are now organising the traffic expect to shorten this an hour and a half before long.

On Friday morning we were in London, and on Saturday morning were pelting along on an "outside car" in Wicklow county, through some of the finest and most striking scenery that eye ever rested on. At starting, we fell on the Shanganagh Cromlech, close to Dublin, the covering stone of which is about 9 feet long, and 7 feet broad.

The division of the land into small holdings gives wonderful richness to the view when you gaze down into the valleys from the mountain side. We are not about to write a "guide," or we should have to tell of the Dargle, with its woods and water; the Powerscourt demesne; the Waterfall; and Sir Philip Frampton's Cottage by the side of Lough Bray. We should mention, too, Sir George Hodson's residence, a house of some importance, in the Tudor style, built of enduring granite, from the designs of the late Mr. W. V. Morrison. It is beautifully placed, and the grounds are charming, but its completeness is marred by the introduction of classic vases. The view from the Sugar Loaf mountain, as we passed over it, was very fine: the surrounding hills were covered with deep shadows, showing nevertheless bright patches here and there: the clouds were kissing the tops, and would then sweep off and leave the outline sharp against the blue sky behind. Through what is known as the Scalp, a sharp cleft in the mountains, you get a view of Dublin county also. Our destination when we took this road was the wild valley of Glendalough and the ruins of the Seven Churches, which no tourist, whether antiquary, architect, or simply lover of the beautiful should miss. The structures are very early in date. One of these, known as St. Kevin's Kitchen, has a portion of a Round Tower springing from the roof.

We will be a little more precise hereafter, for, in truth, the place deserves it. It is full of story; and there is an eccentric wild guide, one George Winder, who boasts of his intimacy with Mrs. Hall, "Master Tommy Moore," Lord John, and the Wise Men, meaning the members of the British Association. He reproached some begging-girls for "going after us, instead of after Christian docthrine or the catechism," and mixed up with some useful information strange stories of Cyclops, giants, the Egyptians, and the lake o'er which the lark never sings. There are some notices of the ruins in Mr. Wakeman's very useful "Handbook of Irish Antiquities," published by Mr. M'Glashan, to whom literature in Ireland is much indebted. "The Beauties of the Boyne," also published by him, we shall have another opportunity to mention. The book you see in most hands just now is Mr. Roney's "Hand Book," which contains a large amount of information pleasantly conveyed. In a succeeding edition it will be advisable to amplify the accounts of architectural antiquities. It will be needed, at all events, for the influx of visitors to the proposed Great Exhibition next year, the arrangements for which are making progress. Premiums have been offered for designs for the building to be sent in by the last day of this month, and though not advertised in the London papers,—an error on the part of the committee, as it seems to us,—plans would, of course, be received from English architects. It is so desirable to obtain a first-rate building, that we hope the committee will be led to enlarge the time.

One word as to the 26th exhibition of the Royal Hibernian Academy, which is now open, though it is not very remarkable for excellence. It consists of 395 works of art, including a large number of portraits. There are several excellent sketches by J. F. Lewis; Mulready's picture, "Train up a child in the way he should go;" a painting from Don Quixote (105), by the late Arthur Joy; and a clever female portrait, by Cregan (125). The architectural works are few in number, and poor in character. Mr. Mulvany, being a member of the Academy, should have set a good example, by sending a better drawing of his terminus of the Midland Great Western Railway. Amongst the sculpture are a few good busts, and a statue of the late Sir M. O'Loghlin, by Christopher Moore. It is to be regretted that Dublin has no public collection of paintings, or as we should rather say, it is to be desired that steps should forthwith be taken to found a gallery.

Next week we will look a little farther.

ON THE DECORATION SUITABLE TO ST. PAUL'S.

REFERENCE was made in a communication last week to the discussion of this subject, and it may be useful to record some of the observations that were made. A report by Mr. Cockerell in 1849, based on the recorded intentions of Sir C. Wren, respecting the decorations of this noble pile, was read.*

Mr. Cockerell's recommendations were,—"First, to restore the painting and gilding of the dome and parts adjacent thereto, as part and parcel of that magnificence designed and directed by Sir C. Wren himself; as, however different in style from that at present approved, it is highly decorative and appropriate to the architecture, and is too far removed from the eye to challenge minute criticism. Secondly, to carry out the gilding and painting of the symbols and ornaments of the choir, as already commenced at the communion end, together with all the becoming ornaments to the gates, the pulpit, the stalls, the organ, the communion rail and table, &c. Thirdly, to reglaze the whole of the twenty-three lower windows on the floor of the Cathedral with Scripture subjects in coloured glass, offering, as this occasion would, the first grand opportunity, since the Reformation, of illustrating the unadulterated word of God in spirit and in truth, and uncontaminated by the apocryphal and superstitious representations, which occupied this noble art under the Papistic doctrines and direction.

Such a mode of decoration is at once the most conformable to Christian and ancient associations, and the most economical that could be devised, at the same time that it is the most splendid, since, as the vehicle of light, it transmits all that effect and lustre to the interior which mural decoration fails to effect in the same degree, and which, in fact, it supersedes."

Mr. Penrose said, the first thing which he had to inform them was, that the restoration of Sir James Thornhill's cupola had taken a very definite shape. He was authorised to state that it had become a practical question with the Dean and Chapter, and no pains would be spared on their part to get the whole of the cupola and the drum effectually restored. Mr. Penrose stated, in continuation, that the restoration of the cupola in chiaro-scuro, with a very large amount of gilding, must be taken as the starting point for other decorations of the cathedral. He thought, therefore, that surface painting in colours would be out of place, with the exception of the windows, which should be of stained glass. Where the walls of a building and the windows were alike highly coloured, there was a want of harmony. In the most highly coloured Italian buildings not much light was admitted, and that almost always through comparatively pure glass. Where coloured glass was employed, natural colours, or natural materials, were used on the walls, so that they never had the glaring or prominent effect of surface colouring. The apse was already ornamented with a sufficient or satisfactory amount of gilding; but a certain amount of chiaro-scuro decoration was wanted (as in the cupola) to bear out that gilding. He pointed out the architectural features of the vaulting, consisting of three small cupolas with their spandrels, separated by a magnificent guilloche. If the depths of the latter were increased by a little chiaro-scuro, and a great deal of gilding, that, he thought, would be sufficient for it. The spandrels were evidently intended by Wren for some coloured decorations, and they furnished admirable situations for the introduction of single figures or small groups. In the small cupolas, however, figures would be objectionable, and therefore these surfaces would be better ornamented architecturally with painted coffers, slightly differing in shape from the actual coffers to the eastward, but brought into harmony with them. The spandrels of the main arches of the choir were admirably adapted for painting in monochrome. It might be fitting to insert coloured porphyries or marbles into the panels beneath the windows, or even to paint them,—as the pilasters in the apse were already most effectively painted in imitation of lapis lazuli. He had not yet considered the decoration of the aisles, his object being merely, by these observations, to elicit the opinions of members.

* *Parentalia*, p. 291.—"The twenty-four cupolas of St. Paul's are formed of brick with stone wreaths, the brick invested *with cockle-shell lime*, which becomes as hard as Portland stone, and which having large planes between the stone ribs, are capable of further ornaments of painting if required." *Parentalia*, p. 292.—"The judgment of the surveyor was originally, instead of painting in the manner it is now performed, to have beautified the inside of the cupola with the more durable ornament *of mosaic work*, as is nobly executed in St. Peter's, at Rome, which strikes the eye of the beholder with the most magnificent and splendid appearance, and which, without the least decay of colours, is as lasting as marble, or the building itself," &c. *Parentalia*, p. 292.—"The painting and gilding of the architecture at the east end of the church over the communion table was intended only to serve the present occasion, till such time as materials could have been procured for a magnificent design of an altar-piece, consisting of four pillars, wreathed of the richest Greek marbles, &c. for which the respective drawings and a model were prepared. Information and particular description of certain blocks of marble were once sent to the Right Rev. Dr. Compton, bishop of London, &c. but unluckily the colours and scantlings did not answer the purpose," &c.

Mr. Jennings was disposed to object to the use of stained glass at all in St. Paul's Cathedral. As a general principle, colour had a tendency to decrease the effect of size in a building. Possibly, however, by the introduction of paintings in the panels, which, by the distance at which they were seen, would give an apparent increase of size, the decreased effect of size necessarily caused by the use of colour might be remedied. If colour were at all introduced, stained glass could not be effectively employed. As he had before observed, he thought the removal of the organ and organ-screen further westward was essential. He objected to the dark colour of the pilasters at the east end of the choir. Perhaps the effect of size would be greater if all the pilasters throughout were to be of white or veined marble.

Archdeacon Hale said he would commence with the dome,—the restoration of which there was now every prospect of being accomplished. He believed, until that should be done, no person would be thoroughly able to judge what ought to be done to the rest of the building. Many years ago Mr. Cockerell had lent him an old book, in which that dome, now so dirty and dingy, was described as so splendid in appearance, from the quantity of gold that shone upon its walls, that it was compared with the aurora borealis in splendour and brilliancy. When, therefore, the restoration of the dome had taken place, those who undertook the decoration of the remainder of the edifice, instead of having to contend with a dark and gloomy recess, would find that part of the building come forward with the greatest brilliancy, and it would be necessary to decorate the rest of the edifice very highly to accord with it. He was sorry to say he differed, *toto cælo*, from his friends Mr. Cockerell and Mr. Penrose, on the question of painted glass. On that subject he had some experience, having worked with his friend Mr. Winston, and devoted much consideration to the effects produced by that branch of art, and to its present condition. One of his objections to that mode of decoration was, that he believed we had yet to see the art of staining glass fall into hands much higher in the scale of art than any that had yet exercised it. When the pigments which the ancients possessed should be discovered, and when the artist could work his colours on glass with the same facility as oil and water colours now flowed from his pencil, so that the highest artists would not consider it beneath them to practise it,—then, and not till then, would be the time to introduce stained glass in the windows of such a cathedral as St. Paul's. Moreover, he was of opinion that when stained glass was employed, it became the sole and absorbing point, and attracted people from picture to picture in the windows, to the disregard of the architectural beauties and the form and majesty of the building. From a set of four designs by Sir James Thornhill, preserved in the cathedral (representing the four Evangelists), it was evident that he had intended the building to be adorned with figures. The whole of the church was panelled, and apparently expressly for paintings. He had no doubt it was Wren's intention that every part of the church should be painted; some parts, at a distance, with pictures which might exercise the skill of a subordinate class of artists, and others, close to the eye, with beautiful cabinet pictures, the minute beauty and perfection of which might be contemplated at leisure. He had long desired, and expressed a desire, to have that design carried out; and he had been laughed at for the notion. To the late Bishop of Llandaff and the Rev. Canon Tyler he had expressed the conviction that he should live to see St. Paul's painted from one end to the other; but they had laughed him to scorn. He had even sketched the general design of such an undertaking. He would have in every panel a picture of the highest class of art which could be produced; and so treated as to give no offence to the feelings of those who feared lest superstition should creep into the church by the mere use of pictures. He had thought that the Cathedral might, in fact, be made a great pictorial Bible. Near the entrance should be delineated the early parts of Scripture history; at the transepts, the middle portion, and in the choir and aisles, subjects from the New Testament. Before the admission fee had been got rid of he had said, "Paint the Cathedral so, and Joseph Hume shall have his way, and people shall come in from morning till night, to read and study these beautiful pictures." He would fill the church with pure historical Scripture subjects, with the texts they illustrated in letters of gold beneath them. The beautiful cupola at the west end of the nave was admirably adapted for a painting of the Deluge, typifying the church itself as the ark in which God enclosed his flock; and the prophetic types of the events shown in pictures in the choir might be represented in corresponding pictures from the Old Testament in the nave. With the effect of the cathedral painted in this way he thought the light transmitted through painted glass would seriously interfere. The decoration of the architectural members and details of the building he must leave to the artist. Descending to the floor, he expressed what might be thought a heterodox opinion; namely, that the floor could never be rightly decorated till the monuments of sculpture now placed in the cathedral were removed. He admired them as works of art, but heroes and heathen subjects (with thanks to man for conquest, without in one instance any acknowledgment to God for victory) were unsuited to a Christian temple. They well suited the taste of the last century, but he hoped the day would come when they might be removed to a Walhalla, where the country might more appropriately do honour to its heroes. In the boldness of his views on this subject, he (Archdeacon Hale) had asserted that for 20,000*l. down*, the whole decoration of St. Paul's, in the manner he had proposed, might be accomplished. It would be remembered that there were eighteen compartments to decorate, which, to be done with due care and consideration, so as not to involve subsequent regret, would occupy something more than eighteen years. At the time he made that assertion 20,000*l.* Consols would have produced 600*l.* a year. For 600*l.* the scaffolding to enable an artist to paint one compartment could be made. Artists should be solicited to submit cartoons and suggestions for the decorations of the parts, and if 600*l.* were given to them in prizes, that 600*l.* might be received again, and remain in hand, from the exhibition of these cartoons. Having that 600*l.* he conceived there were many artists who would be willing to draw lots for the commission to paint the first compartment for that sum. The first successful effort would excite the public zeal: subscriptions would flow in: a duke, or a distinguished lady, or the dean and chapter, would defray the cost of other compartments; and they would soon be so much pressed with the means of carrying out the work, that the only care requisite would be not to go on with it too rapidly or carelessely.

Mr. G. Foggo rejoiced to hear the great difficulty overcome of illustrating our great Protestant cathedral by pictorial representations. The plan suggested by Archdeacon Hale was both rational, religious, and practical. He (Mr. Foggo) was glad that Mr. Parris had been consulted, and was likely to be considered in this great work, for which his profound knowledge of perspective especially fitted him. If the magnificent idea of Archdeacon Hale were to be carried out, it would be essential that the monuments in the cathedral should be removed, but he feared it might take some time to reconcile the public mind to such a measure.

Mr. Garling, jun. thought the curved surface of the dome was not well adapted for historical paintings, especially at such a distance from the eye, where the figures must be of such a size (if they were to be visible at all) as very much to reduce the apparent size of the building. The human figure was the scale by which the size of other objects was most readily estimated, and nothing tended more to diminish them than any exaggeration in the proportions of the human form. From what Mr. Penrose had said, it appeared that he considered the small domes should be painted in coffers in chiaro-scuro; but he thought that a very inappropriate mode of decoration, if only because it was a deception.

Mr. J. W. Papworth considered that the first duty of an artist, when such an immense mass of building came under his hands for decoration, was to decide what was the general effect to be produced; and he therefore wished to ask whether anything had yet suggested itself to Mr. Penrose as to the general effect, or the general key of colour, in this instance. The effect might be either splendour, immensity, or majesty; and this would depend upon the general key of colour to be adopted; which in its turn would at once regulate all the minor details of the decoration. If the key was to be chiaro-scuro, there was nothing to prevent the building being as gloomy and miserable as at present. No amount of gilding could possibly relieve the general brown tints so produced. In settling the general key of colour it was necessary to decide whether the idea of vastness, or grandeur, or majesty, should predominate; those being the only three sentiments to be considered in such a building; and in following the question out it should be considered whether historical pictures (not decorative painting) and stained glass, would accord with these ideas. Many gentlemen would probably agree with him that a temple, such as St. Paul's Cathedral, should not be a mere exhibition gallery of pictures. He thought the whole question turned upon whether the decoration of the dome really was a fixed matter, because if so, the opinion of the members of the Institute was quite unnecessary, that point involving both the key of colour and the question of the introduction of historical decorative pictures.

Mr. E. T. Parris agreed with Mr. Papworth that a monotonous tone of colour throughout would produce a very melancholy and dismal effect; but as in a piece of music, though set in a given key, a discord was occasionally allowed, so it might be in painting. He thought Wren's idea must have been white and gold; and that the general idea in his mind was that of form and line,—outline combining form throughout,—not internally alone, but externally. There was not a line in the building, internally or externally, which was not artistically beautiful. Everything was strongly marked by a bold outline. Of course there could be no idea of converting St. Paul's into a picture-gallery, even if it were filled with pictures and stained glass. In considering the restoration of the dome, it was necessary to have regard to the views of Sir James Thornhill, and to his other works. The ceiling of Whitehall Chapel was executed about the year 1630, and was imitated by French artists at the Louvre, Versailles, &c. Le Brun and his pupils became immensely popular, and Verrio, Laguerre, and Delafosse, executed many painted ceilings in England. Wren, who was familiar with these works, might possibly have been so far biassed by the prevailing fashion as to have even contemplated the small cupolas at St. Paul's being painted in that style. Thornhill imitated Delafosse and Verrio in all his other works, and in the dome of St. Paul's he was probably only restrained by the architect. The chiaro-scuro there employed was not a mere imitation of bas-relief, but was far more effective. A great deal of it might be called architectural ornamentation, intended to assist the architecture by a cheap painted imitation. This part of the work was admirably executed. Because Thornhill was restricted from the use of colours in the dome, it did not follow that they were equally to be excluded in other parts. Many passages in the "Parentalia" showed that Wren intended to employ colour, but of course he would not use it in the dome, where it could not be seen to advantage. Thornhill's predilections would have led him to use colour in imitation of the domes abroad. With respect to stained glass, he (Mr. Parris) thought Sir C. Wren fully intended to have stained glass in the windows—not painted glass, but pot metal—the effect of which in the dome would be exceedingly beautiful. Whilst it would not obstruct the light, it would obscure it a little, and lower the

cutting rays which now strike across the dome and interfere with the effect of the paintings. In the lower part of the building colour was certainly contemplated originally. A mosaic pavement was proposed, and no architect would use such a pavement without stained glass in the windows. The art of painting on glass he thought would not succeed in this or any other country—not for want of talent, or of peculiar pigments—(for our knowledge of the effects of the juxta-position of colours was most complete), but from the mistaken notion of producing a picture as on canvas. The works of West and Jarvis were total failures; but in the ancient stained glass, the effect was produced by figures in the most brilliant and positive colours, cut out with a hard outline in lead, on the same principle as the paintings on the Etruscan vases. He thought an excellent effect might be produced by the use of pot metals. He noticed, in conclusion, the existing prejudice against painting in churches, especially if assuming a mediæval character, a prejudice which it would take fifty years more to obliterate. His own ambition led him only to a comparatively insignificant portion of the decoration of St. Paul's,—namely, the mere restoration of the dome as an antiquary: the remainder of the works he wished to see accomplished by the very best artists in the kingdom.

The Chairman, in reply to Mr. Parris, said, that he would carry out every part of the building at all remote from the eye structurally and architecturally, and only in form, and light and shade; but in the panels nearer the ground, and wherever the parts approached near the eye, he would have colour, because these parts could be looked at separately; and he would also have stained glass. He thought if colour were admitted in the dome it would entirely destroy its effect. St. Paul's was totally different from St. Peter's. The latter was prepared to be cut up into a number of splendid parts, which, notwithstanding their real magnitude, appeared actually small; and in that building there was a balance of colour and enrichment throughout. The large and ponderous masses of St. Paul's were not prepared for colour, and if it were to be employed in the dome, it would render it an isolated canopy, and the harmony of the whole building would be destroyed.

Mr. G. G. Scott observed, that a question seemed to be raised as to whether coloured decorations and stained glass should be admitted in the same building; and he was strongly impressed with the fact that they did not militate against each other; even when richly painted glass was used. He had found in practice that richly decorated interiors, without stained glass windows, were crude and almost offensive to the eye; and as by degrees the light was toned down by filling the windows with stained glass, the decorations on the wall became first sufferable, then pleasing, and, when the last window was filled in, delightful. He was inclined to think the case would not be very different where the decorations consisted of pictures. The chapel of Giotto, at Padua, now appeared crude in its colouring, the windows being of plain glass; but it was evident on examining the cuspings at the top that there had been originally stained glass of a very rich description. In the church of Sta. Croce, at Florence, every part of the wall was covered with the finest frescoes of the school of Giotto's followers; all the windows were filled with stained glass, of the richest and deepest colours; and he had not the slightest recollection of any one of the subjects of the frescoes being obscured in any degree from their being so lighted. The great artists of these works could not therefore have supposed that coloured glass would spoil the effect of them. The greater intensity of light in Italy would be met by larger and more numerous windows in this country. In objecting to painted glass, he presumed Mr. Parris and Archdeacon Hale to mean enamelled painted glass. He did not think glass was at all a material on which an artist should desire to paint as freely or in the same manner as he could on canvas. Enamel glass painting, therefore, however adapted to a drawing-room, would be quite out of place in a church or other large building, where it would probably injure the effect of frescoes or pictures; but the ordinary system of glass painting, as practised from the twelfth to the sixteenth centuries (pot metal glass with a moderate amount of black shading), would not be at all open to that objection. In Mr. Winston's recent paper on coloured glass, the windows of the Church of St. Gudule at Brussels had been mentioned. They were certainly wonderfully beautiful, but the windows of St. Paul's should be founded upon the earlier specimens of the art. He should not think of introducing a direct imitation of mediæval glass into a Palladian building, but it was not necessary to resort to an inferior principle because it happened to be coincident with the period of the structure. What he should like to see would be stained glass of the best principle (that of the earlier or middle period of the range he had referred to), with the very finest art, and the best drawing in the figures, and with such ornaments as should coincide with the general character of the building. In saying that the finest art should be displayed in the windows of St. Paul's, he did not mean that our best painters should execute them as if they were working on an easel picture, because the first principle in such works was that of outline with very little shading. Conceding that the restoration of the dome was the point from which to work, it did not follow that all the decorations should be in monochrome, as that was. The result in that case would be dull and heavy. On the other hand the rich colours of the late Italian works would neither suit the feelings nor the climate of this country; but a considerable amount of colour might be fairly introduced. He thought the practice of representing by colour forms which might have been produced in masonry, was highly objectionable; and therefore he differed from Mr. Penrose as to the propriety of painting the small domes in coffers. If Wren had wished them coffered he would have coffered them; and to paint them so now would be an attempt to supply a deficiency in his architecture. In painting the different surfaces, modes adopted should vary according to the duties each part had to perform constructively; as, the lower panels, the vaulted ceilings, and the pendentives. In the cupolas any representation of figures should be almost entirely in line, so as not to disturb the natural form of the dome, as was the case in St. Mark's at Venice. If the money could be obtained for it, mosaic was certainly the proper material both for the domes and the pendentives. Wren meant to have mosaics; and it should be done now if possible. The conception of Archdeacon Hale was the finest that could be imagined, and ought to be the key note of everything that was done, but it did not militate against the use of stained glass, with which, on the contrary, it might be brought into perfect unison.

AMERICAN ARCHITECTURE.

Gore Hall, Harvard College, Cambridge.—The books of Harvard College, comprising about 80,000 volumes, are kept in Gore Hall, a Gothic edifice built in 1841, for the exclusive accommodation of this library. A description of this hall is given in *Norton's Literary Gazette*, from which we glean the following particulars. The style is that of the fourteenth century; but the hard sienite or Quincy granite used in its construction made it necessary to omit elaborate ornaments. It is in the form of a Latin cross; the length of the body being 140 feet, and across the transepts, 81½ feet. The main entrances are flanked by octagonal towers, 83 feet high, surmounted by lofty mitred pinnacles, described as somewhat like those of King's College Chapel, at Cambridge, England. The outer walls are of rough stone, laid in regular courses, with hammered stone buttresses, towers, pinnacles, and drip-stones. The inner walls and columns are of brick, stuccoed. The main floor is also of brick, resting on brick arches, filled above to a level, and covered with hard pine boards. The roof and gallery are supported by wrought-iron rafters, and the partitions are strengthened by concealed iron columns. The interior of the body of the building forms a hall, 112 feet long and 35 feet high, with a vaulted and ribbed ceiling, springing from two ranges of ribbed columns. The spaces between the columns are divided by partitions into stalls or alcoves for books, having a light gallery above, protected by an ornamented iron balustrade. One of the transepts is used as a reading-room: the other is divided into three apartments for books. Great caution was used to guard against injury by fire, and the hall is heated by steam. A self-acting contrivance regulates the draft, so as to check or increase the generation of steam.

The Private Residences of New York.—An account of a number of new buildings now going up in the city of New York, chiefly for private residences, is given in the *New York Herald*. Most of them that journal represents as of magnificent and beautiful styles of architecture. Among the private residences is one estimated to cost 40,000 dollars; another 35,000 dollars; and a number costing from slightly beneath 40,000 dollars to 20,000 dollars each. Forty-two of these mansions will cost an aggregate of 1,170,000 dollars, averaging 27,000 dollars each. One firm of two partners is building seven that are to cost 270,000 dollars (nearly 39,000 dollars a piece), which, when completed, it adds, might almost be styled a row of palaces.

An American Architect.—The *Boston Traveller*, of 29th ult. gives a short memoir of Captain A. Parris, who died on 16th ult. aged 72. Previous to the war of 1812, Capt. Parris was well known as an architect in Boston, and during its continuance, he volunteered in the service, holding the rank of superintendent of artificers, with the title of captain, in which capacity he served at Plattsburgh, and elsewhere on the Lakes. His profession was resumed at the close of the war; for many years after which time a large proportion of the architectural engineering in the town and city of Boston was undertaken by him. "In fact," says *The Traveller*, "to no other person do so large a number of the imposing and substantial edifices which characterise our city, owe their distinctive merits. The Massachusetts General Hospital, Dr. Young's, St. Paul's, Dr. Barrett's, and other churches, Quincy Market, with its stores on North and South Market streets, both the Court-houses, many if not most of the edifices built on Beacon, Tremont, and Summer streets about this period," are specified as amongst the numerous structures designed by Mr. Parris. He received the appointment of Superintendent of Charlestown Navy-yard about 1830, being superintendent in the construction of the dry dock, the rope-walk, and other granite edifices in the yard. This office was held until 1843 or 1844, since which he had been stationed at Portsmouth, in a similar capacity. Many of the lighthouses on the northern and eastern coasts of the States, comprising almost the only permanent erections of the class, it is said, have been built from his plans and under his direction. He was a member of the fraternity of Masons, and participated in the ceremonies at the laying of the corner-stone of Banker-hill Monument as the master mason in laying the stone. Several of the engineers and architects of Boston were formerly his pupils: Messrs. G. I. F. Bryant, Chas. Hastings, Calvin Brown, Luther Briggs, jun. and Robert Briggs, jun. are named as amongst the number.

SIR JAMES MACADAM, the originator of the modern system of "macadamising" roads, died on Wednesday in week before last, at his residence in Finchley-road, London.

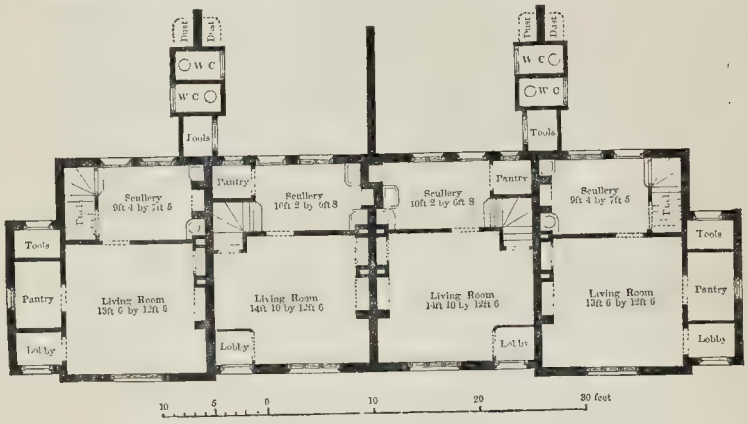
NEW CHURCH AT BLACKHEATH: "LOOK TO YOUR COIN DEPOSITS."—The foundation-stone of this building was laid on Friday in last week by Mr. J. Angerstein, at whose sole expense the building is to be erected. The site chosen is in the lane leading from Myrtle-place, to Blackheath. On Sunday night some scoundrels made an ineffectual attempt to steal the coins deposited beneath the stone! they had removed one or two courses laid above it when they were disturbed.

COTTAGES FOR THE WORKING CLASSES.

PLANS OF THE COTTAGES FOR FOUR FAMILIES.

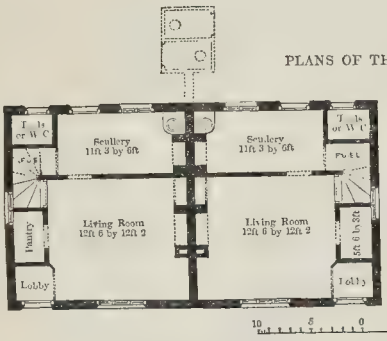


BED-ROOM FLOOR.

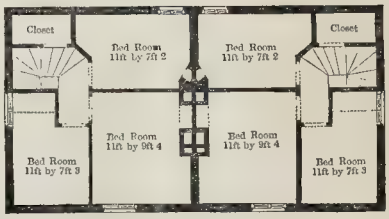


GROUND FLOOR.

PLANS OF THE DOUBLE COTTAGES.

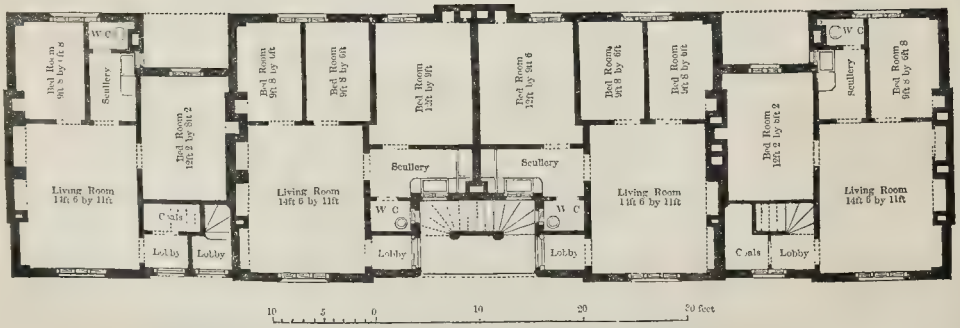


GROUND FLOOR.



FIRST FLOOR.

PLAN OF THE CENTRE BUILDING FOR EIGHT FAMILIES.



FIRST FLOOR. GROUND FLOOR.

DWELLINGS FOR THE WORKING CLASSES.

We here give plans of the houses proposed to be erected by the Windsor Royal Society, recently formed to promote and carry out the improvement of the dwellings of the Working Classes in Windsor. It is constituted on the principle of a joint-stock company, with a capital of 6,000*l.* to be raised in 10*l.* shares, and is empowered to increase the same. The amount of dividend payable to the shareholders is limited to five per cent. leaving any surplus return available for the extension of the Society's operations.

Freehold ground, midway between the Long Walk and the cavalry barracks, containing nearly 1½ acre, has been purchased of the Woods and Forests, for 287*l.* 19s. 3d. including expenses, and laid out for the erection of two rows of houses, opposite one another, to accommodate, together, about forty families, each having a small garden.

A contract for building one-half of these houses has been recently made, amounting to 2,240*l.* which includes concrete foundations, drains, and two tanks.

The houses are in five blocks, the centre block, and the two corner blocks, each combining two plans, and the remaining blocks being alike in plan. There are four tenements on each of these five plans: twelve of them have three, and eight have two bed-rooms.

The centre building, 90 feet in length, contains eight tenements, four on the ground floor and four on the upper floor. The middle compartment is on the plan of H. R. H. Prince Albert's Exhibition Model Houses, somewhat increased in scale: these four tenements have three bed-rooms each. On either side is a house arranged for two families, one above the other, with distinct entrance access, and a fire-proof floor between them: these tenements have two bed-rooms. The next building on either side, 36 feet in length, is a pair of double cottages, with living-room, scullery, pantry, and three bed-rooms upstairs. Each of the two extreme buildings, 70 feet in length, comprises two cottages in the centre, with living-room, scullery, pantry, and two bed-rooms over, whilst the two outer cottages have three bed-rooms over. The whole are to be constructed of hollow bricks, contracted for at 32s. per 1,000, in the field within two miles of the buildings: their size, it is stated, renders this price equivalent to 18s. per 1,000 for common bricks. The contractor is Mr. Bates, of Hertfordshire. Mr. Henry Roberts acts as honorary architect.

ON THE TOPOGRAPHY OF THE ROMAN FORUM AND THE CLIVUS CAPITOLINUS, AND THE NOMENCLATURE OF TEMPLES THEREON.*

The celebrated fane of Saturn, wherever it was, contained the public treasure of the Romans, and a præfect was appointed to the care of it. Ancient rescripts or registers of contracts were also preserved in the Temple of Saturn, and the reason why all these valuable articles were placed under his care was, because, in the golden age of that old god, there was no such crime as theft, and in those primitive times avarice and bad faith were unknown; but besides this treasury, which was considered as the public exchequer, there was also attached to Saturn's Temple a "sanctus ærarium," and the wealth stowed up here was not to be touched except in the greatest emergency. The Germans say they can discover vestiges of a door or opening which led from their Temple of Saturn into this reserved treasury. I recollect using every faculty of sight I could command, but never could I find the traces spoken of, and for reasons I shall shortly give, I must turn Saturn in another direction. However important and decisive may be thought the discoveries made by excavation, they must be adjusted with the passages descriptive of buildings and places which we find in the ancient writers. The poet Statius, contemporary with Domitian, has given us a general view of the Forum as it was in his time. When he describes the famous equestrian statue of Domitian, he names five monuments, which respectively stood in front, in the rear, and on the flanks of this colossal statue, and he turns the horse's head towards the Palatium. The Temple of Julius Cæsar in front he thus describes:

> "Hinc obvia limina pandit
> Qui fessus bellis adscitæ munere prolis
> Primus iter nostris ostendit in æthera divis."

The two basilicæ on each flank, and the two temples of Concord and Vespasian behind the horse, are comprised in the three following verses:—

> "At laterum gressus hinc *Julia tecta* tuentur.
> *Illinc belligeri* sublimis *regia Pauli*.
> Terga *Pater* blandoque videt *Concordia* vultu."

The rest of the passage describes the objects which the Emperor was supposed to see from his seat on the horse, and amongst these objects the *nova Palatia*, which Domitian himself had made, and the Temple of Vesta, are mentioned. In the present state of the Roman Forum this has become one of the most valuable passages which the records of antiquity have preserved: we have nothing to do but place Domitian's horse in some central place between the Palatine and Capitoline Hills, and then take our general survey. The Temple of Julius Cæsar is gone: no one pretends to exhibit a vestige of it—no, not even a Roman architect; but the two temples which saw the horse's tail are remaining on the Clivus Capitolinus. Of the one, Concord, there is no dispute: the temple whose ruin consists in the three angular columns, Jupiter Tonans, has alone the same aspect. The expression, "terga Pater" (Vespasianus), and "Concordia *videt*," alludes to the statues looking out of their respective cellas upon the horse's tail; but unless the cellas had been turned in that direction, this description would not merely have been unpoetical, but false. Now, the temple with the portico of eight columns has its flank behind the statue, and therefore cannot answer to the words, "Terga Pater videt;" but the temple called Jupiter Tonans does answer, and I take this authority to be enough to complete the proof that the temple marked B is rightly named the Temple of Vespasian. It may, however, be still asked, where is the equestrian statue to be placed? This question is answered by the excavations, and is shown thus: On each side of the equestrian statue of Domitian was a basilica. In laying the foundation of the church of S. Adriano, in 1665, a mutilated inscription on a marble pedestal was discovered, in which mention was made of a basilica, and this is generally allowed to point out the site of the "regia Pauli," mentioned by Statius, synonymous with the Basilica Emilia. Taking Statius for our guide, we look at once in the opposite side of the Forum for the Julia tecta; and just in the direction where we ought to look, the steps leading into the supposed Basilica Julia have been discovered in the late excavations: the ground which has been the most effectually laid open is about the Column of Phocas. The specator of the ruins of the Forum, when standing on its present level, is elevated about 20 feet from the base of that honorary column, and he descends by the Clivus and passes under an archway (now made for convenience) to arrive at the ancient level of the Forum. At the width of about 15 feet from the enclosure of Phocas' Column have been discovered the steps just described; and although it might be shown from the authority of classical writers that the Basilica Julia was at least on this side of the Forum now in question, yet there is one stronger proof than all the rest to be adduced. In the spring of 1835, when the first step of the supposed Basilica Julia was brought to light, a fragment of an honorary basement just appeared, and as if it would refuse to give any evidence on a disputed point, fell into the "cloaca" which runs under the steps, and so disappeared. Professor Emeliano Sarti, who kept a constant watch over these excavations, was the only person who observed the fragment with the eye of an antiquary. He communicated the secret to Kellermann, an intelligent antiquary, who immediately aroused the Cavaliere Bunsen to go with diplomatic authority and fetch up the precious relic from the cloaca. It was taken up and scraped and washed, for, like a piece of buttered bread, it had fallen with the inscription side downwards, and when it was set to the light, Kellermann read these letters;—

A
ASILICA
ER. REPARATAE
SET. ADIECIT.

Any one but a determined antiquary might have asked, And what then? But in the Corpus Inscriptionum of Gruter there had been read, for more than two centuries, the following copy of an inscription said to have been found or seen in the Forum; it runs thus:—"Gabinius Vettius Probianus, V.C. Præf. urb. statuam quæ Basilicæ Juliæ a se noviter reparatæ ornamento esset adjecit;" and by comparing the odd letters with the full Gruterian inscription, there was no doubt remaining of the proper way to fill up the lacunæ of the cloaca fragment: this was either the inscription which Gruter had seen and copied in its entire form, or it was a duplicate; for, being on a basement, and making mention of a præfect, who in the year 307 restored the Basilica Julia, it is most probable it would be more than once repeated: however that may be, the inscription, from the position in which it was found, leaves no rational doubt that the Basilica Julia is found, and it speaks much for the ingenuity of Canina that he marked the place, as in No. XVIII. of his plan, before the inscription, which confirmed his conjecture, was brought to light. The Basilica Julia being then found, and the Basilica Emilia being acknowledged to be near the church of S. Adriano, on the east side of the Forum, the equestrian statue of Domitian must be placed between them. But having found these vestiges of the steps, and nothing else, it will very naturally be asked, how is the plan of the whole Basilica known? To answer this question we must have recourse to the fragments of a marble plan of Rome, made in the time of Severus and Caracalla, and found in the sixteenth century broken to pieces, in the church of SS. Damiana e Cosma. It is now encrusted into the wall of the staircase leading to the Capitoline Museum, and must be well known to all architects who have been to Rome, and to all who have not it will be familiar by the illustrations of Piranesi, under the title of Pianta Capitolina. One of these fragments, although broken, exhibits a ground-plan of a building of immense proportions, on which we read Julia, and on a corresponding piece the letter B. I need not presume to describe to you the form, parts, and uses of an ancient Basilica, but I may remark upon the Basilica Julia, that according to the ichnography of the Pianta Capitolina it had five naves, divided by four rows of pilasters: the wall which enclosed it was also decorated externally with pilasters, and between them were windows: in other words, it may be described as formed of three peristyles one within the other: the outward one had twelve pilasters in front, and twenty-three on the flanks; the middle one eight in front, and fifteen on the side; the innermost six in front, and eleven on the sides: it must have been a most splendid edifice; for according to Pliny the younger it afforded accommodation for four tribunals of forty-five judges each. Caligula made his bridge to pass over it, to go from his Palatine residence to the Temple of J. O. M, and when he got on the top, "fastigium Basilicæ," he used to throw pieces of money down among the people. When, therefore, we have made sufficient space for the Basilica, according to the ichnography and the site which these arguments now alleged will assign, it takes us about 350 feet from the column of Phocas in the direction of the Velabrum.

But we have yet to deal with another fragment of the Pianta Capitolina, showing the ichnography of this N.W. angle of the Forum. It is usually adjusted with that fragment we have already considered as marking the three peristyles of the Basilica Julia: it exhibits an open space with the letters VRNI, which no one doubts is the left limb of SATVRNI: an open space of this description was called an area, and such areas before the porticoes of

* See p. 451, *ante*.

temples were not unusual. If the Basilica Julia has its length from north to south, and consequently its flank along the west side of the forum, this fragment comes in to fill up the space through which the Vicus Jugarius ran, and actually brings us up to the eight columns. This may be taken as a kind of reflective evidence of the eight columns belonging to the Temple of Saturn; and I must say, that, putting aside all envy and jealousy, I shall be glad to learn from our learned traveller, Mr. Tite, when he comes to give us the result of his observations, whether this said Basilica had its elevation towards the Forum or its flank; if the former, then our fragment VRNI will fail us, and we must still rest the claims of Saturn upon the other arguments. But we have another remarkable passage of the Monumentum Ancyranum, which says, "Forum Julium et Basilicam quæ fuit inter ædem Castoris et ædem Saturni." The Temple of Castor and Pollux, and the Temple of Saturn were, according to this monumental inscription, divided by the Basilica; now the Temple of Castor was that which Caligula turned into a portico for his Augustan House, which all agree overlooked the south side of the Forum, and which must have been very near, if not identified with, the large square brick building usually called the Curia. A line drawn across the Forum would come to the eight columns, and cut the Basilica Julia longitudinally, and answer exactly to the Ancyra inscription; and thus we should obtain a third fixed angle of the Forum beneath the Tarpeian rock, and behind the present Church of Madonna della Consolazione, and gain another particle of evidence for driving Fortune away, and bringing back Saturn to his own again. Now if we adhere to the Vitruvian precepts, which teach that Basilicæ are to be placed near, that is, on the sides of the open area of the Forum, we may now walk round the Campo Vaccino (the name applied to the sacred ground ever since Poggio's buffaloes) and adjust the limits. On the east side, measuring from the arch of Sept. Severus to the site of the Fabian arch, there are 400 feet. The Basilica Emilia, and another Basilica of the same name, used by the Roman Municipia as a guard-house, have long had peaceable possession of the east side of the Forum, and we are here denied the pleasure of disputing. Proceeding from the S.E. angle, we pass along the south side under the Palatine Hill, until we have measured from the supposed site of the Fabian arch 500 feet, which will bring us to the west side of the square brick building called the Domus Caligulæ: fixing our S.W. angle there, and completing the parallelogram, we are brought to the Madonna della Consolazione, where I should very much like to leave you all, as some sort of recompense for the weary chase I have led you.

Perhaps there is no portion of ground in the world which has been put to such ingenious torture by the skill of restoring architects as the space I have gone over. I believe it will be allowed that architects in all countries build more castles in the air than on solid ground; but in Rome, since the apostolic coffers have been emptied by a variety of vicissitudes, and the popes who patronized the arts have ceased to exist, the architects have nowhere to build but in the air; and hence the pleasure they take in putting inflexible and tasteless antiquaries to the torture by filling up a space which authors say was clear, and driving into a corner a most classical monument because it was not of the right dimensions for completing a general plan. I may just add, that I agree with the direction Canina has given to the three *viæ* which led into the Forum from the Velahrum—the Via Nova under the Palatine Hill, the Vicus Jugarius under the Capitol, and the Vicus Tuscus in the middle.

I may not proceed to make any further experiments upon your patience, by passing to any other objects in and around the forum than those I have already treated of. Every inch of that classic ground must ever be interesting to the Institute of British Architects; but every inch must be contended for by the topographer and the antiquary: such discussions are for the most part tedious to all but antiquaries: the architect has the pleasing task of laying out his plan from the discovered angle of a wall, and rearing his edifice in due proportion: from the section of a column he can erect his portico, and fill up his tympanum with Niobe and her children, and crown the angles of his pediment with statues of gods and heroes, for which a medal will give him authority. The poor office of antiquary is to put the inscription on the frieze, which few will care to read when enraptured with the indescribable harmony which reigns in architectural proportion. I cannot, however, omit this opportunity, as a humble labourer in that field, to solicit your votes and interest in favour of Vespasian and old Saturn, against the next general election of those temples on the Clivus, to serve in a representation of the ruins of Rome; and in doing this, I am running the risk of being charged with deserting my former constituents, for in my "Antiquities of Rome," although I had the prudence to leave the question somewhat open, I did incline for Jupiter Tonans and Fortune. Nay more, by a reference to my chapter on the "Roman Forum," it will be seen that I split my vote between Vespasian and Jupiter, and showed the greatest anxiety to find space for Saturn; but antiquaries, like all other responsible advisers, must be allowed to alter their opinions when fresh proofs are excavated, new diggings opened, and circumstances are changed. Some of the Italian professors, whose theories will never be able to stand against the evidence of the discovered basilica, have not yet brought themselves to acknowledge that it *is* the basilica; and they wait in hopes it may lead to some building of the middle ages, and so maintain the theory of Nardini's forum. I confess, although the discovery interferes somewhat with my preconceived and, what is worse, my published notions, I think it prudent to yield in time. It is long before we give up conservative principles; and an old opinion is often retained for the sake of consistency long after we have ceased to think it infallible. It is an admirable provision in our moral constitution, that men should be attached to the traditions of their fathers, for this often prevents rash innovations, not only in the names of temples, but of churches and constitutions: at the same time, we have long learned to reject the maxim that what is is best, for with this we might go on sanctioning error which had become hoary by time; and looking upon all reform and improvements as elements of destruction, we might have refused to entertain the notion of a Crystal Palace because Vitruvius spoke of nothing but peperine stone and marble; and if, as professors of civil architecture, we had kept to the narrow streets and gable ends of olden time, we might still have had a six-bedded room and a back kitchen for a model lodging-house. It is evident that both in the material and intellectual departments we are to innovate, but innovate with all the advantages of what has gone before,—to know well the discoveries and works of genius which others have produced before us,—and starting from the platform which others have erected, rear our Pantheon in air, which was before on the ground.

I am aware that this paper is more of a topographical than an architectural description, and for such I ought to crave your indulgence while occupying your time ingratifying myself; but as I have had the honour to remark before now, the very names of the Forum and the Capitol are always a passport to your attention; for whether it be the Temple of Jupiter or of Saturn, whether it be the Basilica Julia or the Temple of Concord, it is still Vitruvius—that perpetual President of an Architectural Society. Whatever may be the diversity of tastes and pursuits, if they be refined they must all meet in the Roman Forum: there the painter loves to use his pencil, under the deep blue sky by which the time-worn ruins are arched: there the sculptor loves to linger over the exquisite fragments which time has spared to excite his admiration and his envy: there the disciple of Palladio, and the ardent admirer of Michaelangelo's bold genius, grows into the proportions of the things around him; whilst the classical scholar, whose youthful imagination has led him to form ideas of the Forum as colossal as the deeds with which its fame is emblazoned, stands astonished at the narrow limits within which such scenes were acted; and what neither painter, nor sculptor, nor architect supplies to his fancy, the poet sings to the balmy breeze standing on the Capitol—

> Did the conquerors heap
> Their spoils here? Yes: and in yon field below
> A thousand years of silenced factions sleep.—
> The Forum, where the immortal accents glow,
> And still the eloquent air breathes—burns with,
> Cicero.

RICHARD BURGESS, B.D.

NOTES IN THE PROVINCES.

Deddington.—Clifton chapel of ease, in connection with Deddington Church, will, it is expected, be open for divine service in about two months. It is dedicated to St. James, is built of stone dug in the neighbourhood, and is covered with Stonesfield slates. Messrs. Buckler, of Oxford, are the architects, and the style is Early English. The cost is estimated at about 1,000*l.* of which 700*l.* will be contributed, it is said, by the Rev. W. C. Risley, of Deddington.

Carisbrooke (*Isle of Wight*).—The sloping meadow adjoining the historical ruins of Carisbrooke Castle, near the village of Carisbrooke, has been advertised to be sold off in building lots by public auction.

Winchester.—Several ancient mural paintings have been discovered on the north wall of the ancient church of St. John, Winchester. The subject represented in the portion at present discovered appears to be the Crucifixion. Christ is represented as being fastened to a cross, not of the Roman shape, but that of St. Andrew. The two thieves are represented. An apostle or saint appears to be looking towards heaven, and a woman is in an attitude of adoration at the foot of the crucified thief on the right hand. The Saviour and the apostle have their heads surrounded by the *nimbus*. The work of restoration is being carried on.

Worcester.—Some house property at Wick lately sold at twenty-five years' purchase. A piece of ground at Chaddesley Corbett has also been sold at forty-four years' purchase on the gross rental.

Devonport.—The foundation-stone of the new market here (Mr. J. P. St. Aubyn, architect, and Mr. T. Clift, builder) was laid on Tuesday in last week. The clerk of works is Mr. T. Galbraith.

Aberdare.—The new church of Aberdare is nearly completed. It will cost about 4,000*l.* and will accommodate 700 persons. Mr. A. Mosely, of London, is the architect, and Mr. G. N. Strawbridge, of Clifton, the builder.

Lavernock.—The church of Lavernock, in the diocese of Llandaff, has been rebuilt and re-opened. The design was furnished by Mr. Corbett, who superintended the rebuilding.

Stratford-on-Avon.—The interior walls of the chapel of the Guild of Holy Cross, have been recently cleansed, and the windows painted to resemble cathedral glass. The exterior is falling into decay; but it is understood that the Corporation are about to repair and renovate it. The interior has been decorated with a carved oak screen, extending the whole width of the chapel, and containing nine panels, the arches filled with tracery, surmounted with pierced work, and crested with the Tudor flower. The design, which includes various scrolls, texts, and other details, was furnished by Mr. William Ward, of Stratford-on-Avon, and was executed by him and his brother, Mr. John Ward, artist. A stained-glass east window has also been put up. It contains five lights, and as many subjects: 1. Our Lord's Baptism. 2. Prayer. 3. Crucifixion. 4. Resurrection. 5. Ascension. Each subject is in an ornamented canopy, and placed upon a bracket, with an inscription under it. The design is also by Mr. William Ward, and was executed by Messrs. Chance, Birmingham.

Kinrar (*Staffordshire*).—A new school has lately been opened here, affording accommodation for 250 children. The building has

been erected from a design by Mr. Thomas Smith, of Stourbridge. Mr. Thompson, of Kidderminster, was the builder. The plan is cruciform, and the walls are built of grey bricks, upon a terrace and plinth of red sandstone. The dressings are white (Elmly) stone. It is lighted by side triplets, and a richly traceried window in each of the four gables. The roof timbers are open to view, stained and varnished.

Shirley.—The foundation-stone of the Union chapel was laid on Wednesday in last week. It is intended to accommodate about 300 persons, in addition to which provision will be made for the erection of galleries when necessary. The cost will be about 350*l.*

Dewsbury. — A committee has been appointed at a public meeting for the purpose of purchasing the market cross and removing it, converting its site into an open space. The building is partly occupied by barbers and others, using fires with smoke-pipes, &c. and hence and otherwise is said to have become a nuisance which the inhabitants are anxious to get rid of.

Edinburgh.—Morningside Church was lately struck by lightning, which displaced the stones at the top of the spire above the clock, and shattered every pane in the building except those belonging to the great window.——The Society of Antiquaries of Scotland have sent a memorial to the town council, praying them to "proceed with the restoration of the ancient collegiate church of the Holy Trinity, demolished in 1848, in fulfilment of agreements entered into previous to its destruction, and with the express view to which the sum of 17,000*l.* was agreed to be paid to the town by the directors of the North British Railway." This sum the memorialists state was got mainly through their influence, and was to be entirely devoted to the re-erection of the church on a new and suitable site, as nearly as possible with the original materials, which were removed and preserved for that purpose. They further submit "that the needless destruction of ancient monuments, and examples of early national art, has ever been considered peculiarly discreditable to the perpetrators of such acts; and when done—as in the case of our ancient City Cross—thoughtlessly or in ignorance, has been the subject of much recrimination and unavailing regret when too late to repair the public injury." The allegations of the memorial have been denied by some of the members of council, but they have remitted it to a committee.——The council have resolved to have inscribed on the new Corn Exchange the name of the Lord Provost for the time of its erection, and the name of the architect, Mr. Cousins.

Forfar.—The Peel Monument, says a local paper, is now all but finished. The ground around the monument is railed in. The sphinxes, which have given such great dissatisfaction, are to be removed; and an idea is entertained of placing them on the top of the Academy building. The trusses to be put in place of the sphinxes are in course of preparation. A bust of the deceased Baronet has been contracted for, and is to be executed by Mr. Anderson, of Perth, sculptor.

Glammis.—Messrs. W. and C. Burnup, of Newcastle, have just completed the whole of the wainscot-work for the large dining-room of Glammis Castle, in Forfarshire, the seat of the Earl of Strathmore. The chimney-piece stands 16 feet high by 14 feet wide. In the centre panel are the Strathmore arms; at the sides groups of flowers and lions' heads, carved; on the top, two lions, holding shields; and below, mottoes and initials cut in Old English letters. The walls of the dining-room are lined throughout with framed and moulded wainscoting, 8½ feet high, with massive moulded base, and carved frieze and surbase. In the centre panels are placed shields and the coats-of-arms of the several branches of the Strathmore family. There are five large mullion windows, with moulded shutters, fluted pilasters, and cornices enriched with jewelled ornaments; and the recess for the sideboard at the end of the room is fitted up with pilasters and cornice, similar to the windows, but on a larger scale. The floor is laid with wainscot, closely jointed; and above the large windows are smaller ones, with coats of arms executed in stained glass. The whole of the work has been executed from designs by the Hon. T. Liddell, of Ravensworth Castle. The building itself has been illustrated in the lately published work of Mr. Billings, on the Baronial and Ecclesiastical Antiquities of Scotland.—*Newcastle Chronicle.* —— Messrs. Sopwith, of Newcastle, have supplied costly furniture for Glammis Castle, richly carved. — *Gateshead Observer.*

Glasgow.—The operative masons here have struck work for an increase of wages, and a union is about to be reconstituted, much against the wish, it would appear, of some of the men themselves. One "journeyman mason," who gives his name and address, thus writes to the editor of the *Reformer's Gazette*, a tried and steady defender of the rights of the poor against the rich:—"The masons' wages in 1846 were 23s. per week, and were raised to 24s. by my then employer, without as much as a single man having asked it, and it became general immediately thereafter. The wages fluctuated till 1851, when 21s. per week were paid us. At the autumn a rise took place to 22s. per week, and this time without being asked. Now, there were no trades' unions in existence at these periods,—there was no strike, no compulsion of any sort used towards our employers, and the rise took place solely, I suppose, in consequence of there being a demand for men. The trade getting rather duller this spring, the wages were reduced to 21s. per week; but not content with what I think is a fair wage, considering the price of provisions, a number of discontented men must again have a union started, and the whole process of former years gone through, —that is, weekly collections, then seeking out grievances, then striking for what is called 'our rights,' then confusion of the books, then, perhaps, the treasurer making himself scarce with the funds, *then finishing just where we began.* High wages are very good, and the higher the better; but, certainly, there is only one proper cause for a rise at any time, and that is the demand for men: any other way, as combination, is utterly false and delusive. I am well aware that many privileges that we enjoy will be withdrawn if more striking takes place. It is not human nature, although it is the precept of the Bible, 'to return good for evil.' I therefore warn my fellow masons, especially those that are married men and have constant employment, to pause and consider well before they become members of *a union that has created so much ill-feeling and distress in former years.* I mind in the year 1833 we struck in the middle of November for a higher rate of pay through the winter, and after going idle until the middle of February, or twelve weeks, we were glad to 'swallow our leek,' as the saying is, and begin at the old wages, after being nearly ruined and everything in the pawn. I leave the effects of the new patent machines for hewing until another time."

THE HOUSES AND SHOPS OF OLD LONDON.*

The style of architecture known broadly as "Elizabethan" extends over the reigns of Queen Mary, Queen Elizabeth, James I. and Charles I. and II. During this time a complete change took place in the tastes and feelings of the English people. The Reformation caused a dislike for the established method of church architecture and arrangements. The whole country was in a state of transition, and the old feudal system of government giving way to the liberal principles which have since then been gradually but surely advancing. During this period the religious edifices erected in this country are comparatively few, and these generally of the most unassuming description. The decoration, extent, and peculiarities of domestic buildings at this time are, however, remarkable, and in London embrace various phases of this architecture from as early even as the reign of Henry VIII. till that of Charles II. Amongst the earliest examples is the house formerly in Grubb-street (now Milton-street), No. 20, which is engraved in a former number. In this building many of the mouldings and other embellishments retain the characteristics of the erections of the period of Gothic architecture. In several of the compartments the *quatre-foil* and other ornaments of the former style are introduced, and the whole presents a somewhat rude yet picturesque approach towards the perfection of this style in a succeeding reign.

Elizabethan architecture in London advanced in refinement during the reigns of Queen Elizabeth and James I. Thorp, an architect, extensively employed during the reigns of Elizabeth, James I. and Charles I. rebuilt Holland House, in 1606, where it now stands, at Kensington. Various designs by the architect are preserved in Sir John Soane's museum. Some of the best have been engraved in Mr. Richardson's work.

The examples shown in this week's illustrations are of the time of James I. No. *42, Sir Paul Pinder's house, Bishopsgate-street, and No. *41, in Aldgate-street, are examples of rich and picturesque decoration. No. *23, in Carey-street, engraved in last paper, shows a purer Italian taste: the interior of this house remains very perfect, and is exceedingly interesting.

We have already observed that the houses of the London citizens in the time of Elizabeth were more remarkable for the comfort, &c. of their interior arrangement than for their exterior adornment. The exterior views in last engraving (*18, 19, and *24) seem to be of this period, and are distinguished by plain fronts, projecting in each story towards the roof.*

The houses above alluded to, and others which we are inclined to date of the time of Queen Elizabeth, are destitute of the projecting windows which are shown on the house in Bell-yard, Fleet-street (No. *39), Sir Paul Pinder's house (No. *42), and that in Aldgate-street (No. *41). During the reign of James I. many of the London houses were composed of slight work, covered on the outside with painted planks, and plastered inside, similar to the top story of the house in Gray's-inn-lane (*18). A square court, formed of buildings of this description, still remains up a passage in Bell-yard, a little to the north-west of No. *39: this is a place worthy of a visit, in order to form some conception of the inflammable nature of London before the fire of 1666. Some other buildings of this description may still be seen near Cripplegate Church, but which are probably somewhat older than those mentioned.

The houses at present remaining in London of the time of James I. are more varied than, perhaps, those of any other similar space of English history. We meet with the following peculiarities:—

Houses with flat fronts, decorated with panels, similar to that wrongly ascribed to the time of Cardinal Wolsey, adjoining the principal entrance to the Temple: the Prince of Wales's feathers and other devices clearly show it to be of the time of James I. the feathers most probably having reference to Prince Henry (see engraving No. *38). Inside this house is a very fine ceiling, which, for several years, was covered with a flat coat of plaster, part of which falling by accident showed the ornament beneath, and so led to its restoration. It is possible that many ceilings in the old houses of London are covered in a similar manner. In the centre of this ceiling are the letters P · H, the initials of Prince Henry, the eldest son of James I.

Houses with projecting windows, greatly enriched with panels, brackets, and other carvings, like Sir Paul Pinder's house and lodge (Nos. 31, *42).

Houses with heavy projecting roofs and massive work of brick and stone, plastered like the front of Staple's-inn, Holborn (No. *35) and (No. *36) in Cloth-fair, Smithfield. These and several other houses still remaining in

* See pp. 342, 391, *ante.*

* A correspondent mentions that the house in Gray's-inn-lane (No. *18) is not one house, but three houses. Although it may at the present time be divided into three, it has evidently been originally only one house, and which has probably been a hostelry on the road to Theobald's.

London resemble (allowing for difference of materials) the French style of buildings at that time in use to some extent in Edinburgh.

There are also amongst the existing London domestic edifices of this reign several which approach more or less the classic style introduced by Inigo Jones, amongst which are Shaftesbury House, Aldersgate-street (No. *34), and the house in Great Queen-street, Lincoln's-inn-fields, of which we engrave one of the window-tops No. *36): both these buildings were designed by Inigo Jones, as were also the several houses on the west side of Lincoln's-inn-fields (now much altered), portions of Westminster school, the Piazza of Covent-garden Market, &c.

In 1606, three years after the death of Queen Elizabeth, the proclamation before mentioned to prevent the increase of new buildings in and about London not having proved effectual, new foundations having proved ineffectual, another proclamation was made this year to enforce the said Acts: but this not being regarded, the matter was taken into consideration by the Star Chamber, and many persons were censured for not regulating their buildings according to the royal edict. To prevent the decay and danger of slight wooden buildings, it was also enjoined that all persons should either build the fronts of their houses with stone or brick. At this period many of the wooden London houses have evidently been composed to meet, as far as possible, this regulation, and many were built with framework of wood interlaid with brick and then plastered: the back parts of the houses were, however, composed entirely of wood. In 1609, the late proclamation not having effect, and the King being apprehensive that it might in time bring the plague to Whitehall, he, by the advice of his council, again strictly prohibited the erection of buildings on new foundations within two miles of the City, on a penalty of having them demolished. In 1617, James commanded all noblemen, knights, &c. who had residences in the country, within twenty days to depart to their mansions in the country, with their wives and families. This was a vain and useless attempt to prevent national progress, and probably tended as much as any other cause, by stopping the erection of new dwellings to meet the requirements of the increasing population, to increase the evils of the plague and other dreadful disorders.

Notwithstanding the short-sighted policy which dictated the suppression of buildings, several important sanitary improvements were effected during the reign of James I.: amongst these was the completion of the New River by Sir Hugh Middleton, in 1613. In 1614, Smithfield, the public market-place for cattle, having been so ruinous that it was almost impassible, his Majesty, to prevent the dangerous consequences attending the same, enjoined the citizens to pave it at their own cost, to which they readily complied, set about it, and finished it in six months, at the expense of 1,600*l*.

In 1615 the citizens of London began paving the sides of the principal streets with freestone, for the better accommodation of passengers.

In 1625 hackney coaches are said to have made their first appearance in London: they were then, says Mr. Craik, in Knight's "London," "only twenty in number, for the whole of the capital and contiguous parts; and they did not ply in the streets, but were sent for by those who wanted them to the stables of certain inns, where they stood." Ten years later, however, we find the King publishing a proclamation, in which he declares that "the great number of hackney coaches of late time seen and kept in London, Westminster, and their suburbs, and the general and promiscuous coaches there, were not only a great disturbance to his majestie, his dearest consort the queen, the nobility, and others of place and degree, in their passage through the streets, but the streets themselves were so pestered, and the pavements so broken up, that the common passages were hindered and made dangerous, and, besides, the prices of hay and provender made exceedingly dear; 'Wherefore,' concludes the proclamation, 'we expressly command and forbid that no hackney or hired coaches be used or suffered in London, Westminster, or the suburbs thereof, except they be to travel at least three miles out of the same; and also that no person shall go in a coach in the said streets except the owner of the coach shall constantly keep up four able horses for our service when required.'" This ridiculous order, as might have been expected, met with very brief attention.

Amongst the patents of the same year is a grant to John Day, citizen and sworn broker of London, of the sole privilege of vending, for fourteen years, a certain weekly list of the several rates or prices of all commodities in the principal cities of Christendom.

1626 produced a more important novelty,—the first establishment of a regular, though limited, international post.

These varied and important improvements, together with the enactments against the increase of London, are proofs of the advancing condition of the national commerce during the reign of James I. which, although not so marked as during the reign of Elizabeth, was still considerable.

Amongst other commercial domestic improvements, the progress of the London shops must not be passed without notice. In doing this we will as briefly as possible glance at the arrangements of the London tradesmen previous to the time of James I.

Fitzstephen, who wrote in the time of Henry II. says:—"Men of all trades, sellers of all sorts of wares, labourers in every work, every morning are in their distinct and several places." These situations were sometimes varied, and in the time of Stow are by him described as follows:—

"The goldsmiths of Guthren's-lane and the Old Exchange are now for the most part removed into the south side of the West-Cheap. (Engraving, No. 9.)

The pepperers and grocers, of Soper-lane, are now in Bucklersbury and other places dispersed.

The drapers of Lombard-street and of Cornhill are seated in Candlewick-street and Watling-street.

The skinners from St. Mary Pellipus, or at the Axe, into Bridge-row and Wallbrook.

The stock fishmongers in Thames-street, wet fishmongers in Knight Rider-street and Bridge-street," &c. &c.

Before the settlement of the various crafts into rows of shops, they depended for the sale of their goods to a great extent on the regular fairs, which were then the principal means of traffic. At that period Bucklersbury and other localities of the several trades would consist of a sort of village of rude dwellings, in which the workmen carried forward their trades. In course of time some of the more active or skilful would exhibit specimens of their manufactures outside the doors and at the windows of their houses. Some would then add a stall covered, as a means of defence from the weather. These would gradually give place to permanent erections, projecting from the dwelling, similar to those we see in Aldgate-street, High-street, Camden Town, and other places where private houses have been altered for the purposes of trade. Sir Walter Scott, in his novel of the "Fortunes of Nigil," thus describes the shop of a London tradesman in the time of James I. which he says:—"Was something very different from those we now see in the same locality. The goods were exposed for sale in cases, only defended from the weather by a covering of canvas, and the whole resembled the stalls and booths now erected for the temporary accommodation of dealers at a country fair, rather than the established emporium of a respectable citizen. But most of the shopkeepers of note, and David Ramsey amongst others, had their booth connected by a small apartment, which opened backward from, and bore the same resemblance to, the front shop that Robinson Crusoe's cavern did to the tent which he erected before it." Although the above graphic description would apply to a considerable portion of the London shops at the time alluded to, we are inclined to think that the shops near Temple Bar were then of a more finished description. Two or three of the shops in Fleet-street, near the Temple, have been little changed except by the introduction of glass, &c. since the times of James I. Our readers passing that way may notice the heavy projection and small windows peculiar to the period. Until within a short time ago, a shop, one of the last of the bulk shops, had probably remained with but little alteration since the time referred to.

In the interesting old town of Shrewsbury are some shops which do not appear to have been altered, not even by the introduction of glass, since the time of Henry VIII. and James I. We engrave one of the latter period (No. *33). In this the old shutters for fastening the windows at night were still in use. These consisted of two shutters, one fastened to the roof in the daytime (B): the other (A) opening forward, serves for the purpose of displaying the goods of the shopman: these are fastened when closed by a bolt and fastening.

The projecting shops in Aldgate-street, shown in No. *41, are amongst the oldest in London. In the next paper we will give examples of London houses in the time of Charles I. and a short description of the sanitary condition of London previous to the plague in 1665 and the Great Fire of the following year.

DESCRIPTION OF THE ENGRAVINGS.

31. Plaster Ornament on Sir Paul Pinder's Lodge, formerly near Bishopsgate-street.
32. Sir Paul Pinder's lodge, ditto.
*33. Shop of the time of James I. at Shrewsbury.
*34. Shaftesbury-house, Aldersgate-street, designed by Inigo Jones.
*35. Staples-Inn, Holborn.
*36. House designed by Inigo Jones, Great Queen-street, Lincoln's-Inn-fields, probably one of the earliest examples of an entirely brick house in London.
This street was built 1629, and so called after Henrietta Maria, queen to Charles I. Howes, in his edition of Stow, speaks of "the new fair buildings called Queene's, leading into Drury-lane;" and Walpole tells us, "that many of the houses were built by Webb, Inigo Jones, and Nolan." All the good houses were on the south side, looking to the fields beyond St. Pancras. Several eminent persons who lived in this street are mentioned in the "Handbook for London;" among them Sir Thomas Fairfax, Lord Chancellor Finch, Sir Godfrey Kneller and Hudson, the painters, and Sir Robert Strange, the famous engraver.
*37. Devices in houses designed by Inigo Jones in Lincoln's-inn-fields.
*38. Devices in Prince Henry's house, Temple.
*39. House in Bell-yard, north side of Fleet-street, near Temple-bar.
Pope has several letters addressed to his Friend Fortescue, "his counsel learned in the law," "at his house at the uppe rpart of Bell-yard, near unto Lincoln's-Inn."
*40. Decorated House in Moorfields.
*41. Houses and projecting shops in Aldgate.
The panels in this house are decorated with the Prince of Wales's feathers, fleur-de-lis, the portcullis (the badge of Westminster), and armorial bearings which we have not been able to decipher.
*42. Sir Paul Pinder's House, Bishopsgate-street.
Sir Paul Pinder, who was an eminent English merchant, died 1650, and was distinguished for his taste for architecture, and the large sums he gave towards the restoration of Old St. Paul's, and in loans for the service of James I. and Charles I. There is a very good ceiling and mantelpiece inside the house.
*43. House in Clothfair, Smithfield.

Those marked * are sketched from existing examples.

CHLOROFORM AS A MOTIVE POWER.—The French Government have ordered steam-engines for the *Galilee*, man-of-war, and other two vessels, in which a saving of fuel and heat is to be attempted by help of chloroform, which is to abstract the heat from the steam, and therewith constitute a motive power in aid of that of the steam, to be employed in separate cylinders, after which the heat of the chloroform is to be extracted by means of cold water, which, as well as the condensed steam, are to supply the boiler, while the condensed vapour of chloroform is returned for use as before. A saving of 50 per cent. in fuel is thus calculated on. The invention is a modification by M. La Fond, a French naval officer, of one by M. Du Tremblay, a French civil engineer, in which ether was used, but found to be highly dangerous from its combustibility.

THE HOUSES AND SHOPS OF OLD LONDON.









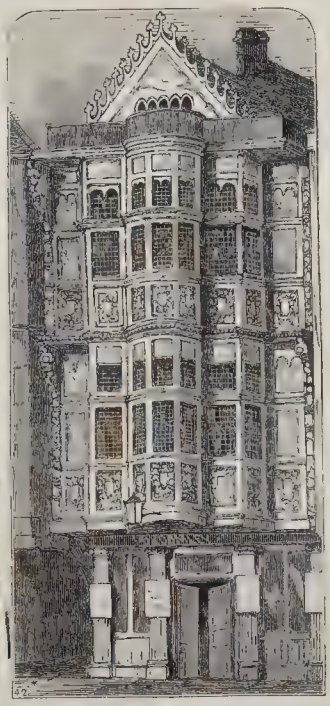








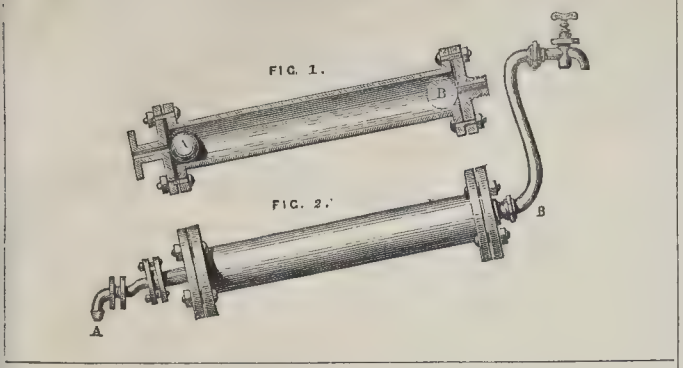






J. Lyon, lith.

WATER WASTE-PREVENTER.



WATER WASTE-PREVENTER.

THIS arrangement is introduced for the purpose of detecting and preventing waste of water supplied to the inhabitants of towns by waterworks, whether such waste be wilful (as is too often the case amongst the occupiers of cottage property), negligent, or accidental from leakage or bursting of pipes, leaving open taps, &c.

Fig. 1 shows "the Preventer" in section, with the ball in two positions, one as when the supply of water has been drawn, and the ball thereby brought to the top of the tube, closing the service aperture, as at B; the other, when all is shut off, as at A.

Fig. 2 shows "the Preventer" with ferrule for connecting to the main pipe, as at A, and to the service supply pipe, as at B.

The Water Waste-Preventer consists of a tube of cast-iron, or other material, having flanges at each end, one to attach to the main supply pipe, the other to the service supply pipe: a ball of peculiar material and gravity is inserted in the tube. The tube when attached to the main supply pipe is laid at an elevation varying according to the pressure at which the water is supplied, the service end being the highest: if there is no leakage or draw upon the pipes, the ball will be, and remain at the bottom of the tube, as indicated on the drawing by the letter A; but when water is required to be drawn, and the tap is opened for that purpose, or should the pipe be burst, or water running to waste from any cause, the ball immediately and gradually ascends until the quantity of water the machine is intended to deliver has taken place, when the ball will have moved to the top of the tube (as at B), and closed the aperture of the service supply pipe, and the delivery will have ceased until the tap be closed, or the defects remedied, when the ball will return again to the bottom of the tube, and further deliveries in succession may be obtained.

RAILWAY JOTTINGS.

ON Wednesday in last week the directors of the South Wales line were conveyed over one line of rails on the Chepstow Bridge, the other portion of the bridge being in course of construction. The opening of this bridge will complete the line of communication by railway from London to Swansea. The bridge, as we have before said, is of novel construction, consisting of four spans, one of 300 feet and three of 100 feet each. The latter portion has been completed some time. The roadway is formed on wrought-iron girders, 8 feet in depth, and supported by cast-iron cylindrical piers sunk down to the hard rock about 48 feet below the bed of the river. The lower edge of the girders supporting the roadway of the bridge is 50 feet above high-water, and they extend 600 feet, or the whole length of the bridge from shore to shore. The other portion, which crosses the Wye by a span of 300 feet, is constructed in a peculiar way, partly on the suspension principle. A wrought-iron tube, 309 feet in length, and 9 feet in diameter, strengthened in the interior by iron discs 20 feet apart, is placed horizontally on two piers or standards 50 feet above the level of the railway. From each end of the tube chains are brought down obliquely on each side of the bridge to the continuous iron girders, so as to join them at points distant 100 feet from the base of the piers or standards upon which the ends of the tube rest. At these points vertical frames or trusses secure the roadway to the tube. To these are attached a series of wedges to tighten the chains and screws to the girders, adjust the equilibrium of the whole, and render the structure as rigid and inflexible as possible. Mr. Brunel, the engineer-in-chief; Capt. Simmons, R.E. the Government inspector; Mr. W. G. Owen, the resident engineer, and others, were present. In order to test the stability of the bridge, a train, consisting of ten heavily laden trucks, drawn by two locomotive engines, was driven slowly backwards and forwards over it. The weight of the train was about 200 tons, and the deflection produced by it on the centre of the 300 feet span appears not to have exceeded seven-sixteenths of an inch. It was calculated by Mr. Owen, the resident engineer, that the greatest moveable weight that could possibly be brought on the bridge at one time would be about one ton per foot run, or 300 tons over a bridge of that span. That load could only be produced by forming a train of locomotive engines. It was stated that this portion of the bridge was tested on the ground before it was erected in its present position, by loading it with nearly 1,000 tons, and that the deflection on that occasion did not exceed one inch and a half. The weight of the tube is 220 tons, and of the chains, plates, &c. 120 tons, together 340 tons, or 720 tons for the two lines of way, over a span of 300 feet. The ironwork of the other portion of the bridge weighed about 700 tons, making the total weight of iron used in this bridge of 600 feet in length, for a double line of railway, about 1,400 tons. The total cost of the bridge, including foundations, piers, tubes, &c. would be 65,000*l*. The cost of the two tubes, the girders, and the roadway complete, not including the cast-iron piers and foundations, would be 28,000*l*. which sum is included in the 65,000*l*. The tube and ironwork for the second line of rails will soon be ready. The public opening was to take place on 19th inst.——The *Penzance Gazette* says,—"Mr. Pearce, one of the directors of the West Cornwall Railway, has expressed his intention of proposing to the board, that reporters for the press of this country should have free tickets on the line in journeys specially in connection with the press. We are sure that our brethren of the fourth estate, not only in Cornwall, but we might even say throughout the kingdom, will join with us in regarding this liberal-minded offer as a most graceful and appropriate tribute to the important position which the press now holds in a social point of view. We believe such an offer is wholly unprecedented."——The main line of the Great Northern Railway was opened on Thursday in last week. This new line, says the *Leeds Intelligencer*, will shorten the distance to London 20 miles.——Mr. Bidder, civil engineer, has left Berlin for Flensburg, for the purpose of commencing the survey of the Flensburg Railway, on the part of the London house of Peto, to whom a concession for the construction of this line has been granted.——One of the longest tunnels in the world is now in a forward state of completion. It is situated in Hungary, and leads from the shores of the River Gran, not far from Zarnowitz, to the mines in the Schemnitzer Hills. It is about 10 English miles long, and is intended to answer the double purpose of a channel to drain off the water accumulating in the works, and of a railway to transport the ore from the mines to the river.——The bridge now in course of completion on the Buffalo and New York City Railway, where it crosses the Genessee River, near Portageville, when completed will be 230 feet high and 500 feet span. Stone piers, set on the rock, are carried up 30 feet high from the bed of the river, a few rods above the upper falls. From the top of the piers the woodwork rises 200 feet. Over 30 tons of iron will be consumed for bolts in the construction of this bridge. The timber from 160 acres has been purchased. It is calculated that 210 acres will afford timber enough to complete the bridge.

LIVERPOOL AND MANCHESTER BUILDINGS.

A MONTHLY REVIEW of architecture as a fine art is given in *The Critic*, founded, as the writer states, on the engravings given in our pages and those of other illustrated contemporaries. We quote a few paragraphs from the last part:—

"St. George's Hall, Liverpool, in scale, in general form, in the breadth of its great masses, and in its columnar magnificence, perhaps transcends all other recently erected Greco-Roman structures in Christendom. We may wish that the great crowning cube, which pronounces the noble altitude of the vast hall, had been less box-like in its simplicity, and that the attic range of the tambour of Wren's great dome had been emulated, rather than the unrelieved solidity of the square coffer which crowns the Museum at Berlin. The rich assemblage of vertical lines, and the highly ornate character afforded by the Corinthian portico and lateral colonnades, makes one feel that the unbroken extent of plain horizontal surface in the conspicuous portion of the building just alluded to, is not in harmony with the rest. Even the intermediate parapet courses between the top of the colonnades and the terminating mass, might, with manifest advantage, have been also relieved by vertical divisions answering the outline of the columns. We are no friends to *pseudo* architecture; but in this case it would not, in sentiment, have been such; for the idea conveyed would have been nothing more than that of strengthening a long extent of masonry, by piers at intervals, instead of expending the required substance in continuous thickness.

Even with these objections, the best examples of Berlin and Munich are far more than rivalled by Elmes's great work, in which the pictorial is united in a singular degree with the severest elegance.

Not so happy an example is the Exchange at Manchester: we speak of its exterior, though the upper part of it suggests the improvement of the more defective parts of the great Liverpool building. It is otherwise most faulty; being, as it were, a Greek peripteral Doric temple, with the cell raised, and the side colonnade filled in with arches, which, having no imposts, look as if they would slip down to the stylobate. Nothing can be more discordant than the united aspect of the herculean portico and the delicate character of the turrets, windows, and other parts of the building. This is not a Græco-Roman structure, neutralised by modification, but an inharmonious combination of positive Greek and positive Italian. It is not like a beautiful green, but an offensive juxtaposition of bright blue and radiant yellow.

Having done honour to Liverpool for the classic taste displayed in St. George's Hall, we turn with less satisfaction to the Sailors' Home,—a great four-turreted building in the Elizabethan Tudor style. A critic, in describing it, says it forms 'a beautiful contrast with the vastness and grandeur of the Custom House,' in conjunction with which it is seen. What does this mean? That there is merit in mere 'contrast?' or does it imply that there is 'beauty' in the juxtaposition of two buildings, the one 'vast and grand,' the other, by inference, neither the one nor the other, or vast without grandeur, or—what? 'Contrast' there is, indeed! Such contrast as would appear in the close neighbourhood of the Erectheion of Athens and Hardwicke Hall; in Derbyshire; or between the fire-altar of the Greek vestal and an inverted English gridiron. Nothing can be more gratuitously violent and offensive to severe taste than the direct opposition between the simple grandeur of the Custom House, with its fine Ionic portico, and the great cube of the Sailors' Home, with its little antiquated gables, towers, vanes, and ogee-headed roofs, its multiplicity of mullioned windows, its *parvum in multo*. Of characteristic expression it has none. But, was there no allowed admission of certain forms and symbolic details which would have associated Jack's *land*-home with his sea calling? Was there nothing to be done with the stern and the prow of his loved ship?"

THE OPERATIVE MASONS' BENEFIT SOCIETY.

THE annual dinner of this old and useful society was held at Highbury-barn Tavern, on Monday last, Mr. Thomas Jackson in the chair. The society having been established in 1810, this was its forty-second anniversary. After partaking of a substantial dinner, the meeting, which consisted of nearly seventy persons, responded with hearty loyalty to the usual preliminary toasts, in course of which the chairman, in reference to his Royal Highness the Prince Consort, said he had reason to believe that the Prince contemplated the foundation of a great building and establishment, in which theory would be combined with practice, in the advancement of science and art, by a concentration of talent and skill.

On giving the toast of the evening, "Prosperity to the Operative Masons' Benefit Society," the chairman stated the objects of the society to be the raising and securing of a fund for the mutual relief of its members in sickness and superannuation, and for burial of members or their wives, in case of death. During illness a member receives 1*l.* a-week for eight months, 10s. a-week for eight months longer, and 5s. a-week for the remainder of his days, or so long as the society may be in existence short of that period, the superannuated member being exempt altogether from contribution. This society, said the chairman, in no way encourages disagreements between the employers and the employed. It leaves the men entirely to their own feelings and conscience: neither does it meddle with political questions: it is exclusively devoted to a prudential foresight and preparation for the evil day of sickness or of death. In these circumstances he felt it his duty to countenance and encourage this society; and he appealed to other practical men—to men, he meant, who, like himself, had been practical masons, as well as to those still struggling as such in the present day, to assist and to increase its funds and its ability to do good.

The Secretary being called on, read the usual report, which stated, amongst other details, that the funds of the society in stock at present amounted to 668*l.* 12s.; and had been gradually and steadily on the rise for years. In 1848 they amounted to 469*l.* odd; in 1850, to 476*l.*; in 1851 to 533*l.*; and in January 1852, to 609*l.* A sum of 29*l.* 11s. had been added by gentlemen present. In course of last year eighteen members, and since that time eight more, had been benefited by the institution. The income of the society from January last up to the present time was 87*l.* 16s. 4d.

Letters of apology and of good wishes from Messrs. Baker, Cubitt, Grissell, Piper, Todd, and others whose names we did not distinctly hear, were enumerated by the chairman, whose health was proposed by Mr. Kay, and warmly responded to; and shortly afterwards we left the meeting still enjoying themselves, without much speechifying, but with perfect good fellowship, interspersed with music, vocal and instrumental.

VENTILATION.

THE Sessions House of the Grey Friars Church has been ventilated by Mr. Watson, of Halifax. The principle employed is demonstrated by means of an oblong cylindrical glass vessel, 8 or 9 inches in diameter, open below, and having a globular top, from which rises a neck or funnel about 1¾ inch diameter and 5 or 6 inches high.

When this apparatus is placed over a lighted candle, in a shallow vessel containing water, the oxygen contained in the cylinder, notwithstanding the proportionably large vent at the top, is speedily exhausted, and the candle "goes out." But if, before the extinction is fully accomplished, a thin plate be introduced into the funnel, forming a vertical diaphragm, by which it is divided into two equal tubes, a double current is immediately established—the vitiated air is withdrawn by the one tube, and a current of pure atmospheric air introduced by the other; the effect of which is shown by the revival and continued support of the flame of the candle previously on the eve of expiry.

The result at the Session House of Greyfriars Church is said to be successful; but the accounts that have reached us and those in the local papers are far from sufficient, of themselves, to establish for the arrangement any claim to particular attention.

We have before us some of the reports and papers connected with the recent inquiry into the mode of ventilation adopted at the new Houses of Parliament; but we are anxious to have the whole subject before us before we deal with a part of it.

It seems to us, as we have before said, that we are giving up simple and efficient means provided by nature, to adopt elaborate, costly, and inefficient complexities.

DISTRICT SURVEYOR'S FEES.

EDWARDS *v.* GOLDEY.

THIS was an action brought in the Shoreditch County Court, before Mr. Serjt. Storks, to recover the sum of 4*l.* 4s. due to the plaintiff for fees as district surveyor of the parish of St. Mary, Islington. The defendant is a builder residing at Standgate Cottage, King Henry's Walk, Ball's Pond.

Mr. Wakeling, who appeared (on the 20th inst.) for the plaintiff, referred to the 13th section of the Metropolitan Buildings Act (7 & 8 Vict. c. 84), by which the builder is bound to give notice to the district surveyor before he commences any new building. The defendant gave the required notice on the 31st of January, 1851, and immediately commenced building two houses, but subsequently stopped; and in the month of May in the same year, gave another notice; and Mr. Edwards, through his assistant Mr. Frederick Edwards, supervised the building. The plaintiff, on the completion of the work, delivered his account, claiming his fees as specified in schedule L, viz. 2*l.* 2s. for each house, being fourth-rate (first class) buildings; and, agreeably to the directions of section 77, tendered a receipt signed with his Christian and surname. He (Mr. Wakeling) might add that the defendant had promised payment. It was impossible, therefore, to conceive what answer he could now have to the plaintiff's claim.

The defendant was of opinion that he was not liable, having since sold the houses.

Mr. Serjt. Storks.—But you are liable as the builder. The 77th clause, to which Mr. Wakeling has directed my attention, enacts that the surveyor is entitled to receive his fees from the builder, or from the owner, or from the occupier of the building. All, therefore, that I have to decide is, whether the plaintiff has complied with the Act of Parliament.

Mr. Frederick Edwards was then called and proved the facts as stated by Mr. Wakeling. Whereupon

Judgment was given for the plaintiff, the debt and costs to be paid in a week.

ASSESSMENT OF EXETER HALL.

APPEAL.

LAST week a special session was held in the Vestry-hall of the parish of St. Martin's-in-the-Fields, to determine the rateable value of this property.

It appeared that the building was formerly assessed in the sum of 2,500*l.* which, upon appeal to quarter session about three years ago, was reduced to 2,000*l.* The appellants, in consequence of a reduction in their receipts, and from other causes, sought to be assessed at 1,200*l.* per annum.

Mr. Cantwell, surveyor, proved the assessment of the building, according to the receipts of the company, to be at the rateable value of 2,250*l.* after striking out certain items of deduction claimed by the proprietors, which, in his opinion, were not comprised in the strict meaning of "deductions," as allowed in the Parochial Assessment Act. He had surveyed the old Covent-garden theatre, also that portion of Drury-lane within St. Martin's parish. Exeter Hall associated more with theatrical property than with any other.

Mr. Paine, surveyor, corroborated Mr. Cantwell's calculations, but estimated the rateable value at 2,200*l.* He had surveyed the present Italian Opera, assessed at the rateable value of 3,000*l.* and also that portion of Drury-lane within Covent-garden parish, which, as an entirety, was assessed at 2,100*l.* He had also made the valuations of the Lyceum, Strand, Olympic, Victoria, and Astley's theatres. In his opinion theatrical property was far more precarious than Exeter Hall.

Messrs. Edmeston, Lockyer, and Ainger, surveyors, supported the assessment at 1,200*l.* claiming the deductions before alluded to.

The chairman (Mr. C. T. Antrobus), after the hearing of the appeal, directed the room to be cleared, and on return the Bench confirmed the assessment of 2,000*l.*

Miscellanea.

THE IRISH GREAT EXHIBITION OF 1853.—On the 1st of May, 1853, will be seen in Dublin what Ireland can produce in the way of an industrial exhibition. The Royal Dublin Society then holds its triennial exhibition of manufactures, but this usual exhibition will be merged into, and no doubt quite eclipsed by, the exhibition designed for 1853. Mr. Dargan, the eminent Irish railway contractor, has accompanied his promise of 20,000*l.* with an intimation that, should that sum be insufficient to help the committee well through with their great undertaking, he will add to it—double it, if necessary. Mr. C. P. Roney is the honorary secretary to the Exhibition committee. We understand he declined to take a salaried office lest it should involve a tie upon his time, or interfere with his present duties. The Exhibition will, however, be of material importance to the railway interests with which Mr. Roney is associated; and, therefore, his support of the Exhibition is quite consonant with the performance of his duties to the Chester and Holyhead Railway Company. Possessing as Mr. Roney does great influence in Ireland amongst the upper classes—acquired by family connections and associations with public movements—he is, no doubt, just the party to be of service to the Irish Great Exhibition. Mr. John Deane, who was honorary secretary to the Dublin branch of the Cork Exhibition, is the paid assistant secretary to the coming Exhibition. He is a gentleman of much energy.—*Herapath's Journal.*

"POST" RECEIVING BOXES.—The practice of erecting cast-iron posts or pillars in the streets, and forming letter-receiving boxes in them, as is the case in some parts on the Continent, is about to be introduced into Jersey as an experiment, previous, no doubt, to its introduction into England. The post-office authorities in St. Martin's-le-grand have ordered four cast-iron pillars, with letter-receiving places in them, to be erected in St. Helier's, Jersey.

Chemistry in Agriculture.—At the meeting of the Royal Agricultural Society, at Lewes, last week, Lord Palmerston said,—"I cannot but think that the progress of chemical science, and the application of that science to practical agriculture, may lead you to something which will render you less anxious and solicitous about guano, and that instead of sending to the other end of the world for more manure for our fields, we shall find something nearly, if not quite, as good within a few hundred yards of our dwellings. Now, gentlemen, I have heard a definition of dirt. I have heard it said that dirt is nothing but a thing in a wrong place. Now, the dirt of our towns precisely corresponds with that definition. The dirt of our towns ought to be upon our fields, and if there could be such a reciprocal community of interest between the country and the towns—that the country should purify the towns, and the towns should fertilise the country—I am much disposed to think the British farmer would care less than he does, though he still might care something, about Peruvian guano. We all acknowledge that there are certain laws of nature, and that those who violate these laws invariably suffer for it. Well, it is a law of nature that nothing is destroyed. Matter is decomposed, but only for the purpose of again assuming some new form, useful for the purposes of the human race. But we neglect that law. We allow all decomposed substances in towns to pollute the atmosphere, to ruin the health, to produce premature misery, to be pestilent to life, and destructive of existence. Well, gentlemen, if, instead of that, there could be a system devised by which these substances, which are noxious where they now are, could be transferred so as to fertilise the adjoining districts, I am persuaded that, not only would the health of the town populations be thereby greatly improved, but the finances of the agricultural population would derive considerable benefit from the change. You all know, gentlemen,—all who have attended to the subject and read recent publications must know—that for an expenditure per acre far less than that which produces one manuring of Peruvian guano, you may establish permanent arrangements, by which, bringing from the towns fertilising liquids, you would improve your property, and a permanent improvement would be made in the land at a far less expense than is now required to produce a single crop. I therefore recommend you, gentlemen, to ponder the maxim that "knowledge is power;" and, as the diffusion of the most useful kind of knowledge is one of the main objects for which the Royal Agricultural Society was established, I am persuaded it will tend mainly and most efficiently to the advancement of the interest and the power of the agricultural class of the country."

Improved Dwellings for Married Soldiers.—A meeting of officers was lately held at Willis's Rooms, Colonel Angerstein in the chair, at which the following resolutions were agreed to:—"That, in the opinion of this meeting, improved sanitary dwellings for the married soldier may be constructed on a principle combining a fair remuneration to the landlord, with increased convenience to the tenant. 2. That his Serene Highness Prince Edward of Saxe Weimar, Lord Colville, the Hon. F. Villiers, M.P. Colonel the Hon. Arthur Upton, Colonel Angerstein, Colonel Wigram, Lieutenant-Colonel H. Daniell, Captain Cocks, Captain Carleton, Captain Higginson, the Rev. R. W. Browne, and Mr. Montagu Gore be appointed trustees for carrying out this object, and they are hereby empowered to act accordingly." Funds were subscribed to the extent of about 4,000*l*. The trustees are in treaty for a site on which to commence operations.

The Shop Sun-blind Nuisance.—In many other towns besides London this great nuisance seems to prevail. In Southampton the magistrates have been of late appealed to against tradesmen for having these blinds under seven feet from the pavement. It is full time the power of the metropolitan magistrates were appealed to against the same nuisance.

Gasworks and Statistics.—Plans and specifications for the erection of a gas work at Knighton have been prepared by Mr. Eunson, of Wolverhampton, gas engineer, who has contracted for the immediate commencement of the works, which belong to a company recently formed for the supply of gas, coke, and coal to the town of Knighton.——The old gas company of Ludlow have ceased to exist, the cause of their extinction having been a foolish determination to keep up the price of their gas to 12s. a thousand cubic feet. The new company appear to be inclined to follow in the old path, for even their prices are now regarded as unsatisfactory, and another work will be started unless a reduction be shortly made.——The Girvan Gas Company are said to have reaped a profit during last year equal to 14 per cent. on their share capital. Their works are to be extended, a new gas-holder made, and the price of their gas reduced.——The gas company at Cupar have declared their usual dividend of 7½ per cent. and resolved to reduce the price of their gas from 8s. 4d. to 7s. 6d.——The Buckhaven Gas Company have declared a dividend of 6 per cent. for the past year.——The Elgin Gas Company have been so little injured or rather so much benefited by reducing the price of their gas last year, that they have been discussing the propriety of making a further reduction this year. They have just declared a dividend of 6 per cent. at the twenty-second annual meeting of their shareholders.

Results of Electric Shocks in Whale Fishing.—In reference to the process of stunning whales in capture, the *Liverpool Albion* states that some successful experiments have been announced by Mr. E. A. Heineken, of Bremen, the inventor, as having been reported to him by Captain Georken, of the Bremen whale ship *Averick Heineken*. Capt. Georken, in a letter dated New Zealand, Dec. 13, 1851, writes as follows:—"The first experiment we made with the new invention was upon a shark, applying the electricity from the machine with one magnet. The fish, after being struck, instantly turned over on its side, and, after we had poured in upon him a stream of electricity for a few moments, by turning the handle of the machine, the shark became stiff as a piece of wood. We have as yet had but one chance to try the experiment upon a whale, which was made by the four magnet machine. The whale, upon being struck, made one dash onward, then turned on his side, and was rendered perfectly powerless. Although I have as yet not been fortunate enough to test the invention in more instances, I have the fullest confidence in the same, and doubt not to be able to report the most astonishing results on my return from the Arctic Seas, where I am now bound."

Fall of a Ceiling on Four Hundred People. — At a Mormonite, or "Latter-day Saints" Conference, held lately at Newport, in Wales, a heavy ceiling, beams and all, fell suddenly on the assemblage,—strange to say "without injury to one single Mormon," a circumstance which, we hesitate not to say, is in some sense to be regretted, considering the influence which it will undoubtedly have in extending the Mormonite imposture, more especially as, according to the *Morning Herald*, obscure hints or promises had been held out previously by the "prophets" of the sect, that "miracles would be performed." "When the party were all extricated," adds the *Herald*, "another hall was obtained, and there the remainder of the evening was devoted to an ovation to the elders and the prophets who had wrought the anticipated miracle of causing a ceiling to fall upon the heads of the saints without injury. The occurrence has occasioned a remarkable sensation in the town." It reminds one of the "miracle" wherewith a thoughtless Jack Tar of England once astonished the natives of a Dutch port. Jack had given obscure hints that he would do something to astonish them, but while really in vain endeavouring to do so, by an awkward attempt to stand on his head at the extremity of the topmast, he tumbled down amongst the rigging, and alighted, by a rare chance, on his feet, strange to say without breaking one single bone, when he coolly looked about him, and asked his Dutch mates if any of them could do the like of that. The Mormonite *profits* will, doubtless, be largely multiplied by the "decided hit" at Newport, which will be so much trading capital to the "saints" for years to come.

Roof-rearings, &c.—The Lyceum at Sunderland has just been covered in. The music-hall is 103 feet long by 45 wide, and is estimated to hold 2,500 persons (being the largest room in the district). The lecture-hall is 59 feet by 40. There will be also a news-room, library, observatory, &c.; in all, 17 rooms or halls. On Monday in last week the operatives employed in the erection, to the number of about one hundred, according to the *Gateshead Observer*, were treated with a sumptuous dinner in the music-hall, at the expense of the proprietor, Mr. R. F. Cunningham, to celebrate the covering in. —— On Friday week, according to the *Lincolnshire Chronicle*, Mr. Richard Ellison, of Sudbrooke Holme, gave a supper at Scotherne, to the workmen employed in erecting a residence for Mr. Battersby, and also to his labourers. About sixty sat down to a bountiful repast, under the presidency of Mr. George Bacon, foreman to Mr. Ward, the builder of the house.——A substantial dinner of good old English cheer, says the *Staffordshire Advertiser*, was given on 9th instant, by the Earl of Harrowby, the proprietor of Sandon Hall (now in course of erection), to about eighty workmen employed at the works. Mr. Parker, contractor for the mason work, occupied the chair. Mr. Leigh, clerk of the works, officiated as vice-president. Amongst other appropriate proceedings, Mr. M'Leish proposed the health of Mr. Burn, the architect, also Messrs. of James Paton and Sons, contractors for the carpenter and joiner work.

Proposed Monument at Chelsea.—A monument is about to be erected at Chelsea (to the memory of the soldiers who fell in India) in the small park or square fronting the Hospital in the Queen's-road: a model, full size, is now in course of erection. It is of the obeliscal form, with three steps at the base: height, 25 feet; breadth at top, 2 feet; at bottom of needle, 3 feet 10 in. surmounted by a ball. The steps as now made are ill proportioned, and the whole will appear without taste, as much from the position as the design. The position chosen is between the double row of fine trees in the centre walk in that portion of the square before mentioned, and will be completely hid by the trees; whereas, if either side of the walk was chosen, a large space (several acres) would enable the monument to be seen. Unless prevented, we shall have an unsightly erection in an improper place.—J. O.

Mr. A. W. Pugin.—According to a contemporary, "Mr. Pugin is now in his old age!" which is so far from being correct, that he cannot be more than forty-two—a time of life at which most people would be affronted at having the vague epithet of "elderly" applied to them. The name of Pugin has indeed been before the public very long; but it was first as that of the father, whose "Gothic Examples," and similar works, did so much for the study of that style of architecture. Father and son appear to have been confounded together in more than one instance, the most remarkable one of all occurring in Hagler's "Künstler-Lexicon," where the elder Pugin, who had then been dead several years, is spoken of as living at the time, and as having erected many churches and chapels; while the son is not mentioned at all. This egregious mistake is to be paralleled only by the startling omission in another German publication, the "Conversations-Lexicon für Bilden de Kunst," where, notwithstanding that many obscure architects have articles assigned them, there is not so much as the name of Charles Barry!—A. Z.

Church Steeple struck by Lightning.—The steeple of the church of Husum, in Schleswig Holstein, was struck by lightning on Tuesday in week before last, and set on fire. The fire extended with great rapidity, and destroyed thirty-one houses.

LEEDS TOWN-HALL COMPETITION.—What architects are thought of, and the meanness they are treated with, the proposition of the municipality of Leeds is a rich example. Wanting "designs for a Town-hall and judicial buildings, with plans, sections, elevations, explanatory and working drawings, accompanied by a general and minute specification of the manner of executing the works, sufficient for contracting for the same, and an estimate of the cost in detail," limiting that, however, to 35,000*l.* with a condition that the accepted plans are to become their property, and not binding themselves to employ the author;—what do they offer for this? 200*l.* Now, either they must have a very low estimate of the profession, to expect that any one would be idiotic enough to give for 200*l.* that which he would be fairly and honourably entitled to carry into effect upon the usual commission, which would amount to 1,750*l.*; or the conditions have been so arranged to favour some individual. If these terms are responded to, we may expect that next a further condition will be made, viz., that the superintendence of the works shall be included in the paltry dole. Something ought to be done to come to a better understanding on the subject of competitions.—AN ARCHITECT.

STREET CROSSING.—A writer in THE BUILDER has cleverly suggested that bridges might be erected in the crowded thoroughfares of London for the convenience of foot-passengers, who lose so much valuable time in crossing. As the stairs would occupy a considerable space, and occasion much fatigue, I beg to propose an amendment. Might not the ascending pedestrians be raised up by the descending? The bridge would then resemble the letter H, and occupy but little room. Three or four at a time, stepping into an iron framework, would be gently elevated, walk across, and perform the same friendly office for others rising on the opposite side. Surely no obstacles can arise which might not be surmounted by ingenuity. If a temporary bridge were erected in one of the parks the experiment might be tried at little cost, and, at any rate, some amusement would be afforded.—*Notes and Queries.*

LIGHTNING CONDUCTORS FOR CHURCHES.—Trite and familiar proverbs still require to be frequently repeated. One of the best known is also one of the most neglected, viz. "Prevention is better than cure." Applying this maxim to lightning conductors for church steeples or towers, allow me to make a suggestion which, if carried out, would occasion but a trifling cost whilst churches are being built, and save a great future expense, which must sooner or later be incurred where the proper precaution is neglected. As many of the new churches are built by the help of grants from "The Incorporated Society for Building Churches," it would be very easy for the society to stipulate that every church aided by their funds should have a lightning-conductor, and this rule would, no doubt, be followed by the local societies and committees throughout the land. It may also be added that architects themselves should always impress upon their employers the necessity of lightning conductors being attached to the churches under their supervision as a matter of primary consideration.—G. R. F.

A PERPETUAL (?) LIGHT.—A curious circumstance is stated in the *Messager de Langres*. On 7th ult. some workmen were busy digging the foundations of a new building, when they discovered a vault at a depth of 15 feet, in the Gallo-Roman soil, in a perfect state of preservation, which they thought sufficiently strong to support the new fabric. The contractor bid them break it up, which they did, not without much difficulty, the cement having acquired the hardness of stone. Scarcely had an opening been made, when one of the workmen exclaimed that he saw a light at the bottom of a cavern thus discovered. This flame, at first taken for a Jack-o'-Lantern, proved to be the light of a bronze lamp suspended from the roof by rings of the same metal. It was a sepulchral lamp of remarkable workmanship, and believed to have burnt here for many ages. These workmen, continues the *Messager*, "had, therefore, discovered a perpetual lamp, the theme of so many disputes among the learned. In 1540 a similar discovery was made in the vicinity of Viterbo; but since then we are not aware that others have been discovered. The most remarkable circumstance in the discovery just made at Langres is, that the lamp was entirely filled with alimentary matter to keep up the flame: in other words, the lighting principle had not diminished in the slightest degree, although the combustion had lasted many ages." If there be any truth in this narration, it is much more probable that the lamp was prepared with matter spontaneously combustible on the accession of air, and that, in fact, in place of burning for ages, it only began to burn when the cavern was opened.

TRANSMIGRATIONS OF THE PROTEUS IRON.—The transmission of iron, in a chemical form, through chalybeate springs, is of itself curious; but how much more so its passage and subsequent accumulation, as in bog iron, and the iron of the coal measures, through the agency of vegetation! How strange, if the steel axe of the woodman would have once formed part of an ancient forest!—if, after first existing as a solid mass in a primary rock, it should next have come to be diffused as a red pigment in a transition conglomerate—then as a brown oxide in a chalybeate spring—then as a yellowish ochre in a secondary sandstone—then as a component part in the stems and twigs of a thick forest of arboraceous plants—then again as an iron carbonate, slowly accumulating at the bottom of a morass of the coal measures—then, as a layer of indurated bands and nodules of brown ore, underlaying a seam of coal—and then, finally, that it should have been dug out, and smelted, and fashioned, and employed for the purpose of handicraft, and yet occupy, even at this stage, merely a middle place between the transmigrations which have passed, and the changes which are yet to come!—*Miller's Old Red Sandstone.*

ELECTRO-TELEGRAPHIC PROGRESS.—The second attempt to connect England and Ireland by a submarine telegraph has also failed. The first line from Holyhead to Howth was a single wire, which we presume was not properly insulated, as we cannot find that any communication ever traversed it, and the wire has been taken up. The second line, by way of Portpatrick and Donaghadee, we understand, was covered with rope yarn, and when seven miles had been laid the strength proved insufficient to resist the currents and tides of that narrow channel, and the works have been suspended. These rivals appear to have been running a neck and neck race to transmit the first message from shore to shore, and have simply verified the proverb: "more haste, less speed."—We hope a better fate awaits the cable which the original company (the "Irish Submarine Telegraph") have been preparing for some months past. This company, which is incorporated by royal charter, proposes to lay a cable consisting of four separately insulated wires, covered by an anhydrous coating, and encased with plaited iron wire, preserved from oxidation. It is to run from Holyhead to Howth as speedily, it is said, as is consistent with security.

POPLAR AND BLACKWALL PUBLIC BATHS.—These baths, which have recently been erected on the south side of the East-India Dock-road, were opened on Saturday last. The edifice stands on a plot of ground 120 feet square, and is of Italian character, with a tower enclosing the shaft of the boiler-house. There are two large tepid baths. The private baths of first-class comprise twelve for men and six for women; and there are twenty-four of second class for men and six for women; besides vapour and shower-baths. The mechanical apparatus enables the bather to provide himself with hot or cold water at will. The washing and drying departments consist of forty-eight separate washing-tubs and drying-horses, together with ironing-rooms, &c. The total cost of land, erections, and fittings, amount to about 11,500*l.* which have been raised on security of the poor-rates, to be defrayed within twenty years.

IGNITION BY THE SUN'S RAYS.—Another instance of spontaneous ignition has occurred since our last notice. At Old Newton, in Suffolk, a quantity of light litter lying in contact with a piece of black flint stone, took fire, and would have destroyed some adjoining buildings had not the fire been immediately put out.

TENDERS

For erecting two houses at Walham-green, and alterations to others. Messrs. Willshire and Parris, architects.

Charles Pollard	£1,645
Wm. Elliott	1,446
J. S. Faithful	1,410
B. Wire	1,260
Higgs and Case	1,297
R. Dean	1,193
T. Humphreys	1,180
John Hurst	1,085

For a public-house and five houses, to be built for Mr. Herrington, at Notting-hill. Mr. Mumford, architect.

Harding	£3,470
Wright	3,350
Higgs	3,225
Corby	3,173
Trigg	2,895

For finishing two villas at Brixton-rise, for Mr. William Morris. Mr. Hammon, architect.

Hardiman	£2,287
Baker	2,213
Gerry	2,133
Elston	2,068

For new wing to the South Devon and East Cornwall Hospital, Plymouth. Mr. Damant, architect.

Wilcox	£1,130
Steer and Conway	994
Stitson	933
Fowler	918
John Marshall	875
Wm. Jeffery	839
C. Dwelley	820
Thos. Marshall	795
Hancock	790
Roberts and Co. (accepted)	788

For building addition, &c. to Beech-house, Tottenham, for the Rev. J. Hall. Mr. E. N. Clifton, architect.

Pritchard and Sons (Warwick-lane)	£694
Morris (Hackney)	669
Perry (ditto)	420

For drawings of an estate at Turnham-green, for Mr. D. Hughes, consisting of 2,480 feet of whole brick sewer, 2,100 feet of 12-inch pipe drains, and other works.

	Brick Sewer.	Pipe Drain.	Total.
B. Green	£2,559 0 0	£809 0 0	£3,368 0 0
Geo. Merritt	1,581 0 0	717 0 0	2,278 0 0
Wm. Dethick	1,135 0 0	269 0 0	1,434 0 0
Jonas Greigson	1,080 0 0	350 0 0	1,430 0 0
Wm. Hill	.....	.....	1,359 0 0
W. Thompson*	1,020 14 0	284 2 6	1,304 16 6
J. H. Brown	1,000 0 0	280 0 0	1,280 0 0
J. & S. Williams	.....	.....	1,260 0 0
Barnes & Turner	.....	.....	1,230 0 0
Smith & Cole	.....	.....	1,200 10 0
J. Mayors	(pipes only)	346 6 0	
G. Kamester	(ditto)	318 8 8	

* Accepted.

For Convalescent Asylum, Walton-upon-Thames. Mr. Joseph Clarke, of Stratford-place, architect. Quantities taken out by Mr. Yeldham.

Pipers	£10,670
Lawrence and Sons	10,420
Haward and Nixon	10,400
Myers	9,984
T'Anson	9,946
Rigby	9,865
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"*Books and Addresses.*"—We have not time to point out books or find addresses.

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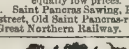
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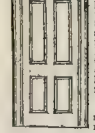
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The Builder.

No. CCCCXCV.

SATURDAY, JULY 31, 1852.

DUBLIN has two cathedrals. *St. Patrick's*, the first, is in a miserable condition, both externally and internally. Works are going on. Some of the pillars in the nave, for example, have been restored for safety's sake, and the choir is new seated; but the works are mainly done at the expense of the dean, who devotes his time as well as money to the undertaking. The Protestants of Ireland neglect their duty when they allow the cathedral church to remain in its present ruinous, indecent, and unsafe condition. The choir is Early English, of good design, with an enormous Elizabethan monument, in the chancel, to Richard Earl of Cork: it is in four stories, and perhaps 45 feet high. The chapels at the east end of the chancel are in ruins.

Christ Church, the second cathedral, is of earlier date. In the south transept the semi-circular arch prevails, of the transition period: the nave is Early English; the whole miserably defaced. The chancel was restored (to misapply the term), in 1844, under some ignorant hand, and fearfully disfigured,—"repaired and *stupified*," a friend of ours suggests; but this is not coarse enough. Disgust is a mild term for the strong feeling a view of it excites. In the nave is an interesting ancient effigy of Strongbow.

Trinity College has a fine library; but there is great need in Dublin of a library accessible to all; and surely this could be obtained by Irishmen for themselves without much difficulty, if they were to make up their minds to it. There has been a disposition heretofore to trust too much to Government and Acts of Parliament. The series of busts in the College library, is a good feature, though some of them would seem to be misnamed. The monument to Dr. Baldwin, by Hewetson, in the Examination Hall, has scarcely had the praise it deserves: parts of it are singularly fine. In the museum there are casts of selfish Swift's face, and the skull of Mrs. Hester Johnson; poor "Stella!" In the nave of the Cathedral is a mural monument in memory of this lady, and by the side of it one to the Dean. The museum of *The Royal Irish Academy* is rich in ancient gold frontlets, armlets, and what is usually called "ring-money." It would puzzle a modern goldsmith to form some of the twisted girdles made by the "barbarians" of early times. There is part of a crozier here, attributed, on reasonable grounds, to the year 540; another belonging to Dr. Wiseman, made in the 11th century, exhibiting fine enamelling; and a third, singularly beautiful, made in the year 1123. They have a very perfect MS. of the New Testament, dating from A.D. 809, with a leather case for it, made in 907, the characteristic pattern on which is pressed out from the inside. There is another MS. of the Gospels of earlier date: it was used by St. Patrick; but the leaves adhere to each other and are not separated without risk.

Large numbers of workmen are busily employed in the construction of the bridge over the Boyne, at *Drogheda*, on the line from Dublin to Belfast, but progress has been retarded by the difficulty of obtaining a proper foundation for some of the piers, through a quicksand of great depth. We gave particulars of this large viaduct some time since. The viaduct is to consist of eighteen arches, each upwards of sixty feet span, and three openings for the navigation, one of 250 and two of 125 feet each, at water level, clear between the piers. The height of the iron lattice-work, which is intended to span the three openings, is to be 90 feet over flood level, or 100 feet over ordinary tides: it will be of malleable iron. The machinery formerly used at the Conway and Britannia bridges is being erected for the purpose of moving, punching, and riveting the iron. The contractor is Mr. W. Evans, who built the Conway Tubular bridge, and the resident engineer is Mr. A. Schaw.

Drogheda is an old town, and shows much destitution. Two of the ancient gates still remain, and here we give a view of the principal of them.



St. Lawrence's Gate, Drogheda.

The archway is semi-circular. The footways of one of the oldest streets is paved with very small stones, disposed in rude patterns so as to approach mosaic work.

About five miles from Drogheda is one of the most extraordinary relics of the past in the kingdom—the chambered mound of *Newgrange*, in the county of Meath, often quoted because of its resemblance to the *Treasuries* of ancient Greece and other structures of the Pelasgic period. The mound in which the apartment is formed is of large size, is covered with grass and trees, and had around the base of it a circle of upright stones, some of which, 7 or 8 feet high and 4 or 5 feet square, still remain. The chamber is approached by a gallery about 50 feet long, the outer half of which is about 4 feet high, with sloping sides of upright stones, 3 feet 2 inches apart at the top, and 3 feet 6 inches at the bottom, covered with flat stones. In one part of the gallery the stones have been squeezed together at the top, so that it is necessary to move upon the hands and knees to obtain access. The plan of the chamber is made cruciform by three recesses, one in front of the entrance gallery, and the others east and west. The chamber is domed over by large stones placed flat one upon the other, each slightly overhanging, and gradually approaching the centre, where a single flat stone covers in and completes the whole, at the height of about 20 feet from the floor. The width of the chamber, from east to west, may be 20 feet. In each of the three recesses is a large flat stone, slightly hollowed on the upper face, so as to form a sort of basin. This singular construction is made further extraordinary by the circumstance, that on the face of many of the stones are carved, or rather engraved, volutes, circles, and zig-zags. The flat stones over the gallery at the entrance are of considerable size, 12 or 14 feet long. The annexed sketch of the entrance to the passage, and of a stone which lies against the face of the ground in front of it,* shows some of the markings to which we have referred.

Within a mile, at Dowth, there is a similar chambered mound, which was opened by a committee of the Royal Irish Academy in 1847, and found to resemble Newgrange in its principal features. The whole centre of the mound has been scooped out and destroyed. The chamber and galleries, for there were two, are, it is to be hoped, preserved, but we could find no means of getting in. The records of Ulster, according to Mr. Wakeman, show that this mound was searched by the northmen of Dublin as early as A.D. 862. If they had done it as thoroughly as our friends of the Irish Academy, there would have been less left for the study of the present generation. We may mention that those who visit Newgrange should take with them three or four candles and some matches.

In this neighbourhood there are several watch-towers and castellated mansions. We give a sketch of the Castle of Scurlogstown. The outline is good, and it is one of the strongest built of the watch-towers. According to Mr. W. Wilde, in the "Beauties of

* Which may serve as an example of the illustrations in Mr. Wakeman's very intelligent and interesting "Hand-Book."



Mouth of the Passage leading to Chamber within the Cairn of Newgrange.

the Boyne," it was built in 1180, by William de Searlog, one of the Anglo-Norman fiefs of Meath. It is the type of several other English castles in this part of the country. According to tradition, Cromwell "made a hole in its battlemints," but we will not vouch for the fact.



Scurlogstown Castle.

Again, a few miles, but not farther from Drogheda than the wonderful cairn of which we have been speaking, and we reach *Monasterboice*, a singularly interesting collection of monuments, namely, a Round Tower, the remains of a small 13th-century chapel, other remnants of one much earlier, and three sculptured crosses full of surprising interest. The doorway of the tower is circular-headed; the upper part of the circle being worked out of a horizontal stone: the doorway is wider at the bottom than the top.

The window immediately above the door has the triangular head mentioned elsewhere. The tower is covered with a green moss, and is much bowed and dilapidated. Steps should be taken to repair the upper portion of it, or it can scarcely last many years. Indeed, attention should be drawn to the condition of several of these towers so peculiar to the country, and which ought on no account to be suffered to fall away. We do not want restoration, but simply such repair as will enable them to withstand the weather. The head of the doorway of the ancient church is formed by two stones overlapping and meeting in the centre, or it may be that it was originally one stone, which has decayed. The largest of the crosses is about 20 feet high, and is covered with sculptured figures, loops, snakes, &c.: age and wantonness have so affected the lower part of the stem as to render it likely that, unless strengthened, it will be overthrown. The carving on the second cross is better executed and in a more perfect state than that of the largest: it is one of the most striking monuments of its class existing, and includes groups of boldly sculptured figures, representing the Day of Judgment, the Temptation, and other Scriptural events. The Irish Annals have been quoted to show that these crosses were executed at the commencement of the tenth century, and the monuments themselves seem to justify the inference. None should miss seeing Monasterboice. The three crosses, two chapels, overgrown with high grass and trees, and the ancient tower, moss-covered, waiting to fall, form a group scarcely to be equalled, and to one standing amongst them a scene of surpassing interest and an enduring recollection.

The earliest of the chapels at Monasterboice is of the same character, and apparently of the same period, as the chapel called St. Peter's, at *Glendalough*, the "valley of two lakes," referred to last week. This, and some other similarities, may excuse us for giving here a few particulars of the latter, although it is in another part of the country. Glendalough, from which the Bishop of Dublin takes part of his title, is one of the loveliest spots in Ireland, combining the beauties of nature with the works of man. Moore has made it known, in connection with St. Kevin and the ill-fated Cathleen, to all lovers of song. Of its mountains and waters,—its lake of beauty and story,—St. Kevin's bed, and the Inn,*—we need not speak. In the cemetery lie Irish kings, and over it one of the most ancient of the Round Towers peculiar to Ireland throws its mysterious shadow. The tower is called 110 feet high, and about 18 feet in diameter.



St. Kevin's Kitchen.

it has a semi-circular vault, which gives a room between that and the roof. The doorway is at the west end, and has a horizontal lintel and a semicircular arch above that,—the opening, as in the other and similar buildings, wider at bottom than top. About half the thickness of the lintel projects over the doorway 6 inches, and there is an upright hole through this projection on one side, apparently for a pin on the top of the door to work in as a hinge. Some of the angle stones in this very interesting building, which is miserably disfigured by its use as a stable for cattle, measure as much as 3 feet 6 inches on *both faces*. The date of the building would unquestionably seem to be anterior to the Norman Invasion. These early stone-roofed churches are peculiar to Ireland. Mr. Wilkinson, in his work on "The Practical Geology and Ancient Architecture of Ireland,"† regards them as forming a step between the Round Towers and churches of later date. The room in the roof gives the security, as a place of retreat or deposit, which some think the Round Towers were built to afford. The access to this room at St. Kevin's is simply by a hole through the crown of the arch below.

The "Lady's Church," another of the group, has a doorway very Pelasgic in character, and wholly distinct from Norman work.

The public *roads* in Ireland are for the most part good, and there are few turnpikes. The roads, with the bridges, &c. are under the control of county surveyors. In the county of Cork, which forms one-tenth of all Ireland, and is in two divisions, there are 3,200 miles of roads under contract as to repairs. In the larger of the two divisions, under the control of Mr. Benson, who has under him about a thousand contractors, the annual expenditure is about 17,000*l*.

* Amongst the impressions of travellers expressed on glass or wall at the little inn in this beautiful spot, such as,—

"If you value your fingers,
Beware of the wind-ers,"

with reference to the want of sash-lines,—we found the following:—

"'Tis said that *two* churches are Ireland's curse;
With *neither* 'tis certain she could not be worse;
Yet here we find *more* were once tried by St. Kevin,
But in vain; for 'tis still desolation with *seven*."—H.

† Murray, London, 1845. Curry, Dublin.

The doorway, which is about 11 feet from the ground, has a semicircular head *cut* out of one stone. The chapel we have called St. Peter's consists of the ruins of a nave and chancel, the first about 48 feet long and 30 feet wide, the second about 38 feet long: it has a piscina and aumbry adjoining each other, with square head. The lower part of the building, 6 or 7 feet from the ground, is formed of very large stones, with little mortar—the upper part of smaller stones. The doorway is in the west wall: it is wider at the bottom than the top, and has a horizontal lintel with a large arch over it, the width of the doorway. In the walls several *frusta* of large stone columns have been worked in, and we thought it singular to find a similar *frustum* at Monasterboice. A smaller chapel, called St. Kevin's Kitchen, has a stone roof, and a small round tower at the west end carried on it. Within,



Doorway of Lady's Church.

The *National Exhibition of the Arts and Products of Ireland*, now open in Cork, is most creditable to those who organised it, and must be beneficial to the country. The temporary building erected for the works of fine art has a much better effect than we were led to anticipate by some of the accounts that reached us. The roof is a semi-circle 53 feet in diameter, and consists chiefly of laminated ribs 12 feet apart, with two smaller ribs intermediate, carrying purlins, and boarded with inch boarding covered with canvas and painted.*

* Each of the larger ribs consists of a central board 14 inches deep and 1½ thick, with a 13-inch board, a 12-inch board, and a 7-inch board, all 1 inch thick, on each side of it. The hall is 177 feet long, and the height in the centre 43 feet.

It was constructed under the direction of the gentleman last named, Mr. Benson, in 24 days, and cost about 1,000*l.*

There are several pleasing points in the arrangement of the Exhibition, as, for example, an early sketch by Maclise (of Sir Walter Scott) under one of his most recent works, "The Spirit of Justice;" and the first work of Hogan, a head of Minerva in wood, in connection with a finished production of his matured skill. "The Fall of the Angels" and "The Veiled Prophet," both by Ford, who died in early life, some years ago, show that Ireland lost in him one who would have been a great painter. "The Connoisseur," by Mac Donald, gives good promise, and the same may be said of West's picture of "Charles the First and Rubens." The selected design for the Town-hall at Cork, by Messrs. Atkins and Johnson, has a Corinthian portico (hexastyle), with wings, and a campanile at each side of it. A peculiarity in it is the introduction of an enclosure wall, under the portico, in a line with the wings, or nearly so, in the direction of the length of the portico, but rising only part of its height. The design, which received the second premium, by Mr. Hargrave, jun. shows the peculiarity, we ought to call it the vagary, of an open apsis, with its half-dome, behind a range of columns carrying a horizontal entablature. Messrs. Deane and Woodward's design for the same building, is founded on the Belgic Town-halls. We must mention a portrait of the late Mr. G. R. Pain, architect, because he was one of the first to exhibit a cultivated taste in the public buildings of Cork.

Some carvings by Irish peasants show what might be done there in this way with proper encouragement. The crochet work by young girls, under an organization originated by the late Lady Deane during the famine, is perfectly beautiful, and is making its way all over the kingdom. Five thousand pounds' worth has been purchased since the manufacture was commenced. Some chimney-pieces, by Egan, of varied marbles, show the resources of Ireland in this respect. For internal decoration these might advantageously be more largely employed in England than they are. There is a collection, too, of the building stones found in Ireland. The Institute of British Architects should endeavour to obtain a duplicate of this to add to their present collection. Some imitations of woods by a village painter, John Enright, are very good; and the bricks, tiles, and draining-pipes from the Florence Court Tile and Pottery Works are equal, both in material and workmanship, so far as they go, to any that we have seen. The most satisfactory proof is afforded by the Exhibition that there are workmen in the country capable of carrying out, under proper direction, any undertakings that may be entrusted to them.

The finest modern building in Cork is the *Queen's College*, by Sir Thos. Deane, of which we gave a view some time since. It is built of the limestone of the locality, of an excellent colour, and is throughout congruous and effective. It has a fine hall, 90 feet long, 36 feet wide, and 60 feet high to the ridge of the hammer-beam roof. The cost of the structure was about 27,000*l.*

The *Lunatic Asylum* here, designed by Mr. Atkins, is now completed: it is Gothic in character; consists of three distinct piles, with adjacent chapel, and displays much artist-like feeling; but it is spoilt by the turrets, which are discordant in colour (being of brick, while the rest of the building is of stone), and not good in outline. It contains a large Recreation Room, a capital kitchen with open roof, is built to accommodate 500 patients, and has cost about 53,000*l.* The situation, like that of the Queen's College, is admirable.

The new station for the Bandon line, now nearly completed, is a poor affair.

At Cashel, Kilmallock, Buttevant, and other places on the road to Cork, there are many very interesting remains of antiquity. We stopped at Cashel, and will tell of what we saw on the rock there hereafter. Kilmallock is full of ruins. The origin of the name has been ascribed to the founding of a *Kill*, or church, by Mochcallag, or Molach. One of the mountains here, however, is called Maeloch. Buttevant* was anciently called Kilnamullagh, or the church near the Mullagh chain of mountains,—of which Maeloch is one of the highest.

Spenser has celebrated these as the Mountains of Mole, and the river near Buttevant as Mulla,—

> "Mulla, the daughter of old Mole so bright,
> The nymph which of that water-course hath charge,
> That springing out of Mole doth run down right
> To Buttevant, where spreading forth at large,
> It giveth name unto that ancient city
> Which Kilnemullagh 'cleped is of old."

Here we must draw rein. Our tour was a short one, but so many interesting matters came of themselves before us, and we are so anxious to aid in the efforts that are being made to draw the two islands closer together, that we shall venture to return to our note-book next week. If we are not mistaken, there is a bright future for Ireland. Earnestly we wish it.



Antrim Tower.

ON THE PRINCIPLES OF GLASS PAINTING.

I beg to request that the few following remarks may be admitted to the pages of your valuable and widely-circulated journal.

I have heard and seen of late so many imperfect and contradictory opinions on coloured windows, that I fear those who follow glass painting as a profession, and the patrons of this beautiful art as well, run some risk of having no settled idea on the subject at all. Now, apart from questions purely technical, there are one or two principles which govern this art, and that are also an unfailing test of what is good and true in it, from what is false, and therefore bad. The first object in a window is to admit light, and that of course must be preserved in the required measure, according to the aspect, whether north, south, east, or west, an open sky behind, or shut in with other buildings—a common case in towns. But next to the obvious consideration of light, a window should be considered as part of the building it is set in; therefore, whatever be its design, an appearance of *flatness* must be essential. In our dwelling-houses, windows are made to look out of, as well as to admit light, but the fact is different with churches and public buildings generally: in these, if the windows be vacant and clear to the sky, the solidity and beauty of the interior (if it be beautiful) must suffer, more especially if the openings be large. By the same rule, perspective pictures or objects represented in full relief, are equally inappropriate, as they pierce the building with holes and destroy its consistency. Windows, in my opinion, should form a part—an unmistakeable and very important part—of the interior decoration of such edifices: they should belong to the wall, and retain the eye within the building. Again, the design and composition of these windows must be ruled in great measure, if not entirely, by the lines and proportions of the architecture, and be in harmony with the interior and mural decorations, and the distribution of colour and detail so arranged as to carry across and throughout the whole one harmonious unity.

I find it difficult to keep these few rules—apparently so trite, yet so constantly violated—in a concise and portable shape. Still they are of the first importance, and I have been more immediately induced to request a place for them in your columns from some remarks of Mr. Papworth's, in your last week's number, on the decoration of St. Paul's, and from your report of a discussion held at the Institute of British Architects on that noble scheme: allusion also had been made to it at a previous meeting of the Institute, in a paper read by a gentleman to whose learning and research all lovers of glass painting are largely indebted, and whose knowledge is justly held in the highest respect. I differ, however, from many of the conclusions in his present essay. I cannot agree with him that the glass painters of the twelfth and thirteenth centuries were ambitious of pictorial effects; nor that their failure was from lack of skill; nor that their representing trees in conventional forms, was owing to their want of knowledge in aërial perspective. These artists worked on true mosaic principles,—never lost sight of the fact that their windows were

* At a meeting of the Kilkenny Archæological Society, on the 7th inst. Mr. R. Brash read an interesting paper on the antiquities of this place,—Buttevant.

part of the building, nor sought to produce effects, which, though they may be allowed to belong to a more advanced period of pictorial art, are yet very undesirable in windows. Equally does my experience disagree with his, that the best works of the fifteenth and sixteenth centuries are distinguished by strong contrasts of colour, and light and shade: the windows in Brussels quoted by him, if my recollection serves me truly, would not support any such view. I think I may safely assert that the characteristics he mentions never obtained but a very partial influence, and were attempting to emulate oil pictures in effects as far beyond their reach as they were destructive of those fine qualities of brilliancy and colour legitimately belonging to glass, and which the highest efforts of pictorial art can never attain. I may quote a very late (and in some respects a very fine) window, now in St. George's, Hanover-square, where the flatness is perfectly preserved, in support of these remarks. Of course, I do not mean to say that a greater amount of shading was not used in the later styles, and used with greater skill and delicacy. What I wish to insist on is this, that where the qualities and true use of painted glass have been properly understood, the importance of flatness has never been lost sight of, and that its preservation was not merely an accident with the early painters, nor was neglected by the more finished artists of later times. And having said this much on the architectural and relative bearings of painted windows, would you permit me a few words in reference to the proposed scheme for the decoration of St. Paul's? I cannot see that there is, or ought to be, any difficulty in carrying out the third section of Mr. Cockerell's report, viz. to reglaze the whole of the twenty-three lower windows of the cathedral with Scripture subjects in coloured glass. The very rev. the Archdeacon speaks of lost pigments; but I hope I am not disrespectful when I say, that it is neglected principles, not lost pigments, which we are called upon to deplore. Mr. Papworth would seem to assert, that our country has no artist fit to lay pencil on the interior of St. Paul's, and that the painters and glaziers, as he is pleased to term the makers of stained windows (I must suppose him to include the designers), will be likely to produce even more extraordinary paradoxes than anything yet exhibited on the walls of the "Academy exhibition!" Such things are easily said, and I have no dispute with nicknames, but when he says "that the employment of stained glass in figure subjects would be unacceptable—inapplicable with sound sense to our cathedral"—I think he assumes too much; and that, on the contrary, by usage, precedent, and sound sense, the *windows* in the interior of a great church like St. Paul's, are, perhaps, the *most fit* place for such representations—the eye being naturally drawn to them, and the whole building acting as one magnificent frame.

I have no conscious desire of raising the art of glass painting to an undue elevation. I have said before that it must be subject to the architecture.

Some there are who fear that mediæval taste and influences may, through means of the glass, force their way with evil effect into St. Paul's: to this I have one remark, *i. e.* that the beauty of ancient windows results, more than is generally admitted, from the perfect knowledge the artists of those days had of the quality and capability of their material, and the purposes and relation of their art. The same truths acted upon will render coloured windows as applicable and advantageous to St. Paul's as to Chartres, Strasbourg, or Cologne; and though St. Paul's may demand a fuller and grander character of design, I can scarcely allow our country to be totally wanting in artists equal to such an achievement: at all events, let not the glass or the windows bear the burden. They offer scope for the most elevated design. The light is supplied to them direct from heaven, while the beauty of the material—its brilliancy and purity (quite separate and superior to any other kind of transparent painting)—the simplicity of its treatment, and the regularity of its composition, seem to me to give it a peculiar appropriateness for such subjects as are proposed by Mr. Cockerell to be represented in the windows of St. Paul's. F. W. O.

THE DECORATION OF ST. PAUL'S CATHEDRAL.

PERMIT me to offer a few remarks upon a subject which interests not alone the authorities of St. Paul's, not alone the architects and artists of the metropolis, but every Protestant Englishman, Churchman or Dissenter, and all who love the grandeur and beauty of this great camp of the English race.

Of a thousand fanes which lift their fronts into the summer sky, this alone, dedicated in the name of the great preacher and expositor of the Gospel, has been the work of a people and its kings,—more than this, stands alone, even unto opprobium, the peculiar temple of the Reformed Faith throughout the world. There would be a marked indecency, then, in adopting in the decoration of this edifice any model, however consecrated in the traditions of art, however acceptable to individual predilections, which should be alien to the affections or offensive to the tastes of the great commonwealth of Protestantism. Neither have we here a fitting theatre for experiment in educating the English mind to a knowledge and love of art; we have, on the contrary, the mightiest edifice wherein, over the whole world, the pure Gospel of Christ is appointed to be preached by the *voice* of man.

While, therefore, I would carefully shrink from any expression which might be interpreted as offensive to any of those who have put their hands to a great work, I submit that we cannot argue this question as a mere matter of art, or as submitted for final solution to any self-constituted court of appeal. I regret to hear of decisions so far advanced that we are already told the work of Sir James Thornhill is to be restored. I cannot think that Wren ever allowed his cupola to be overlaid with the architectural portraiture, now these many years happily half effaced, with other than a heavy heart. That mighty span grew not under his hands to appear at last an imposture, a distortion, an impending wreck, at the will of an illustrator. Colour, gild to the full; make it a glory to stand over the tomb of Nelson, and lift up one's eyes on high; but use the cunning pencil of Him who painted the golden and tender azure tints of our own northern sky. Let it be a canopy of melodious, interwoven quiet and splendour; let us look up as amid the trees to a glorious summer heaven; but—but "the Lord deliver" it from Sir James Thornhill. Neither, to be consistent and true, can we make the walls of St. Paul's a canvass on which to illustrate the history or the epochs of the dealings of the Unseen with men. For it is not to this or that god, whose exploits are the creations of fancy—whose form some symbol of nature—we may haply receive from the hand of an approved delineator of fables, that we have reared this marvellous dome, these stately walls, this majestic portal. No ecstasy of passionate art can recall to the eyes of men the effigies of Him once "manifest in the flesh;" no trace remains to us of the likeness of those whose words and works are written for us with the pencil of truth. Leave the fabler alone with the fabulous: Bacchus or Ariadne we meet not in the realms of futurity. I would say, then, if we must intrude the sensuous food of the eye where the voice of man was intended to reign omnipotent, at least go not beyond the golden path of the parables of the Saviour. For myself, I can turn my back on the gaudy walls of Notre Dame de Lorette to learn of the truth-loving Moslem. I can recall to remembrance the village church of our youth, and, while I would strain splendour and beauty to the utmost reach of munificence and art, I would let no other voices speak from the walls of our temple than those which Guttemberg has scattered over the world on the pages of holy writ. Lastly, I would say, waste no valued hours, do no work for the ages to come that will not stand the search of a coming iconoclasm, for we know what the hand is that is lifted with "axes and hammers." F. H.

As far as can be made out from what has been reported concerning it, the recently-started project for decorating the interior of St. Paul's has elicited only vague general ideas, more or less conflicting, without being confronted with each other. Unless the matter should now be dropped altogether, the rational and only safe way of proceeding would be, before any of them were determined upon for adoption, to test the several schemes by means of such drawings and views as would show the respective ideas fully shaped out so that they might be fairly judged of and compared with each other. That course of proceeding would, of course, be attended with some trouble and expense, but might save considerable perplexity afterwards, if not expense likewise.

Notwithstanding that the opinion of an unknown individual is not likely to have any weight, I venture to give mine upon two points—the dome and the windows. Most strongly am I opposed to the restoration of the present paintings by Thornhill, or the substitution of anything similar, for the decoration of the dome; because, so applied, not only does painting (*i. e. picture*) usurp the place of architectural ornamentation, but does so greatly to its own disadvantage: for while the concavity is cut up, and the idea of covering overhead is in a manner destroyed and done away with, pictures cannot possibly but show themselves imperfectly, and more or less distorted in such preposterous situations, more especially at such a height from the floor as are those in St. Paul's—a height, besides, nearly double the diameter of the dome itself. Should paintings so placed be of any value as works of art, they are thrown away, since they cannot be enjoyed as they deserve, but almost any unmeaning dabs of colour would produce an equal degree of general effect. Or else, at such a distance from the eye, figures require to be enlarged to such colossal dimensions as considerably to reduce the scale of the architecture. On the other hand, the unusual elevation of the dome above the floor is greatly in favour of its being ornamented architecturally with painted coffers or compartments, because the deception could hardly be detected from below. Some will protest against that as *sham*. Well, call it sham, if you like,—at any rate it is a very innocent sort of hypocrisy—would that we had never any worse!—and has the merit of being free from absurdity and contradiction. It would, indeed, be a substitute for a reality, but for a very natural and legitimate one.

If anything is to be done at all, something must be done to the windows, or else they will show as positive blemishes. Even now they have a very sulky look, and are mean and dingy even to shabbiness. I myself have always regretted that the architect did not discard side windows altogether, except those of the clerestory, and light the aisles through the small segmental domes in the vaulting, opening and glazing them, instead of leaving them solid. In lieu of the present windows, there would then have been compartments for fresco, which, seen through the arcades of the nave, with the light diffused upon them from above, would, I conceive, have produced a strikingly beautiful effect. The exterior, too, would have been greatly the better for the absence of windows, the present ones being quite the reverse of ornamental in every respect,—certainly of most rude and poverty-stricken appearance in their glazing.

No scheme of improvement which does not include entirely fresh windows as a *sine qua non* in it can be satisfactory; and perhaps improvement ought, instead of finishing, to begin with them, because, if they could be rendered decidedly ornate features, and made to give an air of general richness to the interior, a moderate degree of embellishment in other respects might be found sufficient. This advice, it may be thought, smells strongly of either glazier or glass-painter; and if the reader can reconcile such suspicion with a dislike to side

indows in churches which are in any other tyle than that of mediæval architecture, I am uite willing to submit to it. A. Z.

APROPOS TO OUR FUTURE NATIONAL GALLERY.

That another building for a National Gallery will ere long be erected there can be little oubt; wherefore it would not be even now at ll premature were architects to begin to give heir attention to a subject which lies out of he course of their usual studies,—one for which no perfectly satisfactory model is to be ound, and relative to which very little information is to be derived either from architectural books or others. Of course, no one can hape out a design definitively beforehand, vithout knowing the extent of accommodation hat will be asked for, or the site of the structure, and sundry other particulars; still architects may and ought to be prepared beforehand vith ideas which can be afterwards embodied y them, whenever they shall be formally alled upon to do so. Careful study of the ubject generally ought to precede the making ut an individual design, more especially if the ubject itself be so remote from every-day ractice and routine as is a public picture-allery. It is, therefore, or ought to be, fortuate that time is afforded for giving it delibeate consideration. And perhaps Government vould do well, as a preliminary step, to employ ome one to visit and report upon the princial existing galleries abroad, carefully noting heir respective defects or recommendations. Although we may not be able to ensure comlete success, let us at least take the course most likely to secure it; so that if we are to fail, et it not be attributable to heedlessness and urry, which, so far from any valid excuse, are n themselves utterly inexcusable where any ublic work of importance is at stake. In all robability, our public buildings generally vould be far more satisfactory than they are vere longer time allowed for preparing designs; nd although committees do not appear at all o suspect it, there is a wide difference between nerely getting up a set of competition drawngs, and producing a thoroughly considered nd matured design. As matters are usually managed, architects are compelled to send in heir first ideas unrevised; indeed, to suppose he contrary, would be anything but charitable owards many whose designs when executed betray strange negligences and a degree of arelessness not otherwise to be accounted for, save by imputing them to incapacity which has done its best—to incapacity which would not be tolerated were the public, and those who in such cases decide for the public, less ignorant of architecture, or else less indifferent to its interests.

Irrelevant as the immediately preceding remarks may be deemed to the question of a new National Gallery, they may at least be excused as serviceable,—as pointing out the root, and exposing the vicious system, from which our architectural failures in the majority of our public works arise. Not only is very insufficient time allowed architects for the due preparation of designs,—unless, indeed, they happen to be quite disengaged at the moment, —but similar disastrous hurry shows itself in the selecting one from those sent in; nor is anything suffered to transpire relative to that stage,—and most assuredly it is not the least important one,—of an architectural competition. Those who act as judges on such occasions are allowed to be totally irresponsible. They may or may not be competently qualified for the delicate office they undertake, their decision may have been conscientious or the contrary; but the capability of self-constituted judges, and the judiciousness of their decisions, will ever be exposed to awkward and ugly suspicions, so long as the veil of secresy is allowed to be thrown over them.

With regard to another structure for the purpose of a National Gallery, much greater surface of wall ought to be provided than is afforded in the present rooms, where half as much again is required for properly disposing the same number of same-sized pictures. A permanent gallery—be it a public or a private one—ought not to have the air of an ordinary exhibition-room, so called, perhaps, upon the principle of *lucus à non lucendo*, one half of the performances hung up in it being exhibited only by titles being printed in the catalogue. Another point which deserves serious consideration beforehand—although, indeed, it seems hardly to demand any at all—is whether, in a new structure for the purpose, provision ought to be made for systematic arrangement or classification of the subjects. Besides the usual and more obvious mode of classification according to schools, there ought to be some regard paid to tolerable uniformity of size in paintings hung up together in the same room. Nay, it is highly desirable to go much farther, and adopt a principle which has hitherto been either strangely overlooked, or else as strangely disregarded, that of classifying or subdividing the classification of pictures according to their subjects, so as to avoid the chaotic and Babel-like confusion which, in that respect, is now allowed to prevail. Nor is it sufficient distinction to have pictures marshalled as "historical" "landscape," &c. because even such technical division of subjects affords no security against startling incongruities. It was but the other day that a correspondent of *The Times* animadverted on the scandal of making a "Virgin and Child" and a "Venus and Adonis" *pendants* or companion pictures. Yet such is the case more or less in every collection: subjects of the most opposite nature, and which, if they affect the mind at all, except according to the artistic power displayed in them, must necessarily excite very different emotions, are frequently brought into the closest propinquity, as if it were intended that they should operate as antidotes to neutralise each other. Sacred and profane, poetical and familiar, pathetic and comic, imaginative and mere matter of fact subjects are mingled together without distinction. Even in landscape there ought to be regard paid to classification. Ideal compositions in that branch of the art ought to be kept separate from views which profess to be portraits of particular spots.

Few private collections are of such extent as to admit of attempt at such classification of subjects; neither is it to be looked for in a temporary exhibition of pictures, want of time for making it rendering it there impossible. But in a permanent national collection it surely ought to be observed; and the adoption of it would confer upon our future National Gallery a decided superiority in that respect over all existing ones. In a library, works upon utterly dissimilar subjects, or else of quite dissimilar character, may be placed together without any obvious incongruousness. Upon a bookshelf, "Comus" and "The Beggars' Opera" might stand together in amicable contact, they being read neither simultaneously nor consecutively. But between a *Bibliotheca* and a *Pinacotheca* there is this wide difference, that the works contained in the latter are *perused*—that is, viewed, if not exactly simultaneously, consecutively and immediately so. Unlike books, the subjects—and the moral character, so to speak—of pictures, make themselves evident at a glance; wherefore the hanging together on the same wall, as has been done ere now, the ascetic and the voluptuous—Virgins and Venuses—is, if not highly indecent, at least exceedingly indecorous and inconsiderate.

The systematic classification of pictures according to subjects that ought to be observed in what ought to be made a *Museum* of Painting, would, perhaps, be less agreeable to the idle and vulgar curiosity of the "million," than is the present higgledy-piggledy system of variety. Yet, most assuredly, it would greatly facilitate study, which—and not a mere taste for sight-seeing—a National Gallery is intended, it may be presumed, or ought to be presumable, to facilitate and promote.

Q. E. D.

Statue to Dr. Jenner.—An influential committee has been formed for the purpose of erecting a colossal bronze statue to the memory of Dr. Jenner, to be placed in a public situation in London.

ON THE WORKS OF THE STUDENTS IN THE VARIOUS SCHOOLS OF ORNAMENTAL ART EXHIBITED AT MARLBOROUGH HOUSE.

The following is a Report on an Inspection of the Works of the Students in the various Schools of Ornamental Art, by the Art Superintendent:—

1. The works of the students in all the Government Schools of Ornamental Art have this year, for the second time, been exhibited together, for comparison and inspection. The object, however, has not been to show by their numbers the amount of labour in each school, but by such a selection as should adequately represent the state of all the classes to test the general character and tendency of the instruction given. By this means the position achieved by each school can be fairly estimated, and attention called to deficiencies and errors—which, although varied in each, can hardly be entirely avoided in any—while such deficiencies and errors will thus be remedied and future progress ensured. In making the selections for these collected works, the master of each school was required, for the first time, and at a short notice, to forward a defined number of works from each of his classes, rather than, as heretofore, to send up an unlimited amount of the labours of the school. The Appendix contains in a tabular form the number of works required from each school, and the manner in which the requisition was responded to.

This selection was confided to the master as, above all others, interested in placing the instruction given in the fairest light. The number of works required, and the classes to be represented, have been arranged in proportion to the nature of the school, and the amount of Government grant made to its support, and was thought to be sufficient to mark the general character of the teaching.

This required number of works has, with one or two marked exceptions, been mostly complied with: where there has been a want of class examples, or where the schools have been but lately organised, such as those at Stourbridge, Macclesfield, and Worcester, deficiencies from such causes were of necessity unavoidable.

2. It has been thought necessary to require the productions of every class for comparison and inspection, commencing even with those which are of the most initiative character; for experience has shown, that where such classes are not made of great importance and most carefully taught, the advanced classes are never found in a thoroughly satisfactory state. In this view the most elementary class of ornament, that of "outlines drawn from outline examples," is one of the most important of the whole course; since, when well conducted, it gives a right direction to all after teaching. This is especially evident in the works from Manchester, the Metropolitan schools, and the schools in the Potteries, where the studies in this class are of great excellence: a sense of perfection is evident throughout the works of these schools, and the advanced classes are well represented, showing careful drawing, and a proper understanding and appreciation of the skeleton or constructing lines of the ornament, as well as being skilfully completed in light, shadow, or colour; whilst it is necessary to remark, that the defective state of this class of "outlines from outline examples" at Coventry is connected with the absence of general excellence in the works of other classes. It is true that great individual excellence *may* be found where such careful initiative instruction is wanting; but this may fairly be considered to arise from individual talent in the student, while general excellence in a class, or school which is but an aggregate of classes, is only attained where the initiative training is careful and precise.

3. With a view to the inculcation of a thorough sense of proportion and symmetry, the class of Practical Geometry has been placed as the commencing class of the studies of the schools. The masters appear generally to have felt its importance as the basis of all true ornament; and many of the sets of examples sent up have been thought worthy of

reward. It is still, however, desirable to impress on some the value of this class in the early training of the pupils, and to lay great stress on its operations for the future. Besides being the basis of ornamental as distinguished from fine art, and the best guide to proportion and symmetry, the use of practical geometry to all workmen and employers of workmen—in which two classes the whole public are largely included—as the vehicle of explanation and measurement, must at once be evident, and its value in educational training be immediately acknowledged.

The careful study of practical geometry should be considered of the first importance on both these accounts to all teachers in elementary schools, who, from being under the control of the Committee of Privy Council for Education, are admitted for instruction into the Government Schools of Ornamental Art.

4. As the student advances from "free-hand drawing" to represent the relief of objects by light and shadow, careful *methods* should be earnestly inculcated, and the mode of "shading" employed be of such a nature as to lead to an appreciation of "beauty of execution," as tending to that general sense of perfection so necessary to be awakened in all whose aim is decorative beauty. Excellence in this respect has been achieved in the schools at Glasgow, Manchester, the two Pottery schools, and the Metropolitan schools, and is beginning to be evidenced in the school so lately founded at Worcester also. Great care, however, is necessary to avoid exalting excellence of "execution" at the expense of excellence of drawing, which is slightly observable, even in a school standing so high in this respect as Manchester. In the Paisley school the "shading," in many respects commendable, errs from the "cross-hatching" adopted, the lines of which are too evident and pronounced, and too much at right angles with each other. Another fault of "shading" which must be remarked is the introduction of too much half tint, often representing colour rather than light and shade, and needlessly occupying the time of the students: although much improvement is observable in the works from Sheffield, the fault still lingers there, and produces that tendency to sootiness observable in the "shaded" works from that place.

5. *Figure.*—In passing to the study of the "Figure," both drawn and modelled, too great attention cannot be given to the initiative studies. In the class of drawing "outlines of the figure from the flat," that is, from outline examples, a knowledge should be imparted of the lines that regulate the distribution of the features and forms of the trunk, and their perspective change in the various positions of the head and body. When the student advances to the "study from the round," drawing and proportion should claim his first attention, and the careful completion of the joints and extremities be strongly insisted upon before any exclusive consideration of "modes of execution." It is, moreover, desirable that male forms, and those of the severer character, such as the Discobolus, the Dancing Faun, or the Fighting Gladiator, should first be studied, as imparting more information to the student than female forms or male statues of a more voluptuous character, such as the Antinous or the Apollino, which are better attempted when beauty is to be studied after a certain amount of knowledge of form and proportion has been obtained. In the metropolis, where first-class decorators must obtain instruction, as well as workmen in the precious metals, in stone and wood carving, as also at Birmingham, Sheffield, and the Potteries, a knowledge of the human figure is most important for the manufactures of the localities, and, in these schools, the classes for drawing and modelling the figure should be most carefully taught, together with anatomical structure, as far as is required by the artist; and since in metal work and china the labours of the workmen are often small in scale, great and *intelligent* finish is absolutely required. Some works of high merit in the London school, being enlargements into low reliefs from the outlines of Flaxman, would have benefited by greater completion as regards the "extremities." This ought to have resulted from the careful teaching from the antique, and of anatomical details in that school, and the excellent method employed, which, as a mode of instruction, deserves high commendation, whether as applied to drawing or modelling, in both which classes very excellent results are exhibited. Both Birmingham, Manchester, and Newcastle have shown successful anatomical studies; and Sheffield (although continuing an objectionable practice of adding anatomical details to the figures, "outlined from the flat," instead of applying them in the class, "from the round,") this year manifests much improvement in the teaching of this class.

6. In other schools where the study of the figure (if of less importance for its local use) should be careful and correct, as a means of education in form, grave errors are apparent: clumsy and unfinished extremities, as at Coventry, and over-charged development of the muscular forms, as at York, should meet with correction on the part of the masters, if they would avoid such being imputed to them as grave faults of teaching, on future inspections of the works of the schools. In this place the modelling of flowers and of ornament in the various schools may properly be referred to: this is generally characterized as somewhat wanting in completion, not so much as to form as to a sense of true relief: thus at Manchester, much of the ornament is so strongly and sharply relieved from the ground throughout as to give the appearance of putty work *applied* to a surface, whilst in certain, otherwise skilful, renderings from nature, both in the London and the Potteries schools, the quantities are too equally and coarsely relieved. One or two works, however, in these schools are meritorious and free from this defect, whilst a composition of figures of great merit from the Metropolitan school, and some brackets very skilfully designed and executed from Stoke and Hanley, deserve great commendation: in the modelled copies of ornament from Glasgow, and in some of those from Sheffield, the nature of relief is well understood and carefully rendered.

7. *Colour Classes.*—The next class of works to be commented upon are all those which have relation to colour, and the various modes of "execution" in painting. This is a most important part of the labours of schools of ornamental art, and one which has hardly met with sufficient attention; partly, it is true, from the nature of the studies, which follow on a large amount of proficiency to be obtained in other classes, and partly from the want of sufficient coloured examples in the schools; but also, in some degree, from a want of appreciation of its value and advantages. Thus, in the Sheffield school, the use of colour, and even instruction in processes of painting, are at present wholly neglected: even the more rapid execution in the rendering of "form," by tinting of any kind, seems not to be generally practised: this is to be regretted, and should be amended. To pass from the power of expressing light and shade in a more facile manner which is thus attainable, the very manufactures of Sheffield might, doubtless, be sometimes improved by the introduction of colour. The examples of enamelling applied to metals, to knives, and weapons of war, in the museum of this department, especially in the specimens from India, are sufficient evidence of this; and Sheffield, which works for all markets, would do well to note it. With a master well qualified to carry out such studies, it must almost necessarily be inferred, that this neglect of colour is the choice of the committee. Yet if we consider how much of the perception of what is beautiful is mixed up with the addition of colour to form, it will at once be perceived how deficient is any training in ornamental art which systematically overlooks it. Even, however, if of secondary importance at Sheffield, the value of colour and of a knowledge of the processes of painting in the great seat of our china manufacture, must at once be evident. Yet, although there is an advance in this respect on last year in the Pottery schools, this study is not yet carried on in them to the extent which the manufacture undoubtedly requires. From a proper study of the laws of colour, and of the application of coloured ornament to the surface of porcelain, some perfectly novel treatment might be expected to arise; and much that is false in taste, puerile in execution, and merely imitative of other works, be banished from the manufacture; whilst the teaching good methods of execution is an actual necessity.

8. As far as instruction in the processes of painting are implied, the copies of ornament in tempera from the Glasgow school, and of the Indian ornament of the Great Exhibition, by students of the Metropolitan schools, deserve much praise; and in this respect as well as in their imitation of nature, the flowers, &c. of the Metropolitan Female school, those from Manchester and Dublin, with one or two examples from York, Stoke, and Hanley, are very satisfactory, but a more extended acquaintance with the laws regulating the harmonious combination and arrangement of colour is requisite in all the schools. The study of natural objects, of foliage and flowers, as suggestive of new ideas and beautiful combinations, is connected with this class, and the student is often allowed to linger too long over that part which is merely preparative to the use of colour. The elaborate and careful outline drawings and compositions of foliage from Glasgow, Spitalfields, Stoke, Hanley, and Manchester, and the beautiful shaded studies of foliage from the three latter schools, might with advantage give way at an earlier period to their study in colour. Coventry, which seems to possess talent of this kind also, as well as the students in the newly formed schools at Worcester and Macclesfield, should as early as possible have extended classes for these studies as of especial value to their local manufactures: the objection urged as to the difficulty arising from the necessity of studying by gas-light is not an obstacle which would stand in the way of a large amount of benefit being thus derived. Nottingham (which sends up one or two good shaded examples) and Belfast are, from the nature of the local manufactures, in some degree an exception to the necessity for the use of colour; but for increasing a love and study of nature, even here the practice should not be neglected.

9. *Elementary Design.*—To cultivate the inventive faculty in the students, a class of elementary design has been formed, to exercise them in the selection and ornamental combination of new materials. In the Metropolitan school (male) the teaching of this class consists in the students being required to arrange some simple form in a given geometrical space, having an eye to agreeable distribution and quantity. They afterwards proceed to arrange in similar spaces foliage or flowers from nature, which they are taught to conventionalize so far as to reduce them to a flat treatment and symmetrical distribution of parts: as they progress in the class they add colour in gradation, and then in simple harmonious combinations, and are taught to distribute the pattern with a view to "repeats." Something akin to this is the method of the Manchester school: there, however, the structure or growth of a flower is explained by the master, and given as a unit which the student is required to arrange, geometrically or otherwise, over a given space; whilst at Glasgow the class seems rather to consist in clothing known skeleton forms with foliage derived from nature, but with little apparent attention to the purpose of the ornament, whether as flat, in relief, or in colour. Belfast and Spitalfields schools seem successfully following the practice of the school at Somerset House, and although some suggestions might be derived from the course pursued at Manchester, this seems on the whole to be the most satisfactory mode of conducting the class, —a class which should as early as possible be in operation in all the schools of ornamental art.

10. *Design.*—It is proper to conclude with some remarks on the subject of design, which has this year received a larger share of attention in all the schools. Without desiring to lay too great a stress on this section of the labours of the schools, it must be remembered

that their life and progress will in some degree be measured by their production of such works. The metropolitan male school has some excellent designs for lace, for book-covers, for metal work, and for various textile fabrics; for the most part perfectly practicable, and evincing a satisfactory share of novelty and invention, and a large prevalence of skilful training. The metropolitan female school also exhibits many ingenious and fanciful designs for lace, some chaste and clever carpet designs, as well as some for table linen, and for ladies' dresses; and it is evident that the study of the ornament of the Indian fabrics in the Great Exhibition, before spoken of, is producing a sensible impression on the works of the students, and that they are alive to the just principles of design, which are the characteristic of Eastern ornament. The designs from Glasgow, which are cleverly and dexterously executed, consist too much of mere re-combinations of known materials, and this often without consistency either in the combination of the ornament, or in its application to the fabric. Belfast, Dublin, Norwich, Newcastle, Paisley, and Spitalfields schools have also contributed designs of varied merit. The modelled designs from Stoke and Hanley have already been remarked upon. Sheffield is this year a large contributor of designs for metal work, some of which have been successfully modelled, and some exhibited in a manufactured state: they are clever and inventive, and of more than average merit. Manchester, which is also a large contributor in this class, is more successful in executive skill, and in seizing the prevailing taste of the local manufacture, than in any sensible effort in a right direction. The large panels exhibited are erroneous in their decorative taste, and false in their application of ornament for such purposes, the treatment being of a pictorial rather than of an ornamental character: as specimens of flower painting in tempera they are, however, very commendable. The designs for garment fabrics, moreover, are too much in the imitative style which is the present *fashion* for such goods. If the manufacturer is to be benefited by the instruction given in schools of ornamental art, novelty, as an end, must not be aimed at, but must be the natural result of sound principles, carefully considered in relation to the fabric or material for which the designer labours; for it must be remembered, that in speaking of "the principles of ornament," the phrase ought to be considered as having a double relation; in the one case implying the principles which belong to style or period, such as the distribution and correspondence of parts, the quality or nature of the curves, the species of relief adopted, or the laws of combination which regulate the application of colour, and all that has reference to ornament purely as ornament; but that another and a very important meaning of the phrase relates to those principles which govern the application of ornament to materials and fabrics. To manufacturers and workmen the latter are at least of equal importance with those first named. These principles regulate the due subordination of the ornament to the material, and should be earnestly studied by and for the student. Thus the egregious misapplication of architectural stone ornament in relief to decorate carpets and table-covers, or of landscapes and pictures to muslin curtains, will gradually be disallowed, under however high authority it may have been perpetrated; and on the other hand, the *mere imitation* of flowers or foliage on garment fabrics or paper-hangings will be found as contrary to good taste as it certainly is to just principles. However harmonious the colours of a flower may be, or however graceful its form, when it takes new conditions these beauties must be conformed to the new relations. The form of the flower must be conventionalised to suit the fabric or material to which it is to be applied as ornament; while even from the laws of colour we learn, that however beautiful in this respect the object is in its natural state, it requires a peculiar treatment to suit it to the exigencies of the manufacturer, and the skill of the dyer or weaver; besides the necessity of being considered in relation to a constant recurrence of the pattern, to the ground on which it is to be applied, and, above all, to the uses for which the fabric is intended. While it is necessary, however, that not only the principles of ornament should be understood and inculcated, but the true principles of its applications to given fabrics also, it must always be borne in mind that the object of these schools is not to produce designs or patterns in the prevailing taste of the time, but in accordance with defined laws, and with what is believed to be a juster taste, resulting from true principles, and quite irrespective of temporary fashions. Due attention to this will prevent any interference with the trade labours of the designers who frequent these schools; while the manufacturers will, it is hoped, be eventually led to adopt the taste and practice therein followed, rather than to fear that the thoughts and ideas of their designers will be abstracted from them in their school studies. It is to be hoped that a body of sound axioms on all these matters will gradually be compiled, and it will be the duty of the new department to inculcate their careful consideration; to watch that the labours of all the schools are carried on in conformity with them, and irrespective of the mere fashions of the day; and to endeavour gradually to disseminate a sounder taste, and to cultivate a juster discrimination in the general public.

11. In conclusion, it is necessary to urge on the attention of the masters that success is not to be measured by a school's sending up for inspection works in all the twenty-three classes into which its labours are divided, nor by the number of works shown in the most advanced of such classes, but from the evidence they contain, first, of a careful and thorough grounding in geometrical perspective and free-hand drawing, and in the careful and well-understood study of light and shadow, and good executive methods of shading and modelling; and, secondly, in the earnest and severe study of nature, as of flowers and foliage, as the source of new thoughts and graceful combinations, to which it is requisite to add a knowledge of the laws which regulate the harmonious distribution of colour.

In this view it is even necessary to seek to restrain the too much divided efforts of some schools, and to advise that the earlier classes, especially those constituting the study of ornament in relief, at Spitalfields, Belfast, York, Leeds, and Cork, and more especially at Coventry, should have a greater share of the master's attention, which might be better spared for the present from the more advanced figure classes; and to encourage the newly-founded schools at Macclesfield, Stourbridge, and Worcester, steadily to pursue the course they have so well begun, and to be rather anxious to lay a solid foundation than to press the students onward to studies of more apparent but of far less real importance to their ultimate success.

RICHARD REDGRAVE.

NOTES IN THE PROVINCES.

Evershot, Dorset.—On the 5th inst. the contractors, Messrs. Chick, of Beaminster, commenced taking down the body of St. Osmund's Church preparatory to its reconstruction and enlargement. The first stone of the new edifice was laid on Friday, 23rd inst. by Mr. William Jennings, of Evershot. The new structure which is to be in the style of the fifteenth century, and in accordance with that of the old church, includes a nave and north and south aisles. The walls are to be constructed of Forest marble, with dressings of Hamdon Hill stone. The roofs entirely of oak and covered with lead. It is to contain 400 worshippers, in open benches, also of oak with carved ends. The estimated outlay is 1,500*l.* and includes the cost of restoring and strengthening the tower. It is much to be regretted that the chancel, which is in a miserable state, forms no part of the contemplated works: if allowed to remain as at present it will be detrimental to the general effect of the new church. The committee unfortunately have no control over this portion. The cost of these works will be defrayed by donations from the Earl of Ilchester of 400*l.* Mr. Jennings 400*l.* Mr. J. Crew Jennings 400*l.* and various other contributions. The architect employed to superintend the building is Mr. R. H. Shout, of Yeovil.

Longton, Staffordshire.—The corner-stone of St. Paul's Church, Edensor district, was laid on Thursday last, by John Edensor Heathcote, esq. lord of the manor of Longton, who is donor of the site, and a liberal contributor towards the expense of the building. The Rev. P. M. Walker is incumbent of the district, which contains a population of 4,370. The church will be erected from the design of Messrs. Ward and Son, by Messrs. Wilcox and Sons. The style will be Decorated. It will consist of a nave and chancel in one roof, 97 feet long together, and 23 feet wide; north and south aisles, 12½ feet wide each, and the length of the nave 69 feet; a south porch, and a steeple at the east end of the north aisle, to serve as vestry and organ-room, with the seats for the choir in front of it in the chancel, to which, and the north aisle, the tower will be open by arches. All the roofs will be of open timber, stained. The seats will be low and open, and also stained. The church will accommodate 549 on the floor, and there will be a gallery for children across the west end, accommodating 250, and having a staircase entered from without, and carried up as a turret. The church will be built of the red sandstone of the neighbourhood, the gift of the Duke of Sutherland.

Trowbridge.—On Friday last, the first stone of a new church, to be dedicated to St. John, was laid at Upper Studley, in the parish of Trowbridge, under circumstances realising the couplet that he

> "Who builds a church to God, and not to fame,
> Will never mark the marble with his name."

inasmuch as it is to be built at the sole cost of a friend unknown, who placed in the hands of the rector 1,200*l.* viz. 1,000*l.* for a church, and 200*l.* for a schoolroom. The Earl Manvers granted for the same object, three acres of land for parsonage-house, glebe, church and burial ground, and school. Messrs. C. and R. Gane are the builders, and the plans were drawn under the superintendence of Mr. T. Clark, the younger, by Mr. W. H. Wilkins, architect.

Faversham.—The ceremony of laying the foundation-stone of new national schools here took place on Thursday in last week.

Bitterne (Southampton).—The foundation-stone of a new church at Bitterne was laid on Monday week. The architect is Mr. George Guillaume. The workmen employed on the building afterwards assembled on the lawn at Midanbury (the residence of Mr. J. Usborne), where refreshments were provided for them, and various sports and amusements closed the day. The builder, Mr. William Gambling, has contracted to complete the church by the beginning of May next.

Torquay.—It is proposed to erect a consumption hospital here. Six hundred pounds have been collected by a lady towards a building fund, and about eight hundred more are required.

Upton-on-Severn.—At the Worcester Assizes an application was made to the Court on behalf of the inhabitants of Upton, that a fine should be imposed upon the county magistrates, to facilitate the erection of a new bridge, or to provide a temporary bridge till the new one should be completed. The application was grounded on the great inconvenience and expense at present sustained by the district in having to cross the Severn by a ferry-boat; and that differences of opinion existed among the magistrates as to the plans and mode of building the bridge, which warranted the conclusion that the erection of the bridge would be delayed.

Holywell.—The foundation-stone of Brynford Church Schools was laid on 13th inst. The schools are intended to contain about 120 boys and girls. They are to be furnished according to the requirements of the Committee of Privy Council on Education and that of the National Society. Attached will be a house

for the master, separate play-grounds for both schools, &c. The schools will be divided by a curtain, for the purpose of holding examinations, &c. The length of the boys' school will be 25 feet 6 inches, by 17 feet wide; that of the girls 27 feet, by 17 feet wide.

Wolverhampton.—The new church of St. James at Wednesfield Heath, which was to be consecrated on Thursday in last week, is in the flowing decorated style, and the edifice consists of nave and aisles, with north porch and south entrance under tower; chancel, with organ chamber on north side, separated by a stone screen, and a vestry. The nave is 85 feet long and 26 feet wide, and is divided into six bays. The aisles are 14 feet 6 inches wide, thus making the total width 55 feet. The chancel is 36 feet long and 19 feet wide. The tower, which is placed at the south-west corner of the nave, is terminated by a broach spire, altogether 140 feet high. The roofs are open timbered and of a high pitch, with arched principals. The whole of the interior as well as of the exterior is dressed stone. The seats are all open, and, together with the doors and other joiners' work, are of oak. The chancel floor is laid with Minton's encaustic tiles. The Lord's Prayer, the Apostles' Creed, and the Decalogue, are painted on tablets (with gold grounds) placed under the east window of the chancel. The pulpit and font are of Caen stone, and the belfry is provided with one large bell. The mode of lighting is by six large brass coronas, suspended by brass rods from the apex in the roof. The principal entrance is under the tower, through recessed arches, springing from columns with floreated capitals. The windows, particularly the windows at the east and west ends, are large, and though a general resemblance is retained, no two windows in the lower portion of the church are alike: every corbel also differs from its fellows. The nave is separated from the aisles by clustered columns, supporting six pointed arches on each side. The exterior is ornamented. The architect is Mr. Banks; builders, Messrs. G. and F. Higham, of Wolverhampton. A large walled burial ground surrounds the church.——The tenders of Messrs. G. and F. Higham for the restoration of the Collegiate Church have been accepted by the executive committee. There were four other competitors.

Birmingham.—A monumental window has just been placed in the church of the New Cemetery, by Mr. J. P. Hebbert, of New-street, in remembrance of his brother, the late Lieut. Hebbert, of the Bengal Engineers. The centre panels of the lower openings contain the figures of St. Michael and St. George, and in the smaller ones are emblems of the four Evangelists, each opening being surrounded with initial borders. An oak pattern forms the background of the window. The openings in the tracery are filled with armorial bearings. The window is on the south side of the church. It is from the establishment of Mr. Holland, of Warwick.——The opening of the General Institution for the Blind, Carpenter-road, Edgbaston, took place on Thursday week. The building, which has just been completed, under the superintendence of Mr. Hemming, architect, forms a conspicuous object, being at the junction of Church and Carpenter-roads, Edgbaston: it is in the Elizabethan style, and constructed of brick, with stone quoins and dressings, and has been erected by Messrs. Branson and Gwyther. It consists of centre and wings, the former 88 feet, and the latter 22 feet in length: a music-room, partly detached from one of the wings, stands at the north-west angle, and is intended to accommodate 300 persons. It contains an organ by Bishop, of London. The windows are glazed with painted and etched glass manufactured by Messrs. Chance. The centre, on the ground-floor, consists of entrance-hall, 20 feet by 14; sale-shop, 26 feet by 18; secretary's offices, master and mistress's rooms, matron's room, store-room, kitchen, and pantries. Immediately in the rear are the domestic culinary offices, the kitchen court, and the basket-shop, 60 feet by 18. The right-hand wing contains dining-room, 40 feet by 20; boys' school-room, 34 feet by 20; and staircase, 20 feet by 9. The opposite wing—girls' basket-room, 24 feet by 32; girls' school-room, 34 feet by 20; and staircase, 20 feet by 9; and these wings are connected by an outward covered way, independently of the internal communication of the corridors. The first floor consists of the wings, and the front portion of the main centre, and is arranged as dormitories, sick-rooms, &c. At the rear of the institution are play-grounds, separated from each other by the basket-room building. The entire site of the institution and grounds occupies an area of two acres.

Liverpool.—Recently a large building has been erected in Warwick-street, Toxteth-park, and is now in course of completion, which is intended for washhouses and reading-rooms for the poor of the neighbourhood. The edifice runs from Upper Mann-street to Bedford-street, having an entrance at each end. The reading-rooms are not yet completed, but when finished will consist of ante-rooms and one large room. The rooms will be supplied with the leading newspapers and periodicals of the day.

Balderstone.—According to the *Preston Guardian*, the foundation-stone of a new church, dedicated to St. Leonard, was erected here on Thursday in last week with free masonic and other ceremonial. The new building is to be erected nearly on the site of the old church. The architect is Mr. Rampling, of Preston; and the contractors are Messrs. Hargreaves, of Clitheroe, and Messrs. Waddington, of Padiham. The church is designed in the style of the fourteenth century, consisting of nave, 57 feet by 36 feet; chancel, 18 feet by 12 feet; and a porch on the north side. It will contain sittings for 381 persons, and will cost about 1,000*l.* After the stone had been laid by Mr. Joseph Fielden, a blind farmer named Mr. Joseph Greaves, of Myerscough Smithy, Balderstone, says the *Guardian*, "was led up to the stone, so that he might touch and examine it. This individual, we understand, has taken great interest in the new church, and has contributed 100*l.* towards its erection. He knocked the four corners of the stone with Mr. Fielden's mallet, and after each blow his niece placed by his orders a sovereign down, after which the elderly farmer said he did not see what the middle had done that it should not have a blow, so he struck it, and that, too, was honoured with a gold coin. He was then introduced to Mr. Fielden, and was delighted, as he said, 'that two Josephs should be together.'"

Bolton.—On Monday week, a frightful accident occurred at the Star Inn, Bolton, by the falling of the eastern wall of the concert room and museum, destroyed the week before by fire. Mr. Sharples had engaged Mr. Simcock, a master bricksetter, who erected the building, to take down the walls, with instructions to use every precaution necessary to prevent accident. The work had been going on under Mr. Simcock's superintendence. Several persons were among the ruins at the time, watching the progress of the workmen. Some were much injured, and others killed, a number of poor Irish people having their dwellings destroyed, and themselves buried in the ruins, whence those alive were shortly afterwards extricated. A verdict of accidental death on those who died was given by a coroner's jury.

Sunderland.—The baths and washhouses here appear to have at once become self-supporting on their opening, and to be now steadily yielding a surplus of 1*l.* a week, after paying interest at four per cent. on the cost, including site and alterations (about 3,000*l.* it appears). The building was commenced in the autumn of 1850, and finished so far as to make its opening practicable in April, 1851. The establishment comprises twelve baths, thirty-seven washing places, a drying closet, and an ironing and mangling room. The working expenses of the establishment, including cost of coals, gas, water, and every other charge, is under 4*l.* per week, together with about 2*l.* 6s. for interest of borrowed capital. The weekly receipts up to the close of 1851 were 6*l.* 19s. 9½d. and the establishment was at once self-sustaining. The number of persons who have bathed during the past six months have been 7,671, the number of washers 4,972, and the number of hours of washing have been 29,925, or an average of four hours for each person. The receipts from the bathing department have been 88*l.* 17s. 1d. or 3*l.* 6s. per week; and from the washing department 124*l.* 13s. 9d. or 4*l.* 15s. 11d. per week, making in all a weekly income of 8*l.* 1s. 11d.

ROUEN CATHEDRAL.

STAIRCASE IN THE NORTH TRANSEPT.

THE Cathedral at Rouen, although the most important church, is not the most beautiful: it must in this respect occupy a secondary position to its more brilliant neighbour, St. Ouen, which has also the additional advantage of being better cared for. It is usually the custom to pass by the cathedral with a very slight notice, but this is both unwise and unjust: it has very many interesting and peculiar features, which will well repay a more careful and attentive examination than is generally bestowed upon them.

At the invasion of the Normans in 841, the cathedral fared better than St. Ouen, being only pillaged, while the latter was destroyed. It seems to have remained until the year 1200, when it was destroyed by fire. The funds for its restoration are said to have been furnished by John King of England and Duke of Normandy; and if so, it is probably the only generous action that can be laid to his charge. The new building made but slow progress, and was not completed until the middle of the sixteenth century.

The interior length of the cathedral, from the western portal to the extremity of the Chapel of the Virgin, is about 450 feet; its breadth, including the aisles, about 105 feet; and the height of the nave and choir about 92 feet. The most striking portion of the exterior is the western façade: to describe this noble work is almost impossible, and to obtain a good view of it equally so, its face being obscured by a mass of paltry houses crowded around it: this front was completed about the middle of the sixteenth century: it was the work of Cardinal D'Amboise, and occupied twenty years in its erection. In the nave a peculiar effect is obtained by small clusters of detached shafts placed around the upper portion of each pier, forming a sort of gallery. One of the finest portions of the cathedral is the Chapel of the Virgin, and this derives additional interest from the fine tombs placed within its walls: the best are those of the Cardinals of Amboise and Louis de Brézé. The library was erected in the year 1424, and the ascent to it was by the staircase shown in our illustration. This is one of the most picturesque portions of the cathedral: the work was done by the order of Cardinal William D'Estouteville: the whole is executed in stone: the lower flight has a panelled balustrade: those above are pierced: the library was plundered and destroyed by the Calvinists in 1562, and the room is now used as a vestry for the choristers.

There is a large quantity of good painted glass in the cathedral, some of it as early as the thirteenth century. At the death of Richard I. of England, his heart was deposited in this church: it was discovered in 1838, deposited in a double box of lead, on the lid of which was an inscription leaving no doubt as to its identity; and at the same time an effigy of the king was discovered, measuring 6 feet 6 inches long, and hewn out of a single block of stone.

The cathedral suffered considerably from a fire which occurred on the 15th of Sept. 1822, which destroyed the central spire and nearly the whole roofing of the building: immediate steps were taken by the Government for its restoration, and the roofs were very rapidly repaired, but the spire still remains unfinished: it is of cast iron, with open tracery: the intended height is 436 feet, and the weight is stated to be 1,200,000 lbs.

The whole building stands much in need of a complete restoration, and it is said to be the intention of the Government to provide funds for the work.

STAIRCASE, NORTH TRANSEPT, ROUEN CATHEDRAL.



RAILWAY JOTTINGS.

ON Thursday in last week, while the men in the employment of Mr. Jay, the contractor for the works at the terminus of the Great Northern Railway, at King's-cross, were raising trains of trucks, laden with earth, along a tramway, the ground on which the tramway passes, and which rises gradually to an elevation of between 30 and 40 feet from the site of the railway, suddenly gave way. The spot where this occurred, as we understand, is to the north of the newly-erected terminus, and adjoining the bridge passing over the tunnel formed under the Regent's Canal. A portion of the substratum was constructed of made earth, and there was a strong wall, about 2 feet in thickness, erected as its support: the tramway had been in operation many months. About 300 yards gave way, causing the wall to separate in several parts, when a large quantity of the soil was scattered on the line. The accident is attributed to the great weight of metal on the ground, consisting of rails for the line, about fifty or sixty tons. To repair the damage, it is reported, will cost some hundreds of pounds, should the tramway be replaced. ——Mr. Grainger, of Edinburgh, the engineer of the Leeds Northern line, was so much injured in a collision near Stockton-on-Tees, that he has since died. Others had their legs broken in the same accident, which occurred at a junction; in consequence, it is said, of neglect of signals. Would not a self-acting time-signal fixed on the line have prevented such a collision?—— The *Shields Gazette* states, that the use of mirrors on locomotives, as a driver's look-out behind, has been adopted for some time on one of the coal lines in Durham, and that a South Durham correspondent of its own first drew the attention of the British public to the circumstance, many months ago, so that Austria does not require to "hold the mirror up" to Britannia in this point of view. ——THE BUILDER'S self-acting railway gate has been once more "invented;" in this case by an inhabitant of Lincoln.——Mr. H. Law, of New York, has made an improvement in the ventilation of railway carriages. The object is to supply them with cool, pure air, free from dust, by blowers worked by belts receiving motion from the revolution of the axles, or from the engine. Mr. Law brings the air in contact with revolving moist surfaces, in troughs below the cars, and they take up all the sand and dust out of the air, and the air is afterwards driven through the cars cool and pure. This reminds us of an old invention, whereby much the same end was to be attained by revolving sheets of water by way of windows.——Mr. Carpenter, of Rome (N.Y.), has made an improvement in the ordinary iron track, to prevent the possibility of a train running off the line. The improvement consists of a middle rail of iron or wood, running the whole length of the track, precisely in its centre, and raised a foot or so above the side or bearing rails. Friction rollers are attached to the engine and carriages beneath, to play upon the sides of the middle, or guiding rail, whereby the motion of each is steadied, and any tendency to fly the track arrested. With this improvement, says the *New York Tribune*, the speed may be increased to almost any extent, with entire safety, so far as there would be any danger of running off. In short, without it a railway is incomplete,—as much so as a ship without a rudder, or a carriage without a tongue. Mr. Carpenter is fully of opinion that it would be a matter of economy, and for the manifest interest of railway companies to adopt his improvement, as it would not only prevent a large class of accidents, but would prevent the wheels from wearing as they now do, the friction being much less. The idea of a middle track is not new.—— Another singular instance of the effects of the extraordinary heat of the weather of late has occurred on the East and West India Dock Railway. The herbage on one of the cuttings at Islington took fire from the intense heat of the sun. After blazing away for some time it was extinguished without doing any damage.—— Among passengers who left Southampton on Tuesday in last week for Alexandria, was Mr. Borthwick, engineer, who has gone out (for Mr. Stephenson) to examine the works of the railway now in progress between Alexandria and Cairo. This great work, it appears, is still progressing satisfactorily, the embankments being already formed for a great length of its 140 miles, and upwards of 30,000 native labourers being actively employed.——Mr. R. J. Browne, late assistant manager of the Maryport and Carlisle Railway, has been appointed financial manager during the construction of the Great Railway of Spain, in which it is estimated nearly 5,000,000*l.* will be invested. There were upwards of 2,000 applications for the appointment.——An account of a visit to the works on the Panama Railway has been furnished to the *Times* by Mr. Alexander Wylie, chief engineer of the royal-mail steamer *Trent*, from which we gather that the writer had been along the railway as far as it was finished, and afterwards walked over the works in progress to within three quarters of a mile of the point where the river Chagres is to be crossed. The bridge has already been built, and its strength tested in the United States, and is now on the way to its destination. When it is erected (in about five months), the line will be opened two miles beyond Gorgona, thus entirely dispensing with the river navigation. The Atlantic terminus of this railway is placed on Manzanilla Island, in Navy Bay, and separated from the mainland by a narrow channel, with 10 feet depth of water in it. The trains start from the wharfs where the steamers lie, and run every day. From the wharfs, in Navy Bay, to Gatun, a distance of seven miles, the country is a swamp, rendering it necessary to pile every foot of the road. This work was performed by steam pile-drivers, at the rate of 250 feet a day in the easiest parts, while at other places, where longer piles were required, not more than 58 or 60 feet forward could be done in the same time. Further along, freestone of excellent quality is seen in abundance, and is now being largely used in the construction of culverts, and it is intended to replace the bridges over the numerous gullies with this stone. The whole line passes through the wild primeval forest, with all the rank and luxurious vegetation of the tropics. Few of the trees cut down produce serviceable timber, the majority of the palm tribes being soft, and the large trees nearly all hollow, more especially in the swampy districts. Near Tavernilla, the present terminus of the line, the native trees are being converted into sleepers. The rails, 64 lbs. to the yard, are laid on cross sleepers, without longitudinal balks, a construction which admits of the sleepers being replaced, laid closer together, or lifted without disturbing the road. There is at present only one line of rails, but the laying down of a second or third line, which the great traffic across the isthmus will soon require, will, it is said, be as easy as the first was difficult. Colonel Setton is the engineer-in-chief. A contract has been entered into for the completion of the line through to Panama by the 1st of August, 1853: not more than twenty months have elapsed since the commencement of the work. The speed at present obtained on the line, though at times rising to 25 miles an hour, does not average throughout above 10 or 12. The total rise on the line does not appear to be very great, as at Tavernilla the height above the river is not more than 50 feet. The gauge is 5 feet. There is only one class of carriages, on the American plan, having a communication from each carriage to the driver by means of a check-string running along the roof. The fare to Tavernilla, a distance of 21 miles, is 7½ dollars, and the earnings of the railway are stated at 30,000 dollars a month.——*Herapath* states that it is now more confidently asserted that the Great Western will pay for the past half-year at the rate of 5 per cent. per annum. It seems likewise to be taken as settled that the London and North Western will divide at the rate of 6 per cent. With regard to the Midland, some contend it will be 3¼ or 3½, but those who have gone into the figures maintain it cannot exceed 3, with about 3,000*l.* or 4,000*l.* to carry over. ——It appears from a return just issued, that the receipts from all sources of traffic in the United Kingdoms, for the half-year ending 31st December, 1851, amounted on 6,890 miles of railway to 8,247,937*l.* and for the corresponding period of 1850 on 6,621 miles to 7,147,378*l.* The gross receipts on railways in England and Wales for the same period amounted on 5,304 miles to 7,171,551*l.* and for the corresponding period of 1850 on 5,131 miles 6,154,943*l.* The gross receipts of railways in Scotland for the half-year ending 31st December, 1851, on 962 miles of railway amounted to 772,677*l.* and for the corresponding period of 1850, on 953 miles, to 718,023*l.* The gross receipts on railways in Ireland on 624 miles for the same period amounted to 303,709*l.* and for the corresponding period of 1850, on 537 miles, to 274,421*l.* The total number of passengers conveyed during the half-year was 47,509,292, including 5,474,086 first class, 16,710,716 second class, 9,386,397 third class, 15,921,212 Parliamentary class, and 16,980 holders of periodical tickets. The total number of passengers conveyed at the corresponding period of 1850 amounted to 41,087,919. The total receipts from first class passengers amounted to 1,378,265*l.*; from second class, 1,722,626; from third class, 407,278; from Parliamentary class, 1,026,651*l.*; and from periodical ticket holders, 42,499*l.* Making the total receipts for passengers during the half year 4,580,827*l.*; and from goods, cattle, parcels, mails, &c. 3,667,110*l.*—total, as above, 8,247,937*l.*

BRISTOL GENERAL HOSPITAL COMPETITION.

I BEG to enclose for your perusal a letter which appeared in the *Bristol Times* (written by a member of the Building Committee), respecting the disgraceful proceedings of the committee to decide upon the best designs for the new "Bristol General Hospital."

Since that letter was written, another committee meeting has been held, and so strong was the opposition on the part of two or three members to the whole of the previous proceedings, that the packed majority deemed it advisable to conciliate a little by *apparently* acceding to the strongly enforced demand of these gentlemen, viz.—that the highest competent authority obtainable, some London architect, of high repute, should be called in to decide; this they more strongly pressed, *the whole of the Bristol competitors* having sent in a memorial to that effect.

Resolutions.—"That the London architect should see all the designs," and

"That the London architect should see the *eight* first selected by the sub-committee," as well as other resolutions of a similar tendency, were all *negatived*.

I should here state that the sub-committee at one of their meetings, resolved to take no notice whatever of the memorials from the Bristol competitors. The fact was, that *all the designs except four were taken down and packed up ready to be returned to the owners*, and these four were the designs the packed committee, in spite of the strongest protests, tendered, step by step, had succeeded in carrying. Finally, a resolution was carried, *apparently* just and straightforward, but which in truth their previous proceedings rendered entirely nugatory, viz.—"That a London architect of high repute should be called in to give his opinion *on the four designs last chosen by the sub-committee*, and recommended for premiums in their report; and that a sub-committee, consisting of the consulting physician (who previously took no part), and two or three others, should make choice of a London architect, and obtain his opinion before the committee met again, the adjournment being *sine die*. I give the sense, not the words, of the resolutions.

I am in possession of the particulars of the whole of the shameful proceedings of this committee: the squabbling has continued unusually long (since May 1): protest after protest against their injustice and partiality was entered, but before Friday last, without effect.

My object in addressing to you this letter is to obtain justice and fair-play for *all* the competitors, and to induce the committee to remedy

the injustice they are perpetrating while the means are at hand and ready of access; for the architect whose opinion they apply for would almost as readily, and I should say with far greater willingness, decide on the whole number as on four. COMPETITOR.

*** The letter quoted is written by Dr. Fairbrother, the senior physician of the hospital, and states that both the committee and sub-committee are packed, and are guided by "party interest and political favour." The writer goes on to say,—"As a medical man, I state that the design about no doubt to be fixed on (as the packed committee have an overwhelming majority) is faulty in many respects, badly ventilated, warehouses ill-lighted, and not placed in accordance to printed instructions to architects, besides going over the allotted ground shown on the block plan as 'property of the hospital trustees not required,' the wards not able to take sixteen beds, as ordered in the instructions, several rooms without fire-places, and other serious objections—for instance, areas fourteen feet deep." Knowing the high character of some of the gentlemen on the committee, we can with difficulty believe these and other statements which have been made. The committee owe it to themselves, as well as to the public, for whom they are trustees, to obtain the opinion of a qualified architect not concerned in the competition, on the whole of the designs, tested especially by reference to the instructions. We hope they will justify our good opinion by adopting this course, and thus do justice to the competitors, and rid themselves of an onus which must otherwise be hurtful to the charity.

THE PAPER-STAINING TRADE OF EUROPE AND AMERICA.*

AN interesting document has lately been drawn up, presented to, and read before the Industrial Society of Mulhausen, by M. Jean Zuber, fils, an eminent paper-printer at Rixheim, near that city, and formerly president of the society, on the paper-printing, or, as it used to be called, paper-staining,† trade of Europe and the United States, M. Zuber himself being at the head of one of the largest establishments in France, if not the largest, in that branch of industry, and he will be well remembered here as one of the enlightened jury selected to examine, report upon the merits of, and award the prizes to the various competing candidates of all countries in that manufacture, at the Exhibition. The length of the document in question does not permit of more than a brief analysis of its contents, but it is well worthy of more studied reference, as involving the advantage of a closer acquaintance with one of those elements of national wealth which contribute more than gold and silver mines to the industrial prosperity of a nation.

In his historical prelude the author refers to the origin of paper-painting in China, just as the art of printed cottons was derived from India, where both are still exercised more by hand labour than by machinery.

From China paper-staining passed into England towards the middle of the last century, and manufactories are quoted as existing in 1746. From England this industry passed into France, towards the end of the century, or say about 1780; and in 1790 the manufacture was established at Mulhausen by the house in which M. Zuber himself is a leading partner. Shortly afterwards several considerable establishments were formed at Lyons and other places; but at length Paris became the centre of this industry in France, as did also London, until within a few years past, in England. Germany commenced the paper-printing fabrication after France, but upon a small scale: then came Switzerland, Holland, and Belgium, upon a smaller still. Vienna, and, later on, Warsaw, had each an establishment, founded, says M. Zuber, upon "elements drawn from our house." Russia had its imperial manufactory at Tzarskoe Zeloe, which consumes millions though scarcely producing anything. Spain also had its manufacture at Madrid, founded by a Frenchman. Such was the situation of this industry some score of years ago,—that is to say, that England then possessed about twenty manufactories, France thirty, Germany ten, and each of the other countries cited one or two.

M. Zuber proceeds to show, that as to the improvements realized in the processes of fabrication, they are due almost exclusively to France, more especially in respect of the taste and beauty of the designs, and the application of various colours never before attempted. Painting was first replaced by engraving on plates, and this subsequently by the fabrication and employment of rollers without end, printing by the cylinder in copper, &c. The only process, acknowledged, however, to be most interesting, which had been introduced from England into France, consists in the velveting upon paper, which has since been carried to greater perfection in the latter country. Since then, and within a few years only, printing by the cylinder, in relief, of many colours, combined with their deepening and satining, have served to give a new impulse and direction to the trade. These last improvements were not realized on the continent, where the low rate of wages leaves the manufacturer nothing to desire: they were derived in effect from the United States and England. The former commenced the manufacture a few years since only, but, as workmen were scarce, steam was had recourse to at once. Each manufacturer of stained paper founded there commenced by mounting a steam-engine as the principal agent. Thus they print, satin, and deepen by steam, badly enough in truth, but that little concerns them: they produce much and cheaply, and that is what they desire.

Without following M. Zuber into the details of the tariffs by which the manufacture is protected against foreign competition—in France for example—by a prohibitive duty, and in other countries either to the same extent or by a graduated protective legislation, England being the least protected of all, we shall now give his estimates of the extent of the total fabrication in each country, drawn, as he states, from the most reliable sources and communications with the best authorities. It may be added that this is the first attempt of the kind to ascertain the relative importance of this branch of industry in all countries.

Countries.	Number of Tables.	Number of Machines.	Number of Workmen.	Number of Rolls produced.	Value in millions of Francs.	Average of a Roll.
England.....	600	—	1,900	2,300,000	7,500,000	3 25
Id.	—	20	100	3,200,000	2,500,000	·75
France	1200	—	4,500	6,000,000	8,300,000	1 35
Id.	—	20	50	200,000	200,000	1 0
The Zollverein	400	14	1,500	1,500,000	1,500,000	1·0
Belgium... ...	150	6	600	600,000	1,000,000	1·65
Holland	50	—	200	250,000	300,000	1·20
Switzerland . .	30	—	100	100,000	100,000	1·0
Austria	60	4	250	200,000	600,000	3 0
Piedmont	40	—	150	200,000	200,000	1·0
Russia	100	4	400	500,000	1,500,000	3·0
Sweden and Denmark . .	30	—	100	100,000	200,000	2 0
Spain	100	2	400	400,000	700,000	1·75
United States	400	50	1,600	7,750,000	8,900,000	1·15
Id. id.	—	—	150	—	—	—
Totals.....	3160	120	12,000	23,300,000	33,500,000	

M. Zuba, in these estimates, has reduced the English rolls, which are larger, to the dimensions adopted everywhere else, and which are 6½ metres broad upon 8¾ long.

FALL OF AN ANCIENT TOWER.—The largest tower of the Chateau of Cherveux, near Niort, one of the most noted constructions of the middle ages, fell in on Thursday in week before last. Two female servants, who were sleeping in one of the chambers of the tower, heard a rumbling noise, and hurried away. In a few seconds the fall took place.

THE ROMAN PAVEMENTS AT WOODCHESTER are shortly to be uncovered, for the purpose of affording archæologists and others an opportunity of inspecting these remains, which have not been seen for several years. The more recent discoveries at Cirencester will rather add to than detract from the interest attaching to these tesselations.

BUILDERS' BILLS.

ORDERS BY TENANTS.

TODD *v.* SULLIVAN.—At the Brompton County Court, before Mr. Maude. The plaintiff, a builder, of Chelsea, sought to recover 12*l.* 10*s.* of the defendant, residing at Rutland-gate, Hyde-park. The action is one of some importance to builders doing work for house-agents, and shows the necessity of their understanding for whom they are working.

Mr. Todd said he was employed by Messrs. Rogers and Dear, house-agents and upholsterers, to make some alterations in a furnished house of theirs, let to the defendant. Mr. Frear, foreman to Messrs. Rogers and Dear, and also Mr. Dear, gave him printed instructions what to do. Upon his commencing the work, Mr. Sullivan came to him and gave other directions. The defendant said Mr. Dear had promised to have certain work done and it much inconvenienced him at its not being done; and if he (the plaintiff) did not choose to do it, he would call some one else in and deduct the amount from Messrs. Roger and Dear's account. Defendant had book-cases and other things altered and made.

By Mr. Williams.—Never charged Rogers and Dear for the same account, and no part of it has ever been paid. Mr. Dear first sent him to the house.

Thomas Ray, a carpenter, deposed to working under the direction of Mr. Sullivan; and another carpenter in plaintiff's employ said he did not know his master was working for Rogers and Dear.

Mr. Williams, solicitor, said the house was the property of Messrs. Rogers and Dear, and that they let it furnished to Mr. Sullivan, at a rental of 600*l.* per annum. Mr. Todd had worked for Messrs. Rogers and Dear, and, as some alterations were required, they directed the plaintiff what to do. A quarrel takes place with Todd and Messrs. Rogers and Dear, on account of the latter refusing to pay the plaintiff exorbitant charges for bad work. Mr. Sullivan certainly might have said to Todd, do so and so; but he merely directed him as a tenant, not as an employer. If any one were liable to the claims, it must be Messrs. Rogers and Dear, and not the defendants. If claims like these were admitted, no tenant would be safe whilst repairs were being done by his landlord. He called Mr. Frear, foreman to Messrs. Dear, who said he gave Todd orders to do part of the work, and, having examined the work with plaintiff, found it to be very much overcharged and badly executed.

Mr. Dear said Todd was employed by them, and he had no business whatever to do any work for their tenant, Mr. Sullivan. He was not aware that Mr. Sullivan gave any orders to Todd. The work was not perfectly done, and he ordered some of it to be done over again.

The Judge said, he was not satisfied that the claim was made out. He thought Mr. Sullivan only did what one might expect from a tenant under such circumstances. Verdict for defendant, with costs.

Miscellanea.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The following is an outline of the proposed proceedings of the Congress, to be held at Newark, on August 16th to 21st:—Monday, Aug. 16—Meeting of general committee; dinner at ordinary at the Clinton Arms; evening meeting in the Town-hall; president's address; papers; order of business. Excursions will be made on the Tuesday, Wednesday, Thursday, and Friday to Newstead Abbey, Lincoln, Worksop, Clumber, Belvoir, Hawton, Southwell, Thurgarton, Nottingham, and other places, which when arranged will be announced in a future programme. On Friday there will be a public dinner; and on Saturday, a closing meeting in the Town-hall. Amongst the papers already announced are,—Mr. Ll. Jewitt, on Ancient Customs and Sports of the County of Nottingham; Mr. Bateman, on some of the Contents of the Nottinghamshire Barrows; Mr. Wickes, on the Churches of Nottinghamshire and Lincolnshire; Mr. Pettigrew, on Newstead Abbey; Rev. J. F. Dimock, on the History of the Collegiate Church of Southwell; Mr. Ashpitel, on the Architecture of the same; Mr. Halliwell, on the Era and Character of Robin Hood; Mr. Gutch, on Robin Hood and the Ballads; Mr. Bridger, on the Mint at Newark; Mr. Duesbury, on Newark Castle and the Siege of Newark; Mr. O'Connor, on the Painted Glass in Lincoln Cathedral, &c.

* From the *Morning Herald*.

† The term "paper-printing" appears to be no improvement on the old term "paper-staining."

More Damage to Churches by Lightning.—The casualties seem to be more than usually numerous this summer. During one of the recent thunder-storms the tower and spire of Woolpit church, in Suffolk, were almost totally destroyed. The spire was thrown down, together with more than two-thirds of the tower. The bells were hurled in different directions, and the clock smashed. The fragile belfry window, painted by Mrs. Marriot, strange to say, escaped entire in the midst of the wreck. This is not the first time that the spire of Woolpit church has fallen. On 26th November, 1703, a pinnacle of about 66 feet in height was blown off the steeple by a strong south-west wind, which did considerable damage to the north part of the church. On the present occasion several of the inhabitants of Woolpit saw the flash of the lightning, which appeared like a stream of fire as thick as the human arm, and they witnessed the stroke which made the spire reel to and fro before it fell. From the evidence of the eye witnesses the incumbent, the Rev. L. F. Page, is of opinion that the lightning ran along the iron bands which at different times had been inserted in the work to bind the weak parts together, and wrenched them out, and with such violence as to bring the whole down. Nothing is said of a lightning conductor, and doubtless the spire was unprotected by one. The rev. incumbent, even while remarking that the parishioners "are thankful that God, who makes a decree for the rain, and *a way for the lightning* of the thunder, made that decree and that way just in the direction where it did least harm," does not appear to have had suggested to his mind the propriety or possibility of human intervention in the making of "a way for the lightning," in the direction where it *would* do least harm. He states that five architects some time ago inspected the tower, and what they recommended he did for its security, for it had been "injured by the hand of time, and still more by the hand of man—by digging graves quite close to the foundations, and by cutting away one corner of a buttress—in former generations." Can it be possible that not one out of five architects recommended the application of a lightning conductor amongst other means of security to a cracked and fragile tower, so doubly endangered by iron bands buried in the stones of which it was constructed?——On Friday week the spire of Leighton Buzzard Church was also struck, and a large portion of it fell through the roof of the church, destroying the pews, and rendering this recently repaired edifice dangerous to enter, or even to approach. Not a word here either of a lightning conductor. Had there been one, its failure would have been duly chronicled, if indeed it happened not to be blamed for the occurrence of the catastrophe itself.

Re-opening of "the Holy-Well," in Holywell-street, Strand. — For some time past a considerable degree of interest has been excited from the fact that the "Holy-Well" is likely soon to give up its pure (?) spring to the locality, where, in the time of green fields and gardens, at the period of two or three centuries past, the historian Stowe refers to it "as being much decayed and spoiled with rubbish, purposely laid there for the heightening of the ground for garden plots." That the spring still exists in some part of Holywell-street is proved by the fact that the Roman Baths, in Strand-lane, are supplied from it. Under a portion of the Old Dog Tavern, in Holywell-street, it has been proverbial that this well existed, but that it had long since been filled with rubbish. The ancient tavern has now passed into the hands of the proprietor of Betty's Chop-House, in the Strand, and the "Holy-Well," after sleeping for two centuries, or having its spring diverted to serve other points, is soon likely to furnish the water from the old spring. The well, it was found, has the circumference made by old tiles and bricks, and was 80 or 90 feet deep, all the dirt and rubbish having been cleared out. Some broken glasses of the olden time have been brought up, and the men have got to the foundation of the well, but up to this time without obtaining water, and they are now boring down for the spring of the far-famed "Holy-Well." It will be curious, indeed, if it should be brought up to the spot where, in 1660, "the youths and scholars of the City walked to it to take the air."—*Evening paper.*

Statistics of Strikes in Britain.—In 1836, says a provincial cotemporary, the operatives of Preston, to the number of 8,000, struck work for thirteen weeks, and the loss, in a mere monetary point of view, to the town and trade of Preston, was calculated at no less a sum than 107,196*l.* whilst from 20,000 to 30,000 individuals were reduced at once to starvation. In the same year, the cotton-spinners of Glasgow struck for a period of seventeen weeks: the total loss to Glasgow amounted to 194,550*l.* In 1834, the result of the combination of colliers in Lanarkshire, and the two adjoining counties, was equivalent to a tax on the inhabitants of 489,000*l.* for a period of eighteen months, besides a loss to the colliers themselves, their employers, and others, during a strike of six months, of 189,000*l.* In this strike it is also calculated that between 40,000 and 50,000 human beings were rendered destitute. Trade strikes have ever proved injurious to the workmen no less than to their employers, and to the country in which they have occurred. It is to the interest of every labouring man to avoid combinations which lead to strikes.

Aberdare Markets Competition.—Being aware of your just appreciation of instances of liberality, and also of the desire of extending the knowledge of such instances to the profession generally, through the medium of your valuable journal, I cannot refrain from communicating to you the result of the Aberdare market competition. Very few designs were sent in (no wonder), and of those few we will say nothing. The spirited committee, however, decided one to be the best, and awarded the 40*l.* premium conditionally on its being contracted for, and carried out within, the estimate of 4,000*l.* The plans were retained for several days, and the fortunate competitor, a Mr. Lewis, of this neighbourhood, was at last sent for, and appeared before the committee, who praised the design, &c. and suggested some alterations, and then offered him, not 40*l.* but 5*l.* for the plans. I have heard that during the time the plans were retained, a local competitor had them in his possession. So much for competitions. — A Non-Competitor.

Industrial and Provident Partnerships and Societies.—An Act was passed end of last session (15 & 16 Vict. c. 31), "to legalise the formation of industrial and provident societies." It is intended by this Act that societies of working men may be established for attaining the objects of the Friendly Societies Acts by means of joint trade, except banking. The rules of such societies are to be framed in accordance with the Act. The funds are not to be invested with the National Debt Commissioners, and societies established before the passing of the Act shall come under its provisions so soon as they shall conform to the provisions thereof. As to the liability of members, it is provided that "nothing in this or the said recited Act (Friendly Societies Act) shall be construed to restrict in anywise the liability of the members of such society established under or by virtue of this Act, or claiming the benefit thereof, to the lawful debts and engagements of such society; provided always, that no person shall be liable for the debts or engagements of any such society after the expiration of two years from his ceasing to be a member of the same." The Act is to be cited as the "Industrial and Provident Societies Act, 1852."

Egyptian Hieroglyphics.—It appears from a paper recently read in the Academy of Archæology at Rome, that Father Secchi alleges he has found a new interpretation of the Egyptian hieroglyphics, which enables him to declare that most of them are not mere tombstone inscriptions, as is generally assumed, but poems. He has given several of his readings, which are said to display great ingenuity; and he professes to be able to decipher the inscriptions on the obelisk of Luxor, at Paris.

Whitchurch, near Stanmore.—In a late number of The Builder, I observed a request from one of your correspondents for a history of the little church of Whitchurch, or Stanmore Parva, near Stanmore, Middlesex. Having myself visited it, although not very lately, I can only mention that the best, and I may likewise add, the only account of it that I have ever met with, is to be found in the 5th volume of "Brayley's and Brewer's History of London and Middlesex," p. 643, &c. which likewise gives a good description of the once famous and magnificent seat of James Brydges, afterwards Duke of Chandos, taken down and removed in the year 1747. The parish church, a small structure, was rebuilt principally of brick, about the year 1715, with the exception of the tower, and beneath is a capacious and well-lighted vault, in which the duke himself and many of the family are interred, splendid marble monuments to their memory being contained in a chamber above the vault. In the cemetery adjoining, I observed a decayed wooden rail to the memory of William Powell,* the humorous blacksmith of Handel, who, it is said, composed many of his sacred airs and services for this chapel, or, as it now is, church.—C. H.

Metropolitan Commission of Sewers.—On Tuesday evening a writ of supersedeas was received from the Lord Chancellor, at the Chief Sewers' Office, Greek-street, Soho, dissolving the old Commission of Sewers, and reconstructing it entirely. The old commission must necessarily have expired in a very short period under the 12 & 13 Vict. c. 93, by which its duration was limited to one year from August 1851, and therefore the Chancellor's writ was merely a formal act. The following fourteen gentlemen are appointed, only five of them having belonged to the former commission:—Mr. R. Jebb, chairman; Sir John Burgoyne, Major R. K. Dawson, Mr. Thomas Hawes, Capt. J. Vetch, Sir Charles Fellows, Mr. George Baker, Mr. T. F. Gibson, Mr. Lewis D. B. Gordon, Mr. J. Hawkshaw, Mr. W. Hosking (official referee under the Metropolitan Buildings Act), Mr. H. A. Hunt, Mr. Lawrence Redhead, and Mr. G. Spencer Smith. By an Act passed the 30th of June, 1852, the old Metropolitan Sewers Act is continued until the 7th of August, 1853, with important alterations with respect to the rating powers of the commission, and the burden of the sewers' rates upon land devoted to agricultural purposes.

A new Kind of Paper.—It appears that a gentleman named Senefelder, nephew of the inventor of lithographic printing, has proposed to the French government an invention of his, termed *papier de sureté*. With this paper, it is said, not only the slightest attempt at forgery of public or private documents would be rendered impossible, but also that of a second time using stamped paper by means of chemical preparations. In the departments of the Seine the treasury suffers a yearly loss of 500,000f. by the art employed to render stamped paper again fit for use. Independently of other advantages, it is supposed that by the introduction of such prepared paper, the French state would gain from 10,000,000f. to 12,000,000f.

Proposed National Exhibition of Metalwork at Sheffield.—Preparations, according to the local papers, are in progress towards the formation of an exhibition of metalwork next year at Sheffield. The authorities connected with the local school of Ornamental Art are taking an active interest in the project, and the superintendents of the central department of practical art are said to approve of the idea.

Cleansing-Machinery.—An apparatus for beating, brushing, scouring, and drying carpets has been patented by Mr. Horn, of Belgrave-street, Pimlico. The carpet is fixed on rollers, and made to pass between spring whips and revolving brushes. In purifying feathers, wool, &c. dust is first removed: they are then subjected to steam, and dried by heat.

* He was parish clerk of this church twenty-four years, and in the time of Handel: he died on the 27th February, 1780, aged about 79 years.

RAISING SUNKEN SHIPS, &c. BY AIR-TUBES.—Experiments for raising sunken vessels &c. by means of gutta-percha tubes have been made on the Seine, near the Bridge de l'Archeveche. Amongst others, a boat laden with between 5,000 and 6,000 kilogrammes, (from five to six tons) was sunk, and then raised with its burden by the tubes filled with air. The experiments were witnessed by Prince N. Bonaparte, and others.

THE LONDON-BRIDGE RAILWAYS AND THE STEAM-BOATS.—Memorials numerously signed by the directors and passengers by the London-bridge railways and river steam-boats have just been presented to the Bridge House Committee, for permission to construct a double landing-place on both sides of the Surrey arch of London-bridge, in order that passengers may avoid the danger consequent on crossing the crowded thoroughfare to the railways at the foot of London-bridge.

NEW ACT FOR SCHOOL SITES.—According to an Act now in operation, the provisions of former Acts with respect to sites for schools are extended to schools and colleges for the religious and educational training of the sons of yeomen or tradesmen, or others, or for the theological training of candidates for holy orders, of the Established Church, which are erected and maintained in part by charitable aid.

NEW NATIONAL GALLERY.—It is rumoured amongst those likely to know, that a certain comic artist, once renowned for his political caricatures, in conjunction with an extensive builder at Pimlico, is actually making designs, *at the request of the authorities*, for the proposed National Gallery. Can this be true? and if so, what are the architects about, to allow first a gardener, and then a caricaturist to supersede them?—STYLOBATE.

SCAMPING BRICKWORK.—A correspondent, "B. L." sends us an account of the way in which a house is being erected in the Ball's-Pond-road. The walls are filled in with rubbish, and a portion has since fallen down. Unluckily, the case is a common one. Good brickwork is the exception rather than the rule.

THE MEMBER FOR ANDOVER.—I think it might be well if you would correct an error some time existing and still kept up in the new parliamentary lists by some of the newspapers, in the mis-identification of Mr. Wm. Cubitt, the alderman, and re-elected member for Andover, with Sir Wm. Cubitt, the distinguished past president of the Institute of Civil Engineers, who, as you know, are two distinct persons.—A. B.

CORK AS IT IS.—But with all this undoubted talent, and despite the uncommon intellectual activity at Cork, the city, we grieve to say, is decidedly retrograde in point of property, even when compared with its own past standard. It is stated by Dr. Lyons, the leading man of the Liberal interest at Cork, that the present valuation of the city of Cork is between 48,000*l.* and 49,000*l.* It is contended that the valuators have assessed the houses too low; but even allowing a margin of 25 per cent. on that score, there is still a vast positive decrease in the valuation of Cork as measured by its own standard. But take a proportion between the valuations of Cork and Belfast in 1845 and what they are now, and the relatively retrograde character of Cork is very serious to contemplate. It has produced one of the first of modern English dramatists — Sheridan Knowles. It has reared artists like Barry, Maclise, Hogan, Fisher, Grogan; literary men, like Arthur O'Leary and John O'Driscoll; lawyers and advocates, like Willes, Waggett, Goold, Bennett, and Jackson. It contributes to the Fellows of Trinity College such scholars and men of science as Butcher, Salmon, Tolekin, and Malet. It has a literature-loving population, and keen and intellectual middle class, and the professions have numbers of its sons; but these results will not keep thousands at work, like spinning yarn or bleaching linen. For one witty thing said at Belfast, there are twenty said at Cork, and with the earning of guineas the proportion is *vice versa*.—*Dublin University Magazine for July.*

USE OF SAWDUST IN BLASTING ROCK.—The opinion of Sir John Burgoyne on this point is as follows:—Founded on the same reasoning of the advantage of more gradual ignition, and almost leading to the assumption that the blasting powder in its present state is even too good, is the assertion that will be found in all books on the subject, namely, that a mixture of fine and dry sawdust of elm or beech with the powder, in the proportion of one-third of sawdust for small charges, and one-half for large, will produce as good results as equal quantities of powder alone. It is not assumed that the effect is produced by any decomposition of the sawdust, but simply by giving a little more space, and by dividing the particles of the charge, causing them to ignite more gradually, and thus to act with greater force on the rock, than by the more sudden explosion. No account is given of any defined experiments tending to prove this fact: on the contrary, every trial affording positive results is against it: such a mixture has been tried in guns, and produced no useful effect whatever; and though of very simple application, it does not appear that in any place there has been a continued use of it. There is indeed a deception in the first instance in the supposed proportions; for a mixture of two equal measures of the two ingredients, the sawdust being, as required, very fine and dry, and the powder of the usual large grain, will not fill above one-and-three-fourths of the same measures; consequently two measures of the mixture will contain nearly one-eighth more powder than calculated upon: thus, if two measures, each capable of containing eight ounces of powder, be filled with the mixture of equal measured proportions, the quantity of powder will be nearer nine ounces than the eight calculated upon. Altogether, I feel little doubt of the application of sawdust being of no real value.

DEFECTIVE SEWERAGE.—An arch under Gloucester-place, Regent's-park, it is reported, has given way from the weight of a coal waggon while passing along. The landlord of the Shepherd and Flock public-house there is said to assert, that within the last three years the road near or about the same place has given way three several times besides in the present instance. Intimation of the accident was given at Greek-street, and barriers were forthwith erected.

AUSTRALIAN MALACHITE.—Mr. J. C. Lanyon, of Redruth, has just received from his son in Adelaide, a very perfect specimen of this mineral, which measures 4 ft. 5 in. on its largest circumference, and 2 ft. 1 in. on its smaller, and weighs 112 lbs.

CONVERSAZIONE AT THE ROYAL ACADEMY.—On Wednesday evening, the 28th, the members of the Royal Academy repeated their experiment of a conversazione, to which exhibitors and numerous persons, ladies as well as gentlemen, connected with art, were invited, in lieu of a closing subscription dinner,—and, we will add, with perfect success. Many of the pictures were seen for the first time, and the whole looked so well as to induce more than one academician to consider whether it might not be desirable hereafter to have night exhibitions for the public.

THE ROYAL ITALIAN OPERA.—The production here of Spohr's impressive work "Faust" has been accompanied by the effects, scenic and artistic,—as well as those of diablerie, in this case supplied with no niggard hand,—for which this establishment now stands pre-eminent, and which are looked for on the announcement of any novelty there. All are good, but we may remark the last scene of the first act, "Gulf's Castle," eventually destroyed by fire through the agency of magic; the Blocksberg, the rendezvous of the witches, and a room in *Faust's* house, with its unhappy pendant, terminating the tragedy, as being the more worthy of mention. The *Mephistopheles* of Herr Formes is a very perfect realisation: we might say, without being flippant, that it is *devilish* fine. Madlle. Anna Zerr, Mdme. Castellan, Sig. Ronconi, and Sig. Tamberlik, sang the principal parts, and this is saying enough. M. Jullien's opera *Pietro il Grande* is announced for next week.

TENDERS

For the erection of the church of St. John the Evangelist, Birmingham. Mr. Teulon, architect.

	The Church.	Oak Seating.	Enclosure Walls.
Godfrey, Birmingham	£5,059 ...	—	...£142 0
Johnson, Laceby	4,730 ...	£500 0	... 152 0
Cooper, Derby	4,483 ...	—	... 203 0
Ganderton, Worcester	4,700 ...	—	... 185 0
Briggs, Birmingham	4,685 ...	360 0	... 130 0
Davies	4,370 ...	—	... 154 0
Pashby	4,186 ...	262 0	... 135 0
Hardwick	4,017 ...	237 10	... 138 10
Wilson, Handsworth	4,040 ...	240 0	... 138 0

For Commercial Docks, Rotherhithe. Messrs. Walker and Burgess, engineers.

Hutchins	£162,503
Wythes	157,025
Thompson	156,239
Jackson and Bean	154,444
Brassey	153,561
G. Smith	147,259
Jay	143,741
Lee and Son	140,000
Baker and Son	137,689
Thompson	135,840
Rigby	129,722
Myers	129,200
Kelk	128,573

For erecting four dwelling-houses at Waltham Cross, Herts. Mr. W. Humber, architect.

Hack and Son	£1,297
Watts	1,194
W. Cooper	1,160
Walker and Soper	1,135
Marable	1,041

N.B.—Part of the materials furnished.

For the erection of public hall, Wigan. Quantities furnished. Mr. R. Lane, architect.

Farrell and Griffiths, Salford	£3,587 0
Gregson, Young, and Co. Wigan	3,385 11
Thomas Stone, Newton	3,319 10
James Fairclough, Wigan (accepted)	3,240 8

Other tenders were received for portions of the work.

TO CORRESPONDENTS.

"An Architect," "T. B. D." (the information came from head-quarters), "H. W. J.," "Mr. B.," "S. W." (it shall appear), "C. R. S.," "A. C.," "A Subscriber," "C. E. J." (we are forced uniformly to decline), "Don" (ditto), "S. S. T.," "W. I.," "H. R. A." (not in town in time), "F. W. G.," "J. . . B.," "C. G." (an assistant may be what is termed "a good draughtsman" without being an organiser: we are unable to offer any opinion as to the value of our correspondent's services), "Proprietor" (employ an architect at once: it is better to be prevented from *getting* into a mess than to be got out of one), "S. A." (we are compelled uniformly to decline recommending), "Mr. L.," "G. A." (declined with thanks), "H. D.," "D. R.," "E. S.," "H. C. B." (inadvertently printed), "J. L. H.," "W. A." (under our mark), "W. C." (ditto), "J. H. G.," "W. P.," "W. D." (various remedies have been given in our pages from time to time), "W. G.," "E. L. G." "Justice," "A Non-competitor" (should have given his name).

"*Books and addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

PATRON—H. R. H. PRINCE ALBERT.

ROYAL POLYTECHNIC INSTITUTION.—Lectures by J. H. Pepper, esq. on Testing Gold, and on the Australian Gold Districts; and also on the alleged Adulteration of the Burton Bitter Ale with Strychnine.—By Dr. Bachhoffner, on the Patent Polytechnic Gas Fire; and on Experimental Philosophy.—By Mr. Crispe, on Morrall's Patent Needles.—By George Buckland, esq. on "Musical Character-pedics," assisted by Miss Blanche Younge, R.A. of Music, every Evening, except Saturday, at Eight o'clock.—New Series of Dissolving Views. Exhibition of the Microscope, &c. &c.—Admission, 1s.; Schools and Children under ten years of age half-price. For hours see Programme.

LOANS.—Persons desirous of obtaining ADVANCES from 50*l.* to 250*l.* upon approved personal security, repayable by easy instalments, extending over a lengthened period, may examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6d. each copy, or 1s. per post. Note.—Four new classes are now in course of formation for London, and will immediately commence operations.

TO DRAUGHTSMEN AND CIVIL ENGINEERS.

H. MORRELL, BLACK LEAD PENCIL MANUFACTURER, No. 149, Fleet-street, London.

These Pencils are prepared in various degrees of hardness and shades.

H H H for drawing on wood.	F F light and shading.
H H H for architectural use.	F for general use.
H H for engineering	B black for shading.
H for sketching.	B B ditto ditto.
H B hard and black for drawing	B B B ditto ditto.
B B B ditto ditto.	
M medium.	

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FOR SALE—for England, Scotland, and the British Colonies, separately or for any portion of the same, as may be agreed upon,—INTEREST in an INVENTION, protected by patent, of an improved method of making Gas for lighting and other useful purposes, alike suitable for a single consumer and for the largest gas manufactory, in which process the operation is simplified, and the accumulation of tar and ammoniacal liquor is dispensed with.—Plans and specifications may be seen daily, from Eleven till Two o'clock, till the 31st July current, at the Victoria Hotel, 15, West George-street, Glasgow.—Letters may be addressed "Gas Interest," and left there, and offers will be received till the above date.

PLUMBERS and BUILDERS supplied with CAST and MILLED LEAD in sheets, or cut to dimensions, Patent and Funnel Pipe, Lead Traps, and Service Boxes, at wholesale prices. WILLIAM DENT, 91, NEWCASTLE-STREET, STRAND, Manufacturer of Engine pumps, Water-closets, and every description of Plumbers' Brasswork. The Registered Urinal Basins now selling at the reduced prices of 17*s.* 20*s.* 23*s.* and 25*s.* according to colour and fittings. Also an Earthenware Slab and Wash-hand Basin of improved construction.

PARTNERSHIP.—A party who has for some years been extensively engaged in the manufacture of an article of every-day consumption, and who has recently added thereto a new, important and very profitable branch requiring additional capital, would be glad to negotiate a Partnership with any gentleman who has 4,000*l.* or 5,000*l.* at command. The strictest inquiry and investigation will be courted. For particulars apply to Messrs. STURMY and CO 144, Philpot-lane, Eastcheap.

AN Architect, in the Country, has a VACANCY in his Office for a TURNOVER PUPIL, or other young gentleman desirous of improvement in the profession.—Address, Z, *Journal* Office, Ipswich.

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TO GLASS MERCHANTS AND BUILDERS.

THOMAS ENGELBACK, Glass Bender, No. 10, Thrawl-street, Brick-lane, Spitalfields, begs to inform them that he has built a very large Furnace for Bending Glass, and can undertake to bend any size glass up to 12 feet long, by 7 feet wide, at low prices.

WINDOW BLINDS.—TYLOR and PACE, Window Blind Manufacturers, 319, Oxford street, adjoining Hanover-square, and 3, Queen-street, Cheapside, London, submit the following PRICES of WINDOW BLINDS, which they can recommend as being made in the best manner:—Venetian blinds, per square foot, 8d.; best holland blinds, on rollers, 6d.; best ditto, on spring rollers, 8d.; gauze wire blinds, in mahogany frames, 1s. 10d.; perforated zinc blinds, in ditto, 1s. 8d.; outside blinds of striped cloth in cases, 1s. 9d. Transparent blinds in great variety. Engravings, with prices and discounts to builders and the trade, forwarded on application, post free.

THE PERMANENT WAY COMPANY beg to inform Boards of Directors, Engineers, and others, interested in railways, that in order to facilitate negotiations for the use of their patented improvements, now so extensively adopted, they have arranged with Mr CHARLES MAY, Civil Engineer, 3, Great George-street, Westminster (lately of the firm of Rainsomes and May, Ipswich), to manage their transactions. Communications made either to him, or to the undersigned, will meet with prompt attention. WILLIAM HOWDEN, Secretary.

Offices, 26, Great George-street, Westminster.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 34, Commercial-road, Lambeth.

REDUCED PRICES.—EDWARD SIMMS (late William Cleaver), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¾ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Plank, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 300 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A continues to offer all the advantages as stated in his previous advertisements.

SEASONED FLOORING PLANED to a parallel width and thickness by improved patent machinery, at very reduced prices, as under:—

	Per square		Per square.
¾ inch yellow	13s. 0d.	¾ inch white	12s. 6d.
7/8 " "	14 6	7/8 " "	14 0
1 " "	16 0	1 " "	15 6

2½ per cent. discount allowed off amounts exceeding twenty pounds. Also timber, planks, deals, battens, scantling, sash-sills, &c. at equally low prices. Delivered free to any railway station in London. Terms, cash.

ARCHBUTT and ATKINSON, St. Pancras Saw-mills, Cambridge-street, Old St. Pancras-road, close to the Goods Terminus of the Great Northern Railway.

MUIR'S PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle; Boards, &c., prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF, SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge.

are prepared to supply timber and deals, &c. cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c. from the company, will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, from drawings, &c. with an accuracy and despatch which must insure satisfaction.

The moulding list, containing nearly 300 diagrams, with prices attached, may be had at the mills, or shall be forwarded on receipt of six postage stamps (the amount of the postage thereon).

NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade, beg to inform their Customers and the Public generally, that they have removed to more extensive premises in

BAKER-STREET,
BAGNIGGE WELLS-ROAD,

where they have convenience for carrying on a larger business.

N.B. By inclosing a postage-stamp, a full list of prices may be had by return of post.

JENNINGS'S PATENT SHOP SHUTTER-SHOE and FASTENER costs HALF the PRICE of the unsightly SHUTTER BAR.

May be had from any Ironmonger, or from the Patentee, GEORGE JENNINGS, 29, Great Charlotte-street, Blackfriars-road.

REVOLVING SAFETY WOOD and IRON SHUTTERS.—SNOXELL, Patentee, 96, Regent-street, and at his Steam-works, 135, Old street. These shutters have fully borne out their superiority over other revolving shutters for security, durability, and simplicity. References can be given to noblemen whose mansions are fitted herewith, and numerous large establishments where some are fixed measuring upwards of 400 square feet in one shutter, and which are opened and closed in a few moments with the greatest possible ease, without the use of machinery. The Patentee manufactures Brass Sash Bars, Stall Board Plates, &c.

CONVEX REVOLVING SHUTTERS, IN IRON AND WOOD.

CLARK and CO., 31, Chancery-lane, and Tunnel Iron Works, Wapping, Engineers and Manufacturers of Revolving Iron and Wood shutters Brass and Zinc Sash Bars for Shop Fronts, Stall Board and Name Plates. Testimonials and prospectuses forwarded on application. Clark and Co. defy competition.

Revolving Iron Shutters, under Lewis's Patent, 3s. 10d. per foot.

MESSRS. C. AND CO. DID NOT EXHIBIT AT THE GREAT EXHIBITION.

TARPAULINS FOR COVERING ROOFS during Repairs, SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

The Builder.

No. CCCCXCVI.

SATURDAY, AUGUST 7, 1852.

IF the extraordinary ruins and ancient monuments to which we have already referred speak eloquently of the Ireland of the past — dead Ireland, so to speak,—Belfast, in the north, illustrates no less forcibly and flatteringly the Ireland of to-day,—living Ireland. The progress that has been made there within a few years is quite marvellous: within less than a century the population has increased from 8,549, to 110,000. Numerous important buildings have been erected and are in progress: improvements in the town are being made in every direction: the docks are full of vessels, the streets alive with activity. The cotton-trade is at the bottom of all this; but it would be useful if all the springs were sought out and laid bare to view. Belfast should prove a regenerating centre: let its inhabitants endeavour efficiently to execute their mission. As it happens that the British Association for the Advancement of Science are to meet here on the 1st of next month, many of our readers will be led to see it for themselves. There is more doing here than in any other part of Ireland. Within the last six years the town council have spent from 50,000*l.* to 60,000*l.* in opening new streets and widening old ones: quays have been formed, and all the necessary buildings for municipal purposes built. The new Court-house is just now completed. It is built of Scotch stone, has a Corinthian portico of large size, and cost 20,000*l.* It contains a shire-hall, court of record, and criminal court, and appears to be very conveniently arranged for the accommodation of those engaged in its various parts. There is a want of connection between the portico and the wings, and the columns in the upper story of the hall are somewhat attenuated; nevertheless, it is a very worthy structure. The architect was Mr. Charles Lanyon, the county surveyor, who has had the good fortune to create the town, architecturally. Amongst his other works are the prison, opposite the court-house, which is after the Pentonville model, to accommodate 450 persons (if we may use the word), and cost 60,000*l.*; the Queen's College, illustrated by us some time ago; the Northern Bank, a Doric structure of Portland stone, just now completed at a cost of 14,000*l.*; the Ulster Institution for the Deaf and Dumb, Tudor in style, erected by subscription, and which cost 9,000*l.*; schools for 1,000 children attached to the workhouse (of basaltic stone, with white quoins); St. Paul's Episcopalian Church, an Early English structure, with a small bell tower and five-light east window; and many others. In the Botanic Gardens (admirably kept) the same architect is joining the two existing glass houses by a central dome, 75 feet high; and he is building, amongst other things, some schools near the Magdalene (Early English), and a Presbyterian College, at the back of the Queen's College. It is worth mentioning, as a striking instance of the want of appreciation of an architect's services which prevails in England as well as Ireland, that, notwithstanding all this and much more, the name of the designer of these various buildings does not once appear in the local guide-book which has been published there.

Of *The Presbyterian College* now in progress we give an engraving.* It is being built of stone from the Scrabo quarries, about twelve miles from Belfast; it is Italian in style, and has a frontispiece of attached Doric columns, carrying an entablature which breaks round each column, and an attic. The cost of the complete design would be about 6,000*l.*: the front part alone is being built at present, and the cost of this will be about 3,200*l.*†

A new Custom House is about to be built near the Northern Bank, which will entail an expenditure of 15,000*l.* for the site, and from 26,000*l.* to 30,000*l.* for the edifice: this will be paid for by Government. On the quay, foundations are being prepared for a new Ballast Office. The foundations are nearly everywhere bad in Belfast, and require great care: even then buildings are found to sink bodily several inches. The want of hydraulic lime, as we understand, prevents the use of concrete, and piling is therefore usually resorted to for large edifices.*

It is a brick county, and heretofore many very bad bricks have been used: recently, however, some improvement has been made in this respect. A hotel keeper, of the city, Mr. Moore, has invested a considerable sum in the erection of machines, &c. and is producing some satisfactory results.

There seems to be at present but little real appreciation of art, but the School of Design, and other agencies now in operation, will have their effect, it may be hoped, in due time.

Not far from Belfast will be found *Antrim* Round Tower, illustrated in our last. In this county, too, there are numerous castles and embattled residences. Scattered over Ireland, generally, there are many such; mostly of the fifteenth and sixteenth centuries. *Donegal Castle*, in the north-west, is a finely situated example of them, although the foundation of the structure is of an earlier date.



Remains of Donegal Castle.

Let us now run back to redeem our promise as to the celebrated *Rock of Cashel*, which is crowned with the most imposing pile of ruins in Ireland, of great size and deep interest. Cashel is on the line between Dublin and Cork, and those who would visit the rock should stop at Goold's Cross station, where there is a public car to take you over the five Irish miles that intervene between that and the spot desired. Here, on an isolated lofty mass of limestone, stand a Round Tower; a stone-roofed edifice called Cormac's Chapel, built between 1127 and 1134; a lofty unroofed church, known as the Cathedral; and an embattled tower at the west end. It was at once a royal residence, a fortress, and a bishop's seat: Cashel, indeed, means, in Irish, a hill-fortress or keep. The Cathedral is of large size, in the Early Pointed style: it has transepts, but no aisles, and at the *crux* is vaulted with rough stone. It cannot be earlier than the thirteenth century, although some of the capitals have a Norman aspect. There are chapels on the east side of the transepts, and against the end wall of the south transept there is a series of figures in low relief under ogee canopies, representing the apostles, with their symbols and their names over them. Cormac's Chapel consists of nave and chancel, with two square towers (one on either side): the tower on one side has a pyramidal stone top: the top of the other is flat. The semi-circular arch prevails. The details are all Norman in character, ruder than we should find them of the same date in England, and the building serves to show clearly how totally different in style those remains of earlier churches are to which we have elsewhere referred. It is impossible to avoid recognising at once the fact that the churches at Glendalough, Monasterboice, and elsewhere, some of which we have described, belong to a period long anterior to the Norman invasion. There can be no doubt about it in the mind of any qualified to judge, and documentary evidence confirms the impression given by the monuments themselves.

The pile of buildings at Cashel is so full of interest that we may find an opportunity hereafter to describe them fully, with illustrations, but we shall not now attempt it. The effect, as we stood alone on the rock of Cashel, with a horizon of hills on all sides, was very impressive. The sun was sinking in a rich white light, the sky was beautifully serene, and the silence and feeling of solitude intense. For miles and miles around nothing alive was to be seen, not even a bird. The "city" of Cashel, as it is called, which is situated not

* See page 503.

† There are six class rooms, four of which are 36 feet by 22 feet, and two 25 feet by 22 feet. The library (upstairs) is 36 feet square, and opening from it, between columns and pilasters, are two rooms (one on each side) immediately over, and of the same size as the smaller class room. The builder is Mr. John Corry.

* Carpenters and bricklayers get from 20*s.* to 22*s.* per week.

far from the foot of the rock, appears to be in anything but a flourishing condition. The Round Tower on the rock, we should have said, has several triangular-headed openings, and there is an entrance to it from the cathedral.

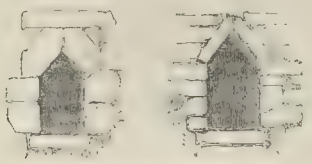


The doorway to the Tower at Glendalough has a round head, but it is cut out of a single stone, and this is the case in many other instances. At Monasterboice the same thing occurs; and there, as will be seen in the accompanying illustration, a slight ornamentation has been attempted, in the shape of a sunk face on a raised band.



Doorway, Round Tower, Monasterboice.

Of the triangular-headed openings to which we have referred, we give two sketches from Round Towers.



Triangular-headed Openings.

There are instances where the under side of the two stones, placed triangularly to form the head of a doorway, is cut into the shape of a pointed arch: we annex an example:—



but we do not find this any reason for believing, as an intelligent modern writer does, that the Irish worked out for themselves a pointed style of architecture. It should be mentioned, however, that this same form is found in the outline of some of the most ancient stone houses, constructed by the gradual approximation of stones laid horizontally one over the other till closed at the top by a single stone. The Oratory at Gallerus, which we did not see, is a beautifully constructed example of this sort, taking on the outside the appearance of a well-wrought pointed vault. A view of it is given in Dr. Petrie's admirable work on "the Ecclesiastical Architecture of Ireland anterior to the Anglo-Norman Invasion." Of the author of this book his fellow-citizens may reasonably be proud: it is full of learning and acute observations: time will but increase its value.

Dr. Petrie's conclusions as to the Round Towers, and which seem founded on sound reason, are,—

I. That the Towers are of Christian and ecclesiastical origin, and were erected at various periods between the fifth and thirteenth centuries.

II. That they were designed to answer, at least, a twofold use, namely, to serve as belfries, and as keeps, or places of strength, in which the sacred utensils, books, relics, and other valuables were deposited, and into which the ecclesiastics, to whom they belonged, could retire for security in cases of sudden predatory attack.

III. That they were probably also used, when occasion required, as beacons and watch-towers.

His evidence for the first conclusion, namely, that the towers are of Christian origin, are,—

1. The towers are *never* found unconnected with ancient ecclesiastical foundations.

2. Their architectural styles exhibit no features or peculiarities not equally found in the *original* churches with which they are locally connected, when such remain.

3. On several of them, Christian emblems are observable, and others display in the details a style of architecture universally acknowledged to be of Christian origin.

4. They possess, invariably, architectural features not found in any buildings in Ireland ascertained to be of Pagan times.

After visiting Cork, to which we have already referred, we went on to *Killarney*, of which collection of beauties we would gladly say much, but that we fear exhausting the patience of our readers. Those who would enjoy some most delicious scenery, and have not visited Killarney, should note it for an early visit; and if they go to the Lake Hotel (the others may be as good, for anything we know to the contrary) they will find a *solicitude* about their comfort which is quite soothing in these days of rapid travelling, when hotel-keepers for the most part regard their customers simply as *goods*.

At *Muckross Abbey*, near the hotel, the cloisters, although not ancient, have round arches, and are very picturesque in appearance. There are few examples of perfect cloisters remaining in Ireland. We give a view of those at Moyne Abbey, from Mr. Wilkinson's "Ancient Architecture of Ireland," mentioned in our last, as they are understood to be a fair representation of the general design of the cloisters of the ancient Irish Abbeys.*



Cloisters, Moyne Abbey.

In this part of the country, Killarney, there is much mineral wealth to repay the employment of capital. In a recent number of the *Art Journal* reference is properly made to the efforts of Colonel Hall, the father of Mr. S. C. Hall, in this respect, and it is stated that by his mining operations Colonel Hall caused to be expended not less than 400,000*l.* in Ireland. He opened and worked no fewer than thirteen mines, and encouraged men of larger means to follow in the same course. We need scarcely say that in the course of our trip we often heard Mr. and Mrs. Hall's names pronounced with thankfulness and respect. They have done much for Ireland, and we hope Irishmen will never fail to acknowledge it.

Their elaborate work, "Ireland, its Scenery Character, &c."* and the beautifully illustrated and charmingly written, "Week at Killarney,"† have sent to that country hundreds of sympathising visitors, and will send hundreds more: their anxiety has been "to make Ireland advantageously known to England—that the ties which unites them may be more closely knit, and that the people of both countries may think, feel, and act as *one people*."

We endorse the sentence, and cannot end with a better."†

RIGHT OF CHURCHWARDENS OVER GRAVE-STONES.—In a trial at the Uttoxeter County Court, a churchwarden has been found liable to pay the value of a stone removed from a churchyard without legal process, although set up without special authority. The inscription had been submitted to the warden (the defendant), who requested the plaintiff to wait till Easter for authority to place the stone. "Long after that" the sexton allowed the engraver to set up the stone, and the magistrate held that the sexton was the warden's agent, that the inscription was not objectionable, and that the warden, if he wished to remove the stone, ought not to have taken the law into his own hands, but should have applied to the ordinary, and proceeded in a legal manner for the removal of anything objectionable. Verdict as claimed, with costs.

* Ireland, its Scenery, Character, &c. By Mr. and Mrs. S. C. Hall. In three vols. A new edition. London: Hall, Virtue, and Co. In these three interesting volumes each county is described separately, and fully illustrated: and the authors have sought to give, beyond topographical and statistical information, such legends, traditions, and sketches as serve to throw light on the state of the country and the character of the people.

† Also published by Virtue and Co. London. This should be in the bag of every visitor to the lakes.

* Mr. Wilkinson's book contains a large amount of valuable information on the various building stones of Ireland, and, according to the evidence of practical local architects, may be safely referred to.

† With reference to the increased facilities of communication between the countries, we hear with regret that the services of Mr. Roney, by whom so much has already been done in this respect, have been transferred to another field. It is to be hoped, however, that the course he has pointed out will be persevered in.

THE CONVERSION OF ST. PAUL'S.

In the discussions on the decoration of St. Paul's, which I have read with intense interest, one question seems hitherto overlooked, on which it seems to me that the whole decorative treatment must hang. To what use is it anticipated that the chief parts of the fabric will be applied, and how? It surely cannot for a moment be thought that the present fitting up and occupation (or rather disoccupation) of the interior is final or permanent. St. Paul's is a pile having all but the permanence of a pyramid. Can any one suppose it is to continue from age to age with only one extremity of one wing used? Its spaciousness and height *must* be turned to better account than a show,—either to make patent shot, or paint floor-cloths, or read the Koran, or say mass, or some other purpose conducive to man's comfort or God's glory, who never, as I believe, intended any two acres of earth to be cumbered in the way these two acres now are.

How can we decorate till we have some understanding what it is, or what it will be, that we are decorating? Until this is somewhat settled, I do not even believe Archdeacon Hale can raise the sum he names, or anything approaching it, for decoration. He may get 20,000*l.* for erecting or filling a Walhalla, and 20,000*l.* more towards decorating a church. The public will give cheerfully to any object they can cheerfully admire or understand. But they cannot at present understand this great empty building. It is only a puzzle to them. The mystery of its existence,—its meaning,—must first be solved, and then, Sir, I believe the decorative difficulties will solve themselves.

Now, St. Paul's is a most unique building,—unique in more ways probably than any other ever built,—the last of cathedrals by a long interval,—one born out of due time by near two centuries,—yet withal the most quickly built and most solid of any, containing more *matter* than any, save one, yet far less *mind* than any; the brainwork of but one man, instead of scores or even hundreds,—one giant, indeed; but no giant even can do the work of an army, or provide a feast of that *abundance* which constitutes the exhaustless *interest* of an old Christian temple;—unique, moreover, as the *one* splendid church of a period of shabby church work,—the one stop-gap apparently run up to compound for honouring in all else the dwelling above the temple,—to compound for the tax of church adornment, for that age at least. Its many peculiarities all centre and may be embraced in one,—that it was the only cathedral built *for fashion*; not for any of the ends,—devotion, expiation, priestcraft,—nor by any of the means,—love, fear, superstition,—for and by which others had sprung up in the cathedral-building times; but by and for *fashion*, for the reason we wear chimney-pot beavers, and have corns, and short-lived, wasp-waisted people, and starved seamstresses, &c. &c. &c.;—for fear of being thought no richer than our neighbours.

"John, dear, I am glad you have ordered the globes. It *looks* so, to be without globes. But would you believe it? the careless creatures sent two that were not a pair,—quite different patterns." This is an epitome of what happened to the Bulls when their town house was burnt, and, among other losses, was a family heirloom called the cathedral (then used to hold lumber). "John, dear," said Mrs. Bull, "we *must* have a new cathedral. It *looks* so, to be without one—and in this great house too. What *would* the Crapauds say? So I have ordered one of Mr. Christopher; and what do you think that upstart had the insolence to suggest?—That we could do very well with a trumpery square thing hardly longer than that old-fashioned great-grandfather's affair in Oxfordshire (which I am glad you have put away in the school-room, where the servants do not go; and I am sure I am ashamed for even the poor dominie to see it.) Now, don't be persuaded into this, dear. People will set it down at once that the fire has ruined us. If Mr. Christopher can do the job, well. We go to him for his work—not his advice. Show yourself a man of taste and spirit, Mr. Bull, and soar above his narrow utilitarian views." So poor Mr. Bull, not being of the class of the rich poor (as *Punch* hath it), but of the other class, the poor poor, could no more afford to be without a full-sized cathedral of 500 feet long, with aisles, chapels, dome of the latest fashion, and all appurtenances (which neither he nor any one belonging to him knows what to do with), than you or I can afford to walk about, Sir, with heads unchimneypotted.

Mr. Bull found out his mistake ere the work was finished, as he has since done in many similar cases, though ashamed to confess it. All this zeal in the service of fashion, which at first as far outstrips the slow beginnings of a mediæval church as the hare did the tortoise, somehow always cools down before getting through one of these long jobs,—always breaks down at some point (in this case at the decoration), and most provokingly just fails of its object,—just fails to keep up appearances throughout, and leaves something or other not even decently respectable,—something evidently starved (like the windows, or empty panels, or painted apse),—something meant to be showy, and left shabby,—giving one peep behind the scenes, and ruining all. Fashion has never yet carried out a single great monument decently throughout, and, I believe, never will. You will say, are not most mediæval works incomplete too? Certainly; but their incompleteness involves no shabbiness;—it *lets out* nothing; for where everything is real, there is nothing to let out. It is only where the dress is a *disguise* that absolute completeness is essential. It is only in sham art that everything unfinished is a "break-down," and spoils the whole "effect."

Well, Mr. Bull, jun. can say he has a cathedral,—a cathedral of his own, not inherited from his father; and he has a dome,—a dome bigger than the Crapauds can show by six yards, and second only to that built by the other Bulls over the Alps; and he has paintings in it, all his own and paid for. No matter that he does not know what to do with his cathedral: no matter that the dome is so dark it repels all eyes,—is never looked at but from curiosity, and only seen *negatively*, like the spots on the sun, or the starless apertures in southern constellations: no matter that the paintings cannot be seen at all (which Mr. Cockerell says is a reason for *restoring* them!): no matter,—there they are, all paid for, and Mr. Bull can show the receipts. Well, let him frame and glaze them, and hang them up in the best lighted part of the interior. They will save the expense of restoration,—do instead of either light or paintings, and the purpose of both building and decorations will be answered. For if the mediævals thought ornament was "to make us happy," they were dreaming, and so was Ruskin to tell us so. Mr. Bull knows better. The use of ornament is to give an air of respectability,—to give your neighbours a favourable impression of the length of your purse; and this can only be done in two ways, by showing how much human labour you can afford to *use*, or how much you can afford to *waste*. Now the first method is troublesome, requiring both thought on the spender's part and art on the designer's. Where these commodities, therefore, are scarce, much is saved by adopting the second method. Besides, many think it nobler, and are more impressed by it; and here lay the error of Wren's first designs. It was not that he grudged expense (he was an economist, indeed, in the original, but not in the modern perverted sense): he would have thought no sum too large that Mr. Bull thought proper for the purpose, but he was for using his reason (in the plan and arrangement, at least: we have yet to attempt it in details): he was for *using* whatever was spent, *wasting* none, applying it all well and wisely, not to superfluities. But here he was expecting too much confidence. Mr. Bull had not faith enough in his architect to believe he could make a half-sized cathedral as noble or as respectable as his neighbours' full-sized ones. "No," said he, "there is nothing like a superfluous acre or two of roof and a thousand or two tons of stone." We *know* what these can do, but as for this untried Wrenism, we may go farther and fare worse (for Mr. Bull has more faith in acres and tons than in any man's abilities). He was afraid, if he let the money show itself quite in Wren's own way it would be such a refined and original way, that the Crapauds might not appreciate it,—at least, not at the first *coup d'œil*, which is everything in matters of fashion or respectability. The modern architect is a *modiste* in building, as the modern tailor in dress; and the principles of *modism* are identical, to whatever they may be applied, and whether by the many, to counterfeit the marks of those above us faster than they can change them, or by the few to change their marks faster than those below can counterfeit them. On both sides of the game it is a principle that nothing can redeem the effect of a mean first impression. Now, a first impression is not arrived at by logic. We do not begin by estimating the waste in a dress or a building, and then judge of the owner's ability to waste accordingly. It is not conclusions arrived at by reflection, that decide us on the respectibility or *ton* of either, but only those imbibed at a glance, by instinctive unobserved associations with something of similar appearance, and the length of purse which that appearance is known, at the particular time, to accompany. Hence, it is not enough merely to *waste* means: you must waste them in the particular modes that happen to-day to be associated with ability to waste, and recognised at a glance as indications thereof. This is the reason my proposal of the framed and glazed receipts would not answer, and also *one* reason, as I take it, why all hats are alike, and all Corinthian capitals. Another reason, however (in the case of dress at least) is, that we may not be all laughing at each other, an inconvenience that would be inevitable if we all displayed *different* marks of respectability.

Well, then, seeing that Mr. Bull has spent all he is ever likely to spend on the *respectability* of his cathedral as a show, a vast sacrifice to fashion (surely the most stupendous and durable ever made),—seeing he has enough to do to keep up the respectability of other works of this nature, more recent, and therefore more striking; suppose we plied him on other grounds. Buildings do not always retain the destination with which they were begun, and we have here the rare case of one whose architect *did not intend* it to do so. Of its owners indeed, one, James II. meant it for a Romanist church, and the rest for a show; two purposes not quite incompatible; and between the two,—prince and mob,—Wren, who was a man not only far in advance of both, but in advance of this year 1852, had a hard job to make his plan applicable, *at all*, to the purpose for which *he* designed, and to which he foresaw it must sooner or later be applied. However, that deep foresight which provided a passage through St. Magnus's steeple because he saw a future age would want it, provided also for the permanent opening and use of this remarkable monument after it should have survived the follies of his day,—for its use as neither a real nor a sham Romanist temple, a Walhalla, a show-room, nor a gallery. With infinite pains he satisfied at once three objects in its construction,—the mob's, the king's, and his own,—his own, as he well knew, the only one that a coming age would recognise or care for. Left to himself, he would have given us something like the most convenient and largest church that Protestants could use, with all real splendour, and no superfluities,—with no pillars in the auditorium, no seats out of sight or hearing, but plenty of space and height, and the largest vestibules and accessories that could retain the subordinate character of accessories. Take one of his earlier designs, or knock off, from the present, all its nave and choir except the first compartment of each, and finish them like the transept arms, at the same distance from the centre; and you have the largest temple we could use, and the fittest for us. To prove this, draw the figure which, according to Inwood's experiments, defines the distance to which the voice can reach audibly. (It resembles a gibbous moon, in which the whole curve situated before the speaker is a portion of a circle of 75 feet radius,

drawn from a centre 17 feet in front of him, and the portion behind him is a flatter curve, its chord being 140 and versed sine about 35 feet. Wren had made some trial with results remarkably like these, for he says a preacher's voice will extend 90 feet forward, 70 to each side, and 30 backward; Inwood's figure giving these numbers 92, 70, and 35). Lay a tracing of this figure on the plan of the centre parts of St. Paul's, and by turning it round you will find positions for the speaker and reader without a single place out of sight of either; and simple as this provision may seem, *you shall not find another Protestant church in which two such points can be found*, and but three other buildings—St. Sophia, St. Peter's, and Florence cathedral.

I assume, then, that these two points are those on which Wren anticipated the permanent placing of the pulpit and eagle; and then the rest of this plan will show you how easily and conveniently the remaining furniture falls into place and dovetails together, with this as a basis. I do not say that it is exactly the arrangement Wren had in his eye, but that he meant this portion of the building, neither more nor less, to be the oratory, and these points the exact places of the reader and preacher.

I should not move the organ from its present place, but bring the whole congregation west of it. The table would stand, as common sense places the table for any man's guests, parallel to the length of the building, not *across* it, nor reared up against an end wall like an *altar*, but in the centre (see rubric, in which "the body of the church" is the *first* place named for it; and observe, too, the expression of standing on the north *side*, not *end*, of the table.) All the seats within the line of stalls, and all eastward thereof, I would keep on the level of the present pavement, the stalls and those behind them rising gradually to the top of the socle; and this level being attained from the nave and transepts by steps. The chief ornamentation should be concentrated on the chancel balustrade, and the candelabra at its corners; but I cannot admire the *ciborium*, however early authority there may be for it. It seems a clumsy struggle after an adventitious dignity that should not be required.

Now, for galleries (which I think quite essential to a really noble church, and which I suppose nobody but poor easy Mr. Bull would be persuaded to let his architects shirk), I would first fit up with seats the four semi-circular tribunes over the main entablature in the diagonal sides of the octagon, which, though naturally out of hearing distance, have half-domes over them admirably fitted for collecting and condensing sound from below. Only one, however, is readily accessible from the present staircase. Therefore remove the vestry to the unoccupied base of the north-west belfry, and the two other vestries to two screened-off compartments at the east ends of the aisles, and erect in the wells three stairs, for reaching the three other tribunes.

Next, I would add four similar galleries under these, and approached by the same stairs, ranging with the cornice or impost at the springing of the aisle arches, and carried each by a flat segmental half-dome, so as to require no pillars.

Yet three more galleries of masonry might next be added, ranging with these last, across the north, south, and west arches of the octagon, and perhaps the east also. I have three different modes of supporting them, that in the south of my plan being the simplest, a mere bridge or wide segmental vault springing from imposts that lie each on a bracket from the face of the first great pilaster, and three small pillars behind it, close to the broad face of the dome-pier. The method shown opposite, on the north, would be more elegant, but dependant on a metal tie. Two brackets from each of the piers and seven small pillars would form eleven angles of a sexdecagon. On these would lie a flat entablature forming ten sixteenths of a circle, from which would spring a partial dome, of a segmental profile, having its base restrained by a chain tie passing through the great piers. But the construction shown in the west arch would be the most perfect and independent—a groining on a semi-octagonal plan, springing from six points, two brackets in front and four pillars behind, and having its push against the two hindermost resisted by buttresses; and the triangular spaces left by the diagonal sides of the semi-octagon, covered by corresponding groins on other pillars. In any case, all the gallery pillars should range in height with those bearing the organ, and be of granite or marble, with undiminished cylindric shafts; and as for capitals, if the architect cannot design a dozen, all better than any in Rome or Athens, I will engage in ten days to find Englishmen that can.

You will next ask what I would do with the present choir fittings. If they are very much admired, leave them as curiosities; but in any case, whether left or disposed of, I regard it as a main feature of this scheme to make an east entrance, and convert the present choir into a vestibule or avenue like the other three arms. To this end, cut the three lower windows of the apse down to the ground, and their entrances will afford room for steps up from the street. Build a wall with two pilasters and three doors across the diameter, as high as to the inner entablature. Vault the lower story of the apse thus walled off, and you will have a peculiar but very grand porch, opening to the street with arches 50 feet high,—deep solemn cavernous mouths; while the upper story forms a tribune open to the interior, corresponding to that at the west end (but of far better acoustic properties), either of them fit to receive an orchestra or a great organ for use in the children's anniversary and other extraordinary services.*

Thus, then, the temple without an altar, like the city without a temple, would be four-square, with three portals opening to every quarter. But you will say, if the north and south approaches be, as I have said, the largest compatible with due subordination, the east and west (especially the latter) must be preposterous. This we cannot help, nor Wren either. This is what we may well believe to have caused him tears, to find that his work was obliged, to suit its temporary ends of a show, to be made—not indeed *imperfect* but (what is as bad) *pluperfect*, for its permanent ones. What the mob call a "noble profusion," he knew was a very base one. Superfluity and waste are but a wretched and pitiful substitute for splendour. Nothing after all would so much ennoble the building as pulling down from both ends till we had no more left than we could use. But compare the superfluity and idle show, when used as above, with that which subsists at present. These east and west avenues would after all (though one is *longer* than the occupied area) be neither of them so spacious, nor both together more bulky in entire contents. The oratory would after all be nearly equal in capacity, and half equal in area, to all its vestibules and adjuncts together. Compare this with the proportion (about a *twelfth* in area, and a *twentieth* in capacity) which it fills at present, in the extremity of one of the limbs of the great show body. By the proposed plan it would at least occupy the body itself, the only part where there is unobstructed room for it, and would be unmistakeably the heart and chief, however overgrown the accessories; and as they would all be passages to it (except the two western chapels) the building would not be altogether a sham. Only show that it is not so,—show that you can use a cathedral, that you know what to do with one, and it shall soon be decorated. Occupy it, claim it all as God's house, or at least as much of it as you can occupy, beginning from the centre, and you will soon find it treated as such. *This* is the "key note to its decoration." The only way to get it rightly decorated is to *make use of it*.

If you do not deem this too long for your columns, I will, in much less space, explain what has occurred to me respecting the decoration and ornamentation on this basis.

E. L. G.

* The alterations to the Royal Exchange, which have naturally enough annoyed Mr. Tite and every sensible looker-on, would be nothing to this.—PRINT. DEV.

A SCENE IN ST. PAUL'S.

NO SKETCHING ALLOWED.

READING what has lately been said about St. Paul's, has brought to my mind a scene that occurred some months ago. I copy it verbatim from my diary, as follows:—

"Feb. 25, 1852.—This day being the anniversary of the death of Sir Christopher Wren, went in morning to service at St. Paul's (*vide* the same date last year). It being also Ash-Wednesday, the full service and commination was read without the organ accompaniment. Sermon from Hosea 10, 12.

After service over walked into the body of the building; very few people there, the cold being severe. Observed that where the openings for clerestory windows meet the dome-vaulting of the nave their intersection forms a peculiar sort of flattened S curve. Took out book and drew this curve, so as to recollect and consider it when at leisure. Note.—It may be but an optical illusion. Hereupon a verger, in long purple robe, stepped up and commenced the following colloquy:—

Verger.—'Perhaps you are not aware of it, but we have orders to prevent any drawing here.'

C. P. S.—'Orders to do what?'

Verger.—'Orders to prevent any drawing being done here.'

C. P. S.—'Why you don't mean to tell me that I'm not to sketch a line or two in a book.'

Verger.—'Yes; we are to prevent any sketching or drawing to be done here.'

C. P. S.—'Then I suppose it's not allowed even to take down the sermon? If so, you should put up a notice to that effect, for I've got down some of this morning's sermon already, and here it is' (showing him a page of shorthand).

Verger.—'No; we've nothing to do with the sermons; but we have strict orders to prevent any drawing being done.'

C. P. S.—'What authority have you for preventing it?'

Verger.—'It's the order of the Dean and Chapter.'

C. P. S.—'As to its being the order of the Dean and Chapter, I don't believe the Dean and Chapter have authority to issue any order of the kind. If I cause any crowd or annoyance, or inconvenience, you may certainly then interfere; but as I don't do so, I say that you've no power to prevent me, and you had better tell the Dean and Chapter to read the Acts of Parliament referring to ecclesiastical matters, before they give such improper orders.'

Verger.—'I don't know anything about Parliament, and I mustn't talk to the Dean and Chapter as you may; but perhaps you had better see the Dean yourself.'

C. P. S.—'Well, I can't go this morning, but perhaps I may see him some other day; but now understand me, I shall not cease from writing or sketching what I please, and as you have orders to prevent me, you had better at once take me up before the Lord Mayor: he lives at the end of the next street.'

Verger.—'No; I don't wish to do that.'

C. P. S.—'But it would be the best thing you could do. I shall continue what I am about, and if you've orders to prevent me, why don't you prevent me? You must either do that or neglect your orders.'

Hereupon the verger walked away and conferred with two other vergers. They all stared hard at me, but troubled me not again. I remained there about a quarter of an hour longer, and finished my sketch with difficulty, owing to the cold.

'Qui vixit annos ultra nonaginta non sibi sed bono publico!'

Spirit that was called away 129 years since to meet the Divine Architect! thou wast in thy lifetime thwarted by those in power. Have their prejudices descended to prevent the humblest of thy admirers from taking note of this thy monument?"

C. P. S.

SCHOOLS OF DESIGN.—According to the return that has just been printed, it appears that, in the metropolitan schools (five in number), there are sixteen professors, masters, and assistant masters. The highest salary is 300*l.* with a portion of fees; the lowest, 32*l.* with a portion of fees. The head master, who receives 300*l.* a year, is engaged twenty-two hours and a half per week; and the assistant master, with 32*l.* a year and fees, is engaged only five hours in the week. In the provincial schools there are forty-one masters, and the salaries vary from 25*l.* to 300*l.* Some of the country schools, we may here mention, want looking to. The local boards do not do their duty.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

I am almost disposed to hope that you reproach me for my long silence, as I must otherwise fear that you have not found our story so interesting or useful as I hoped you would,—and I always prefer *hope* to *fear*, it carries you more buoyantly and pleasantly through the waters in which we are all struggling. If you have not found interest in this look-back into the past,—the "unrelenting Past,"—where

> "Far in her realm withdrawn,
> Old Empires sit in sullenness and gloom,
> And glorious ages gone,
> Lie deep within the shadow of her womb!"

it is my fault, and not the fault of the subject. From Egypt and her mummy, of which will you let me say,—

> "Perchance that very hand, now pinion'd flat,
> Has hob-a-nobb'd with Pharaoh glass to glass,
> Or dropp'd a halfpenny in Homer's hat,
> Or doff'd his own to let Queen Dido pass,
> Or held, by Solomon's own invitation,
> A torch at the great temple's dedication,—"

down to the present day, the story is continuously curious and curiously continuous. It is a look-back, too, which will not tend to weaken our confidence or lessen our strivings, but should rather awaken us to a fuller knowledge of our powers, and arouse our dormant energies; which should lead to greater doings by showing what has already been done.

I gave you, in my last, the broad divisions of Gothic architecture, and promised to put before you the more obvious means of discriminating them. In the Early English or Lancet style—its first phase ("*architecture ogivale primitive*," as Caumont calls it), the arches are acute, lancet-shaped, in fact, as you see them in this example of a triple window, fig. 25, and the openings are long and narrow.



Fig. 25.—WINDOW, LANCET STYLE.

At first they were used singly; but later in the style two or more of these lancet openings were placed together under a connecting arch, and the remaining solid masonry between the heads and beneath the connecting arch being perforated, say in a circular form, gave rise to tracery and larger windows, such as we find in the succeeding style. The foliage seen in the capitals of the Early English style is free and crisp, entirely conventional, and the leaves are for the most part trefoils, very bold and much undercut. The ornament most common and characteristic is what is absurdly called the "dog-tooth ornament," of which fig. 26 is one of the varieties.



Fig. 26.

You may find Early English buildings *without* this ornament, but wherever you do find it you may safely ascribe that part of the building in which it occurs to this period. The zig-zag, you will remember, is a characteristic ornament of the Anglo-Norman style, and this dog-tooth is a growth from the same seed. A series of continuous notches cut on the edge of a square reveal, or pier, gives the first form of the dog-tooth.

The choir of the Temple Church, London, A.D. 1240, or the choir of Lincoln, or the transepts of York Cathedral, or the Chapter House at Lichfield, finished about 1250, will serve as examples of the style.

In the Decorated style, the windows afford the most striking characteristic: fig. 27 is an example.



Fig. 27.—WINDOW, DECORATED PERIOD.

In the first instances the tracery is geometrical, presenting circles, quatrefoils, &c.; and the buildings containing these have been classed, as I said in my last, into a separate division, called the Geometrical; but in the perfect Decorated, which may be considered the culminating point of Gothic architecture, the tracery flows in wavy lines.

Triangular canopies with crockets and finials, niches on the face of the buttresses, and an ornament known as the "ball-flower" (fig. 28), are distinguishing characteristics.

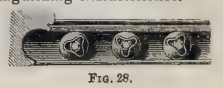


Fig. 28.

All the buildings in this style, although called Decorated, are not more richly adorned than those of the previous and succeeding period; but in this style pinnacles floriated; saints, "sanctified in stone," took their places beneath sculptured canopies; running foliage, curiously cut, grew up into the hollows of mouldings, and all the crowning elegancies of Gothic architecture were achieved.

You must not imagine, as many did at one time, that the architects of the middle ages worked without rules or guiding principles. The more fully our ancient edifices are studied, the more clearly does it become apparent that nothing was introduced unnecessarily or deceptively, for mere appearance' sake: that the excellence of effect, which is apparent, resulted from the use of sound principles, laid down not with a view of producing that effect, but with reference to stability, convenience, and fitness; good taste and great skill being afterwards employed in adorning that which was necessary, and making the useful a producer of the beautiful. Plans were not made to accord with a fanciful elevation, entailing thereby loss of convenience, and unnecessary outlay, but were arranged first, to suit the requirements of the time, and upon these naturally the elevation followed. All decoration grew out of the construction, and reason governed instead of caprice. This is now better understood than it was a few years ago, and will doubtless produce its fruit in due season.

The choir of Ely cathedral; St. Andrew's, Heckington; the choir of Wells, the nave of York, may serve as examples of the Decorated style.



Fig. 29.—WINDOW, PERPENDICULAR PERIOD.

The most striking characteristic of the period which followed the Decorated, namely, the Perpendicular, is the arrangement of the tracery in perpendicular lines, which led to its name. Fig. 29, a window in this style, will explain this to you. You perceive the divisions, or mullions as they are called, run up straight from the cill to the head, instead of taking the flowing forms belonging to the Decorated. In this style panelling is very extensively used, and you will find the same upright arrangement in this as in the windows. Amongst its other peculiarities is the occasional use of a horizontal division in the windows, called a transom, dividing them into several heights; and another is the introduction of a horizontal moulding over the arch of doorways, creating a spandrel on each side of the arch, which is usually filled with carved ornaments, shields, or foliage. The arches in this style are flatter than in the preceding; and you will see that the tendency to verticality, which is the leading principle of pure Gothic, was disappearing, and that the abasement of the art was at hand.

The front of Westminster Hall will serve as an example of the style: look at it when you next pass it. The body of the exquisite church of St. Mary Redcliffe, at Bristol, the Divinity School, Oxford, and St. George's Chapel,

* No. XII. See also pp. 100, 133, 164, 196, 228, 260, 292, 324, 356, 389, and 436.

Windsor, are buildings known to you, which are also in this style.

I ought to tell you that the character of the mouldings, different in all the styles, the plan of the piers, columns, &c. afford means for determining the age of buildings to those who have studied them; but I do not ask you to look at anything more than broad features. And now as to the duration of these styles.

Rickman dates the various varieties of mediæval architecture as follows:—

	A.D.	A.D.
Norman	1066 to	1189
Early English, or Lancet	1189 to	1307
Decorated (Reigns of Edward II. and III).	1307 to	1377
Perpendicular	1377 to	1546

Of course these dates are intended only as approximations, as the use of one style did not stop immediately after the growth of another. Mr. Sharpe, who has made the most recent attempt to alter the titles and define the duration of the styles, gives the following table:—

	A.D.	A.D.	YEARS.
Norman	1066 to	1145 —	79
Transitional	1145 to	1190 —	45
Lancet period	1190 to	1245 —	55
Geometrical period	1245 to	1315 —	70
Curvilinear period (Decorated).	1315 to	1360 —	45
Rectilinear period (Perpendicular).	1360 to	1550 —	190

The differences you will see are very slight, with the exception of putting together buildings which were for some time considered as the completed developments of the Lancet style, and those heretofore called Early Decorated, as a distinct class, the necessity for which has long been felt.

It would be pleasant to talk over with you the peculiarities of some of the wonderful buildings of the mediæval period still remaining to us; to stumble with you upon the ruins of one of our abbeys,—Tintern, for example, in its delicious vale, cunningly placed, where,—

"A mighty window, hollow in the centre,
Shorn of its glass of thousand colourings,
Through which the deepened glories once could enter,
Streaming from off the sun like seraph's wings,
Now yawns all desolate;"—

and to raise again all its parts from the evidences left, and show their purposes. Winchester Cathedral, itself a history of architecture; Wells, with its wonderful west front and glorious display of sculpture; Salisbury a perfect whole, the most uniform of all the cathedrals; Lincoln, with an accumulation of beauties no where rivalled; Lichfield, and its three spires; Westminster, resting-place of kings and record of early arts,—would furnish exhaustless topics. I will, in another letter, give you the plan of a complete cathedral and its subsidiary buildings, so that you may know the general arrangement which prevailed.

In France, the 13th and 14th centuries produced some noble buildings in the pointed style,—Notre Dame, Paris; the Cathedrals of Rouen, Rheims, Amiens, Chartres, St. Ouen at Rouen, &c.

Amiens cathedral affords a parallel with Salisbury. Whittington, Gwilt, and others think it shows the Pointed style was more advanced in France than England in the 13th century, but this seems to me doubtful. Germany affords some magnificent specimens of the skill of the middle ages, many of them doubtless known to you. If Cologne cathedral were completed, it would be one of the most astounding edifices in the world. The works were carried on till the beginning of the sixteenth century, when they were entirely stopped. In 1814, one of the original drawings was discovered in a corn-loft at Darmstadt, and came into the possession of Dr. Möller, the architect of the duke of Darmstadt. Being drawn on parchment, it had been used as the bottom of a sort of tray, on which to dry beans. Another part was elsewhere discovered, and being sold to the king of Prussia, was presented by him to Cologne. United with the drawing discovered at Darmstadt, it represents the whole of the principal front, and from this the workmen are at this day proceeding to complete the building. I remember the enthusiasm with which Dr. Möller told me the incident, some years ago, when I had the gratification of examining the buildings in Darmstadt with that venerable and accomplished gentleman. In 1821, the then king of Prussia began the work of completion at Cologne. In 1842, fresh arrangements were made, and from that time to this the works have been proceeded with, slowly but steadily. The crane of the ancient builders has continued to surmount the grass-covered summit of the tower, and prophesies completion!

When studying the architectural works of the middle ages, two curious circumstances force themselves on the attention. One is, the similarity apparent in the buildings of each particular period, although erected in various parts of Europe (the rapidity with which every alteration in style was made widely known); the other, the fact that many of these extraordinary buildings, which display the most lively imagination, sound judgment, and great mathematical skill, were erected at a time when the greatest ignorance prevailed, when kings were to be found unable to read, and men who knew a few physical truths were regarded as magicians.

On inquiry, it seems tolerably clear that they were executed by bands of men bound together by certain laws in an association partly of a religious character, who were, to a certain extent, protected by the church, and known as *Free Masons*. The early history of this extraordinary fraternity is obscured by fable. At the present time we know them simply as a body of individuals associated for social purposes, who meet at the Freemasons' Tavern and elsewhere, to discuss a dinner and dispense charity. Originally, however, their proceedings were very different. Some masonic writers seek to trace their existence from a remote time, and endeavour to show a connection with the Eleusinian mysteries and the Dionysiac artificers, who possessed the privilege of erecting public structures in Asia Minor. Without entering here on this questionable ground, or even stopping to ascertain the earliest date whereat their presence in England can be proved, suffice it to say they were the builders of many of our cathedrals and churches, and preserved within their lodges a large amount of scientific skill greatly disproportioned to the general attainments of the time. As I have elsewhere said, when a band departed on an undertaking, a charge provided that the most expert craftsman should be appointed master of the works, under whom, when they reached their destination, every tenth man was appointed warden over his nine fellows; a camp was erected and a lodge built in which to hold their meetings and regulate their prices. Here also the apprentices resorted at certain periods to hear discourses upon the sciences, and lectures on morality: for at this period it is supposed that none could become a free and accepted mason without serving under a master for seven years; during which time he was gradually initiated into the mysteries, and was ultimately accepted as a brother.

There is not, in the whole history of architecture, a more curious point than this, although it is, in many respects, obscure. In studying the works of the freemasons, they become additionally interesting if we have a knowledge of the men; and the men, in like manner, are invested with greater importance when we reflect upon their wonderful productions.

Several years ago my attention was led to the fact that many of our ancient buildings exhibited, on the face of the walls, both inside and outside, marks of a peculiar character on the face of the stones which were evidently the work of the original builders, and it occurred to me that if examined and compared they might serve to throw light upon these bands of operatives. I made a large collection of them in England, France, Belgium, and Germany, some of which were published in the "Archæologia." They are simply the marks made by the masons to identify their work, but it is curious to find them identical in different countries, and descending from early times to the present day, for in parts of Germany and Scotland tables of marks are still preserved in the Lodges, and one is given to the (practical) mason, on taking up his freedom. He cuts it, however, on the bed of the stone now, instead of on the face. The marks are usually two or three inches long, and here you have a representation of a few of them.

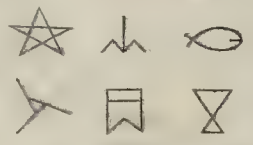


FIG. 30.

Many of them have a religious character, symbolizing the Trinity, eternity, &c. and the fish-form is not uncommon.

The constant occurrence in ancient buildings of this fish form, or *vesica piscis*, as it is called, has led to much discussion. The early Christians symbolized our Saviour by the form of a fish, perhaps because the initial letters of Christ's name and titles form the Greek word for fish; moreover, they called themselves *pisciculi*, considering that the Christian life commenced in the waters of baptism. The fish itself was accordingly sculptured for decoration, but seems to have been superseded by the fish-shaped compartment formed by the intersection of two equal circles. In England it is to be seen over many doorways, enclosing the figure of Christ, as at Malmsbury Abbey Church, Barfreston and Rochester Cathedral. Windows are sometimes found of this shape. The seals of most religious bodies were of this form; and some antiquaries have even attributed the origin of the Pointed style of architecture to the use of it! At Poitiers and Angoulême, where I found many masons' marks, it occupies a very prominent position on the west front of the churches. All this, however, is more curious than useful, and need not be carried further now: I will give you a truth instead of a mysticism, which is that I am

Always very faithfully yours,

Reggeo.

NOTES IN THE PROVINCES.

Lynn.—Building operations are going on to a great extent on the east side of this town. Numbers of new streets have been formed, and the houses are most of them built on a regular plan. The town appears to be extending, and the population to be increasing rapidly. The railways have given an impetus to many kinds of business. No further progress has been made with the estuary works. Attempts, says the *Norfolk Chronicle*, have been made to stop up the further end of the new cut, but as yet unsuccessfully. At low water the workmen may do a great deal towards erecting a barrier to the sea, but at high water their work is demolished, and the new channel is silting up very fast at every tide.

Bottisham Lode.—The foundation-stone of a new church was laid here on Tuesday week. The building will be a small one. Mr. Hawkins, of London, is the architect. Upwards of 900*l.* have been subscribed towards the cost; 500*l.* of it by the vicar. The site was granted by Trinity College, Cambridge—the patrons.

Abingdon.—It is intended to repair and restore the County Hall at Abingdon, erected in 1677 by Inigo Jones. The Berks county gentry have come forward in aid of this object; but, as the repairs and restorations will require from 800*l.* to 900*l.* it is hoped that the architectural and archæological societies will lend a helping hand.

Leighton-Buzzard.—The cost of restoring the steeple to its original height, 192 feet, and repairing the roofs, is estimated at about 500*l.* The parishioners have resolved that a subscription be entered into forthwith.

Folkestone.—The great increase in the number of gas consumers during the last few years has rendered the company's works far too small for the quantity of gas to be stored at the present time. A new gasometer is being erected.

Winchelsea.—The ancient church of Ickle-

sham, near Winchelsea, which has undergone during the last three years a complete restoration, was re-opened on the 29th July, by the bishop of the diocese. The restoration has been done under the direction of Mr. Teulon, by Mr. Judge, of Rye. The church, according to a correspondent, is rather remarkable in its plan, having a nave and aisles of Norman date, and a chancel, with aisles, very much exceeding in length the nave, the tower standing between the north aisle of the nave and the north aisle of the chancel. The above fabric has been completely restored, and the ponderous roof extending over the nave and aisles reproduced. The pulpit and prayer-desk are in oak, and the seats also of oak: all the window openings which had any wooden frames have had stone windows of the respective dates inserted.

Portsmouth.—On Tuesday week the foundation-stone of a new Baptist chapel was laid in Victoria-road, Forton. The new structure will be without galleries, but so constructed as to admit of their erection at any time. The site is 76 feet by 52.

Abberley.—The new church at Abberley, Worcestershire, founded by the Moilliet family, and designed to supersede the old parish church, was on Tuesday week dedicated to God in honour of St. Mary, by the Bishop of Hereford. The first stone was laid by Miss Moilliet, on 27th July, 1850. The architect was Mr. J. J. Cole, of London, and the contractor Mr. J. Davis, of Birmingham. The edifice is in the style of the Geometrical period, and is composed of a nave, chancel, north and south aisles, with a chapel at east end of south aisle, tower with broach spire, sacristy, and porch; the whole being built of hewn stone from Abberley, Elmley, and Ombersley. The tower is fixed at the south angle of the west front. In the tower is hung a peal of six bells, three of them brought from the old church, and the other three re-cast by Messrs. Mears, of Gloucester. The bells bear the following inscriptions:—1, "Fides;" 2, "Spes;" 3, "Caritas;" 4, "Lux in Tenebris;" 5, "Vox Clementis;" 6, "Laus Deo." The bells are not, as usual, swung, but by a mechanical contrivance one man may ring the whole peal by playing with the fingers on a table of keys. The aisles interiorly are separated from the nave by five arches on either side. The roof is open-timbered, the wall pieces being supported by carved corbels, bearing shields. The pews are oak, and the floor of both nave and chancel is laid with encaustic tiles. The altar railings and the west window of the north aisle were presented by the architect: the west window of the nave was given by the builder. The tables of the law, painted in illuminated characters, were presented by Mr. Ingram, of Birmingham. The Moilliet chapel, at the east end of the south aisle, contains a monument to Mr. John Lewis Moilliet, who died in 1845, and which forms a part of the south wall of the chancel. There is also in the chapel a memorial window, executed by Wilmshurst, of London. It contains subjects illustrative of four of the Acts of Mercy, and was designed by Miss M. A. Cole, accomplished sister of the architect. The kneelings will accommodate nearly 400 persons, all of them free. The old church is not to be destroyed: the chancel will be devoted to the purposes of a mortuary chapel, as no burials will take place in the new ground. The total cost of the erection is said to have been between 6,000*l.* and 7,000*l.*

Wellington.—On Friday week, the opening of the Wellington Waterworks was celebrated by a dinner given by Messrs. Dickson, M'Kenzie, and Co. the contractors.

Birmingham.—The idea of restoring the ancient parish church of Birmingham, as a whole, appears to have been given up in despair, to the utter disgrace of such a town. The local papers even require to urge their townsmen to complete the small sum requisite to prevent the spire and tower from tumbling down about their own ears. The restoration of the spire would cost 2,450*l.* and of the tower, 100*l.* or, in all, 3,550*l.* Of this sum all that is as yet realised is, promises to the extent of 600*l.* "It is to be hoped," says *Aris's Gazette*, "that this sum at least will be raised, so that—for the credit of the town,—the mother church, and indeed the only ancient one within the parish of Birmingham, may not be suffered to crumble into ruins before the eyes of the parishioners."

Liverpool.—A testimonial, consisting of a gold snuff-box, from inhabitants of Cockermouth, has been presented to Mr. John Hay, of Liverpool, architect, "as a token of his disinterested conduct in reference to the rebuilding of Cockermouth Church," a decision as to the designs of which edifice was given by Archdeacon Headlam "against Mr. Hay, in consequence of the premium design not having been submitted to the archdeacon."—— Brunswick Chapel has for several weeks been undergoing a course of thorough repair and renovation. The whole of the interior has been repaired and beautified. The lining of the pews has been altered from green to a dark crimson, and they have been recapped with solid oak, French polished, in place of mahogany. "The new system of lighting" says the *Liverpool Journal*, "has been adopted. Instead of the old plan of having gas-lights dispersed in different parts of the building, raised by pipes from the top of the pews, the improved system of the sun light has been introduced"—a system first proposed in THE BUILDER, five or six years since, for lighting theatres exclusively from the ceiling. "Four lights," says the *Journal*, "containing thirty jets each, are placed in the ceiling, the splendid effect of which can only be imagined by those who have seen buildings similarly illumined. A soft brilliancy, resembling the sunlight on a summer's day, is shed upon the audience, the inconvenience of the glare and interruption occasioned by the old mode of lighting thus being avoided. This mode of lighting is, moreover, advantageous in another important respect,—an effective system of ventilation is thereby ensured also." The ceiling is of a light blue, the cornice moulding and ornaments buff, and the central ornament an elaborate piece of workmanship. The painting and colouring have been performed by Messrs. James Knight and Son, and Mr. Bromley, both of Liverpool; the cabinet work and upholstery by Mr. Cockbill, of Liverpool.

Boroughbridge.—On Tuesday week, the new church lately erected at Boroughbridge, dedicated to St. James, was consecrated by the Bishop of Ripon. This new church replaces (on a new site) an old edifice constructed at various periods ranging from the Conquest to the Reformation. The only features of any interest which it possessed, according to the *Leeds Intelligencer*, have been built up within the vestry, and a reminiscence of the design of the old tower has been preserved in embattled pinnacles. The new church is built in the style which prevailed in this country during the latter half of fourteenth century, and consists of a nave of five bays, with north and south aisles, a south porch, west tower, and a chancel with sacristy and organ recess formed by an extension eastwards of the north aisle. The nave is separated from each aisle by pointed arches, resting upon four clustered pillars, over each of which is a two-light clerestory window, with tracery under a segmental head. The aisle windows are of two and three lights alternately. The tower and chancel are opened to the nave by lofty arches. In the former is a three-light west window, and in the latter side windows of two lights, and an east window of four lights with stained glass, by Wailes of Newcastle. The nave and chancel have high pitched open timbered roofs: the aisle roofs are lean-to or shed roofs of low pitch. The nave is fitted up with open seats of deal and of simple character. The fittings of the chancel and pulpit are of old oak, and there is an eagle, or lectern, which, with the font and carved work generally, has been executed by Mr. Mawer, of Leeds. The aisles are floored with Minton's tiles: those in the chancel are encaustic mixed with plain. Those within the altar are the gift of their manufacturer. The works have been executed by Messrs. Freeman and Mr. W. Gatenby, of Boroughbridge, from the designs of Messrs. Mallinson and Healey, of Bradford, architects. Accommodation is provided for 500 worshippers, and the principal dimensions are as follows:—nave and aisles, 60 by 40 feet; chancel, 27 by 18 feet; tower, 18 feet square, 70 feet high. The Earl of Ripon gave the stone with which the church has been built from his quarries at Rainton.

Fenwick and Askern.—Two new churches in hamlets of one and the same parish here were consecrated by the Archbishop of York on Tuesday in last week. St. John's Church, at Fenwick, is in the Early English style, and is capable of seating 150 adults, exclusive of children. There is a small portico at the entrance, no gallery, but the body of the church is furnished with stalls. The inside of the open roof is composed of painted wood, in imitation of the roofs of some of our large cathedrals. The size of the chancel is in keeping with that of the church. The church and yard adjoining, with the walls, enclose an area of 885 yards.—St. Peter's, at Askern, is situate near the Doncaster and Selby turnpike road, which runs through Askern. The style of architecture, and the materials, &c. which compose it are similar to those of the church at Fenwick, except that St. Peter's will accommodate 200 adults, exclusive of children. There is provision made here for burials. The land was presented by Mr. F. B. Frank, and the chief contributor to the church at Askern was the late Miss Brooke, of Gateforth Hall, near Selby. The designs were from the drawings of Mr. W. L. Moffatt, of Doncaster, architect. The brick and stone work was done by Mr. Wray, of Balby, and Mr. Myers, of Knottingley; the joiner's work by Mr. R. Wood, of Doncaster; the plumber's, by Mr. Jubb, of Campsall; and the plasterer's, by Mr. Hood, of Doncaster.

Elsecar.—A school-house has been recently erected at Elsecar, a village about two miles from Wentworth House, the seat of Earl Fitzwilliam. Mr. Pritchett, architect. Nearly the whole population of Elsecar is employed in his lordship's colleries and ironworks, and for their instruction he erected a former school-house about sixteen years ago, and subsequently a church: the former building has been lately surrounded by the branches of the East and West Yorkshire Railway; in consequence of which the approach has been rendered dangerous, and his lordship has erected the new school-house, together with house for the master, on half an acre of land adjoining the churchyard. The schools contain 170 boys and girls, and fifty infants. The buildings are entirely of ashlar stone and oak, and have cost, school-house, 900*l.* master's house, 200*l.* towards which the Council of Education have contributed 222*l.* The roof is open, formed of rafters, and curved braces of oak.

Oldham.—A bad spirit appears to prevail amongst the brickmakers in this quarter. Some persons lately entered a brick croft at Hunt-lane, Chadderton, and destroyed about 3,000 bricks and 2,000 tiles, by trampling on them while soft. The moulder is not a clubman; but, on seeing the damage done, he said he would go and join, as he knew that all he could make would be spoiled if he did not.

Fleetwood.—St. Mary's Catholic Schools, Fleetwood, of which the *Preston Guardian* gives a representation, are in the Pointed style. The principal apartment is 56 feet by 20 feet, and 12 feet high to the springing of the roof. The timbers are exposed. The room is lighted by windows with stone mullions and pointed heads. There is a porch, which gives access to the schools in London-street, having an arched doorway with a panel in the gable, in which it is proposed to insert some inscription. Adjoining to the principal school is an apartment for infants, 24 feet by 12 feet, having an open roof as before, and this part of the building is so planned that it may hereafter be converted into a house for the master. In the rear of the schools are play-grounds. The land on which the school is built has been bought and the building raised by subscription, but 150*l.* is still required to complete the undertaking. The architects are Messrs. Weightman, Hadfield, and Goldie, of Sheffield, and the builders Messrs. John Thompson and James Turner, of Fleetwood.

Southport.—The foundation-stone of the new town-hall of this new and thriving place was laid on 20th ult. The plans were prepared by Mr. Thomas Withnell, of this town, architect. The new building will be of brick, the basement being coated with Portland cement. The extreme length will be about 120 feet, breadth 52 feet (exclusive of porch); height of building 42 feet; and of wings, 36 feet. The ground-story is occupied by the police department, cells, kitchens, &c. On entering the building from the front, a hall appears, at the rear of which is the magistrates' retiring room: on the right hand is the sessions room, 35 by 32 feet; with offices for the magistrates' clerks, waiting-room for witnesses, &c.; on the left, the board room, for the commissioners' meetings, 19 feet 9 inches by 33 feet; two committee rooms, respectively 14 feet by 14 feet 3 inches, and 14 feet by 14 feet 6 inches; and private and public offices for the law clerk. The whole of these apartments are 14 feet high. Access is obtained to the upper story by a double flight of steps, and here is a room for public meetings, &c. 71 feet by 33 feet, and ante-room 14 feet by 33 feet, and 15 feet high. Over the entrance in the right wing will be inscribed, "Police Station," and on the left, "Victoria Market;" it being part of the plan to remove or erect another market in the rear of the new building. The contractor for the works is Mr. Thomas Stanley, of this town. The sum contracted for is 2,240*l.*

Bradford.—In the town council, lately, a resolution was moved ordering a new map and survey of the borough, the General Purposes Committee to advertise for tenders, and select one or more for the adoption of the council. It was proposed to get respectable professional men in a circuit of some twenty miles to compete for the undertaking, and as it was found the Act required the council to advertise, the resolution was passed, on the understanding that the town clerk should seek by letter the competition of a certain number of well-known gentlemen, on the assumption that the lowest tender will not be accepted.——On a motion that the local gas company's tender for street lights, at the rate of 2*l.* 8s. a lamp, be accepted, there was some grumbling and threats of supporting a new company, as the old refused to extend the lighting into the outskirts on the terms offered.

Leeds.—The Leeds Post-office, says the local *Intelligencer*, has at length assumed something of the outward aspect of a public building, and is now distinguishable from the plain brick warehouses with which it is connected. As much has been done in the way of architectural adornment as the situation would permit. The dull brick front has been transformed, through the medium of cement, into an architectural and decorated façade (designed by Mr. W. R. Corson, architect). Some designs in colour, intended to enhance their effect, have yet to be introduced. Mr. Corson's designs have been executed by Mr. Charles, plasterer.——On Wednesday in last week, a special general meeting of the Improvement Commissioners was held, for the purpose of considering the propriety of adopting the "Labouring Classes Lodging-house Act, 1851, of exercising its powers, and the propriety of erecting, renting, purchasing, or establishing one or more buildings to be used as public lodging-houses for the labouring classes, in connection with the Improvement Act." It was shown that as a pecuniary speculation it might be made very advantageous, besides the great benefit which would be derived to society by the establishment of cleanly, healthy, and well regulated houses of this description, in the place of those which now prevail, which are generally dirty sinks of vice and immorality.

Rotherham.—The committee of the Rotherham and Masbro' Mechanics' Institute and Public Rooms met on Friday in week before last, for the selection of tenders forwarded for the projected institution. The number of tenders received was twenty-six, including those for the various building branches of the erection, which the committee had divided. The following are the names of the successful candidates, with the prices of their contracts:—Mr. William Wood, bricklayers' and stone work, 645*l.*; Mr. Thomas Whittaker, joiners' and carpenters' work, 670*l.*; Mr. J. W. Marsh, slating, 56*l.* 12s.; Mr. James Bennett, plumber and glazier, 90*l.*; Mr. Edward Taylor, plasterer, 126*l.* 19s.; Mr. John Jessop, painting, 20*l.* 12s.

Newcastle-on-Tyne.—During a recent cleaning and beautifying of the ancient church of St. Andrew, carried out by Mr. Jackson, the south transept has been further enriched by the insertion of a monumental window of stained glass, executed and presented by Mr. Wailes, who is a townsman of Newcastle, as most of our readers know. The window was one of those exhibited in London last year. The designs are commemorative of the decease of four children, and point to the faith and resignation which such bereavements are calculated to inspire.

Southsea.—The testimonial to Lord Fred. Fitzclarence has been commenced from Mr. Truefitt's design. It is to be executed in Portland stone, and, with the lamps, will cost 172*l.* We have received a litho-tint of it, which leads us to recommend this process to architects, as enabling them to show their designs with effect, with much less labour than in lithography. A brush, pen, or stump may be used.

Edinburgh.—The City Paving Board's accounts for the past year are as follows:—The produce of the assessments amounted to 7,360*l* 18s. 11½d.; sum levied as causeway mail, 826*l.* 4s. 6d.; contributions received from private parties in aid of construction or repair of roads, 1,696*l.* 6s. 1d.; sum debited as interest, 143*l.* 15s. 5d.; total, 10,027*l.* 4s. 11½d. Under head of "Discharge," the balance at end of 1851 was stated at 618*l.* 0s. 6d½d.; expenditure, 7,411*l.* 14s. 11d.; interest, 243*l.* 8s. 6d.; total, 8,273*l.* 3s. 11½d. A return showed the expense laid out by the board on each street respectively, including new materials, implements, and repairs, &c. from 13th May, 1851, to 10th May, 1852. The total sum was 5,335*l.* 14s. 10d.; the amount of dressed stones, 7,806 tons, of mashed ruble, 3,391 tons.——Under the heading "Progress of Plate Glass," the *Scottish Press* says that a fishmonger in George-street "has been making extensive excavations opposite his premises. Splendid ice-houses, 60 feet long; large apartments for washing, cleaning, and dressing the fish; extensive cellarage for feeding oysters on the London system, 500,000 at a time. The diggings under the street disclosed a fine fossil, a petrified Scotch fir, about 9 feet long, and an immense spring of hard water, an auxiliary for washing fish which far surpasses the Crawley. The shops, it is said, will, when opened, surpass everything of the kind in Britain. Mr. Anderson intends having four of them on the same improved system; fish, flesh, fowl, game, and fruit being displayed; and a frontage of plate glass of 120 feet."

Glasgow.—At the new Victoria Bridge at Stockwell-street the piers are completed, with one exception, and there will soon be no exception, for although the foundation of the fourth pier is just laid, it is expected that the pier will be completed within a week, and be ready for supporting the arches to be sprung from it. The centering for two of the arches has been put up. It consists of eleven ribs of 12-inch timbers covered with planks 5 inches thick, each rib resting on four strong piles 25 feet long. The foundations of the piers are deeper than was at first intended, being 3 feet beneath the foundations of the Broomielaw Bridge. The stones used for the piers from the foundations to the springers are of immense size: many of the springers are of 5 tons' weight. The material is of freestone, but every part of the fabric which, when completed, will meet the eye, is of granite, brought from Kingston, near Dublin.

Restoring the Fibre of Brittled Iron Rails.—M. Gervoy, of Lyons, a director of the railway there, has taken out an English patent for prolonging the durability of such rails, by taking them up, submitting them to heat, and replacing them on the line.

THE "CONCEPTION OF THE VIRGIN" A MISNOMER, AS APPLIED TO THE PAINTING BY MURILLO FROM THE SOULT GALLERY.

A neglect, easily explained as regards this country, but most unaccountable in those which have consented to remain under the religious sway of the Roman Church, which clings with tenacity to legendary lore, has induced a carelessness in the identification of the early pictorial language of our religion which it should be the constant endeavour of the archæologist, or iconologist, to remove. Few subjects yielded such a glorious field to the mediæval artist, or afforded such pleasure to the spectator, as the pictorial history, not only of our Saviour, but also of those who were destined to be immediately connected with his advent, and few subjects have been, by the modern archæologist, so lightly studied. Hence the numerous errors which have arisen from misconception, in the first place, and next from the actual translation of the personages of the Old and New Writ into the rulers and characters of more modern times. The public have thus accepted the transformation of Solomon into Clovis, Rachæl or Sarah into Clotilda, and David into Hugues Capet, as may be seen at St. Denis, or in the Museum of Versailles, and in numerous similar instances in various European cathedrals. Analogous misconceptions of the appropriate and recognised treatment of various Scriptural subjects have likewise plunged the iconologist into errors, one of which it is the purpose of this communication to rectify.

The Eastern as well as the Western churches delighted in the complete development of the history of the mother of Christ. The subjects were thus classed:—"The Conception of the Virgin" formed the first of the series in representations of her history, and in this subject Anna, the mother of Mary, occupies the principal place: "The Birth of the Virgin" follows; then "The Benediction;" "Her Entry into the Temple;" "Joseph introducing the Virgin before the Holy of Holies," where she is blessed by Zachariah; "The Death of the Virgin;" "Her Entombment;" "The Assumption;" "The Fountain of Life* and Coronation."

"The Annunciation," "The Salutation," and "The Nativity," formed part of the series in the pictorial history of Christ. "The Marriage of the Virgin" is a subject introduced by the Western church alone.

In the manuscript from Mount Athos, which is a summary of the iconography of the ages previous to the eleventh century, the "Conception of the Virgin" is, by ecclesiastical ordinances, thus to be represented:—In the midst of a garden, surrounded by varied foliage, St. Anna is at prayer: an angel is placed in the heavens in the act of benediction. Joachim is seen upon a mount outside the garden, also in the act of prayer and receiving benediction.—In the treatment of this subject by the Western church, this scene takes place in an apartment. In the East the habits of life are in accordance with the former mode of representation, and the garden is preferred to the interior. This is evidently the only means of portraying the subject of the "Conception of the Virgin."

The "Assumption of the Virgin," however, formed the favourite subject for the pencil or chisel of the religious artists. An apocryphal poem, ascribed to John the Evangelist himself, the patron saint of the artists, formed the theme which they developed in their works. In the thirteenth century Jacobus, a Voragine, whose "Golden Legend" formed a text-book to artists, states that the assumption of the Virgin was in his time preached from the pulpit, and that the legend was solemnly affirmed by divers sayings of saints and religious men. To the "Golden Legend" I

* This epithet, applied to the Virgin, and which is Byzantine Romaic, clears up the difficulty expressed by MM. Didron and Durand in the translation of the word "Gorgoupekoos," another title given to her. M. Durand thought that the word meant "obedient," M. Didron thought it untranslateable, while M. Pittakys believed it to be a local name. The term means "the quick source, or fountain," from γοργός, active, and πηγή, a source. The legendary history of the Virgin dates, probably, from the seventh century.—E. H.

PRESBYTERIAN COLLEGE, BELFAST.—Mr. C. Lanyon, Architect.†



must refer you for a full account of this legend, merely dwelling, with your permission, upon one or two points, in order to show that the painting by Murillo, lately in the possession of Marshal Soult, is a representation of this subject.

The legend asserts that the soul of the Virgin, immediately after death, was received into heaven, but that the body was not raised until three days had passed. A great distinction has been made in the pictorial treatment of the two assumptions, that of the soul and that of the body, the former being generally represented nearly nude, slightly enveloped in linen, or scarcely shrouded by a veil.* In the assumption of the body, however, the Virgin is always clothed in her robe of purple or of blue: the sun's rays surround her form: the moon is under her feet: if crowned, twelve stars shine above her head, and her ascension is accompanied by the acclamation of angels and of saints. The source of this idea is evidently in the 12th of Revelations: on the day of the Assumption, still celebrated by the Roman and Eastern churches, this chapter serves as a text for the anthem, "Mulier amicta sole, et luna sub pedibus ejus, et in capite ejus corona stellarum duodecim." This is a correct description of the picture by Murillo, now in the National Collection at Paris, which should therefore be called the "Assumption," not the "Conception" of the Virgin. Robert Hendrie.

Match-making.—A new machine for splitting the timber used in making matches, has lately been introduced at Augusta, Ga. It splits with ease twenty thousand a minute, or one million an hour, and turns them out ready to be dipped. Mammas will say it is much better a split should precede a match than follow it.

* Such license has been taken by some of the artists, that this figure frequently degenerated into the similitude of a Pagan Venus, justifying the appellation given to this creation by Petrarch of "the Christian goddess."

† See page 496, in present number.

OXFORD INDUSTRIAL SCHOOLS COMPETITION.

In the month of February last, the guardians of the poor for the united parishes of this city (Oxford), advertised, inviting architects to furnish them with plans for industrial schools, which it was proposed to erect at the village of Cowley, some mile or so distant from the town. The sum to which architects were restricted in their designs was 2,000*l.* which was eventually raised to 2,500*l.*; and for this sum accommodation for 200 children was to be provided, an infirmary built, and farm buildings, workshops, and the requisite offices for such schools erected. Of the plans sent in that of Mr. G. E. Bruton, of Oxford, was accepted, received the sanction of the Poor-law Commissioners, and in May last was thrown open to the trade to contract for its erection.

Nine estimates were sent in, but all exceeding the sum at the disposal of the guardians,—four of them exceeding 5,000*l.* each, and the lowest (with one exception) exceeding 3,700*l.* The board rejected all the tenders, and issued an advertisement for fresh plans.

In reply to this three designs were sent in. Two were new, or *fresh plans*, in accordance with the terms of the advertisement: the third consisted of the identical drawings which had previously been submitted by Mr. Bruton, with the exception of the elevation, which was absent: it had been Elizabethan, but its place was now supplied by a drawing exhibiting a front of the plainest possible description. Upon the plans, also, a contraction, to the extent of 14 feet in the frontage, was marked in red ink; the scantling of the timbers was reduced; and other alterations marked so as to bring the cost of erection within the sum allotted. And thus matters stood till the board met to decide which of the plans submitted they would adopt.

At this meeting Mr. Piggott, from the Poor-law Commission, attended, and explained that the former plans having received the seal and sanction of the commissioners, it was not in the power of the guardians to revoke the decision of the commissioners; and that these plans must be carried out in their integrity, or subject to such alterations only as the commissioners should permit. Competition being at an end,—the re-acceptance of the originally-adopted design being an imperative alternative,—the board were divested of the power to consider any of the fresh plans sent in; and may it not, therefore, be successfully urged that they are actionable for compensation to be recovered by those architects who forwarded plans according to the terms of the advertisement? Justice.

*** The guardians acted with great want of consideration, but to bring an action against them would simply be a waste of money. Apart from other difficulties in the way, the fact that the selected architect was a competitor on the second occasion would of itself, probably, relieve them.

THE LEEDS TOWN-HALL COMPETITION.

The instructions to architects on this occasion are more formidable than inviting; in fact, amount almost to a direct *noli me tangere*, when the absurdly short time allowed for planning the works and preparing the numerous drawings required (only two months), and the mere remuneration which is all that is promised to the successful competitor, are taken into consideration. There is something staggering even in the very first article of the instruction, since it asks for a hall for public meeting capable of containing no fewer than eight thousand persons standing! Its area, therefore, can hardly be at all less than 12,000 square feet; consequently were its breadth 60 feet its length must be 200 feet,* dimensions nearly equal to those of Westminster-hall; and as, to be in tolerable proportion, its height could hardly be less than 50 feet, that single room alone would swallow up the whole of the sum named as that to which the

* Unless galleries be admitted.

estimates are expected to conform; or rather that sum would be found insufficient. May there, then, not be a mistake? Has not the printer inadvertently put a cypher too much, and thereby converted eight hundred into eight thousand persons? Could the speakers at public meetings make themselves heard to a concourse of so many thousand people?

Besides this unusually capacious "hall," the number of separate business offices, and other rooms, a spacious council-chamber included, which architects are expected to provide, is so considerable as to render the arranging them within such compass as would not be thought extravagant, a very difficult task. Now, if the committee can prevail upon contractors and builders to perform their part—to furnish materials and labour, upon terms exactly in proportion to those which they in their liberality deem sufficient remuneration to an architect for doing everything except actually superintending the execution of the works,—why, perhaps the sum named as the maximum of expenditure might be found sufficient, because it would in fact be tantamount to one nearly ten times as much.

After all,—this remark comes from a friend who happens to be at my elbow,—the committee are not quite so stingy and inconsiderate as you take them to be. No doubt they reason thus: an architect may be very well content with a couple of hundred pounds for a couple of months' labour. That is paying him at the rate of 1,200*l.* a year; and surely the professional man who can make that, to say nothing of any little jobs at intervals to fill up his odds and ends of time, has no very great cause to complain. "Don't you see?" exclaims my friend. Certainly I do: I clearly see the *reductio ad absurdum*: I see through the pretended seriousness of your look, and detect the glance of satirical irony which is lurking in your eye. Q. E. D.

Another correspondent on this subject says: "The borough surveyor prepared plans for the said building some nine months ago, and which at that time received the board's sanction, and I am now given to understand that a new set of plans has been in preparation for the last six weeks,—by whom I have not yet ascertained; and this is the reason why the time for receiving the drawings cannot be extended, and the scale reduced."

THE NEW COMMISSION OF SEWERS.

ANOTHER Metropolitan Commission of Sewers has held its opening meeting at Greek-street, Soho. Our readers, however, will be sadly mistaken should they imagine that surely something therefore will now at last be done, after three botched commissions have been duly disposed of, and a fourth—attempt shall we say—made to carry out the one great object of all these appointments. The present commission, according to its own chairman, Mr. Jebb, "is only provisional, being merely in a state of transition to a more satisfactory footing and a better basis!" The grub of the sewer fly has but one chrysalistic state to pass through ere it be fairly afloat, but an incipient sewer commission, it appears, has four, at least; and it is hard to say how many more.

The first general court of new commissioners was held on Saturday afternoon, Mr. Jebb presiding. Present, also, Sir J. Burgoyne, Sir C. Fellowes, Major Dawson, Captain Vetch, Mr. G. Baker, Mr. J. Hawkshaw, Mr. W. Hosking, Mr. H. A. Hunt, Mr. L. Redhead, and Mr. G. S. Smith.

Major Dawson explained that the one great object of their appointment from the first had been to devise and execute important drainage works for the improvement of the sanitary condition of this great metropolis, and that it was never meant that the time of the commission should be occupied with mere ordinary details of drainage, for then there would be no necessity for the appointment of such men as Sir J. Burgoyne, and other gentlemen of the greatest eminence in the engineering profession;—that the real secret of their inability to carry out this one great object was the want of power,—of pecuniary power, men of capital having had no faith in the security of their funds, if lent for this great public purpose;—that the Government promised to obtain them adequate power, but so far from having ever got it, even the power they had, to fix a shilling rate, was taken away, or at least reduced to a threepenny one;—that the sixpenny rate afterwards restored to them was not sufficient to enable them even to carry out urgent minor or local works long since resolved on. The estimate for the general system was, he believed, 1,080,000*l.*: their present debt was, in round numbers, 36,000*l.*: the demands for works of great urgency in course of the year amounted to about 280,000*l.*—available balance for this purpose only 96,000*l.*; so that, in effect, at the time of the expiration of the term of the new commission's office, continued the Chairman, "if we have done all in our power to do, we shall still leave undone works of great urgency and importance, to the amount, in round numbers, of 200,000*l.* or equal to the amount of another 6d. rate," these works being merely part of the radii of the great system of arterial drainage, not even then begun, though in plan decided on. In this estimate the charge of 24,000*l.* for the Ordnance survey is not included, the Board having been very indulgent hitherto.

The Chairman concluded his explanation by saying that, "unless further powers be given by the Government and the Legislature, either by increasing the Commission's powers of rating or of obtaining money by loan or otherwise, it is absolutely impossible, putting the general drainage out of the question, beyond the limits indicated, that you can carry out any great drainage works or even works of any extraordinary nature, let their urgency be ever so great."

Such is the hopeful state of our thrice new commission.

Sir J. Burgoyne concurred in the explanation, but, what is more, added his conviction that the commission is even yet "not properly organised for the work it has to do!" And, in truth, he might have still further added that some even of its individual members are not "properly organised" for it,—more than one of them being quite unfit for such work as it has—or ought to have—to do.

The Chairman finally remarked that he had no doubt the Government would consider the subject so as to give them power, in course of the ensuing session of Parliament, to do their duty to the public in a satisfactory manner.

THE NEW CRYSTAL PALACE.

THE directors of the New Crystal Palace Company commenced the building on Thursday, the 5th inst. very auspiciously. A large number of influential persons assembled on the ground: the sun shone out on one of the finest views in the country; and the first column was raised amidst plaudits and congratulations. At the dinner, Mr. Laing, the chairman; Mr. Scott Russell, Mr. Peto, and others, made very able addresses; and the applause of 500 or 600 persons assembled beneath the tent, showed their appreciation of the enlightened views with which the directors commence their arduous and extraordinary work. Sir Charles Lyell responded for the literary and scientific men who were present as visitors, and alluded happily to the reference to the advancement of science and art made in the last Royal speech. The continued want of appreciation in this respect stamped us forcibly when the reporter of a leading newspaper, who sat near us, closed his book when Sir Charles began, with, "Oh, d—n the literaries!" For shame, Press! For shame! Call you this standing by your order?

The building itself will be a great improvement on the old building, presenting three transepts instead of one, and an arched nave. The fall of the ground on one side has led to a clever arrangement of the building on that side, with deep recesses in the ends of the transepts, and an open corridor, the whole length of the intermediate parts, containing sculpture. Within there will be, as we said sometime ago, courts fitted up to illustrate the architecture of the various periods of the world's history, including an Egyptian, Grecian, Roman, Byzantine, Alhambraic, Mediæval, Renaissance, and Elizabethan Courts, each under the direction of competent men. If carried out as proposed, and there seems no reason to doubt, it will be the most extraordinary structure in the world; and we say heartily with the chairman, SUCCESS TO THE PALACE OF THE PEOPLE.

CARVED PANELS—THE SCUOLA DI SAN MARCO, VENICE.

THE Scuola di San Marco, at Venice, now converted into a hospital, was built towards the close of the fifteenth century by Martino Lombardo, architect, the former building having been destroyed by fire. In the entrance-hall, a double row of five stone columns, with pilasters at each of the end walls, support the floor of the large room above. The caps of these columns, and the bas-reliefs on each side of all the pedestals, are very delicately executed: no two are alike. Two examples of the panels of the pedestals are shown by the accompanying drawing. E. H. M.

BUILDERS' BENEVOLENT INSTITUTION.

THE fifth annual general meeting of the subscribers to this valuable charity, which was founded for the purpose of giving relief to aged and decayed members of the building trade, was held on the 29th ult. at the London Tavern, Bishopsgate-street, for the purpose of receiving the report of the directors, and upon other business,—Mr. Thomas Piper, jun. in the chair.

The Chairman, in an appropriate speech, called the attention of the subscribers to the progress the charity was making, and expressed a hope that they would not relax in their exertions to extend its benefits. After alluding to the establishment of a district, he concluded by calling upon the secretary to read the report.

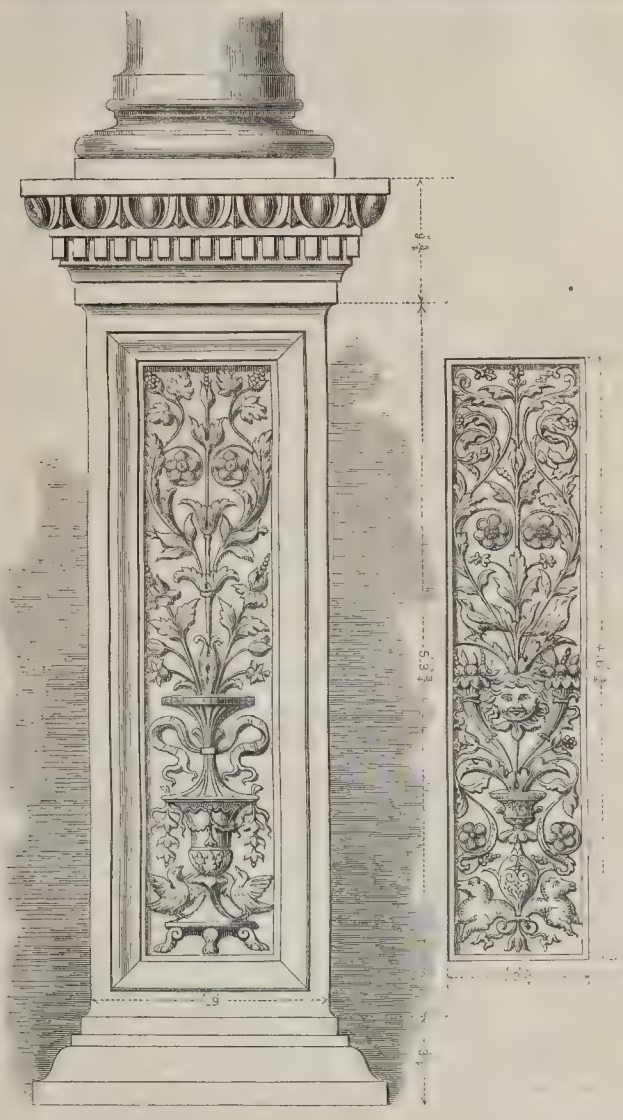
Mr. A. G. Harris, the secretary, read the report, which stated that the society, during the past year, had made very satisfactory progress, and that, owing to the increased support received, the directors had been enabled materially to increase both the number of their pensioners and the amount of Three per Cent. Stock. The total number of pensioners now upon the funds of the society is fifteen, viz. ten men and five women; but there are still a large number waiting to be elected. The ball held at Willis's Rooms in aid of the charity had been very successful, there being an increase of receipts over last year of 17*l.* 17s. 8d (making a profit of 137*l.* 2s. 6d.). Since the last annual meeting a new bye-law had been passed, extending the benefits of the institution to the provinces, and very gratifying results had already sprung from the commencement at Brighton, where a local committee had been formed. An alteration had also been made in the rules for the purpose of allowing unsuccessful candidates to carry their votes forward until finally successful. The report having announced that Mr. Peto had consented to act as president for the ensuing year, concluded by calling upon the supporters and well wishers of the charity to continue their support, and to use their endeavours to extend the benefits of the institution. The balance-sheet showed the total amount received to have been 1,321*l.* 5s. 4d. and after all the necessary expenses had been defrayed there was left a balance in hand of 21*l.* 12s. 6½d.

The report having been moved, was carried *nem. con.*

A vote of thanks having been passed to the committee and to Mr. George Bird, the treasurer, a similar compliment was passed to the chairman, and the meeting separated.

BUCKINGHAM PALACE.—In addition to the extension of Buckingham Palace on the northern and eastern sides, the greater portion of the area on the south side, forming the site of the old domestic offices, and that part of the Pimlico road which has been added to the Palace grounds, are now being covered with an extensive range of buildings. The Palace gardens have, we understand, been embellished, and decorations have been added, amongst which is an alcove of an octagonal form, 18 feet in diameter, the flooring of which is laid with Orsi's metallic lava. The whole of the works are being constructed by Mr. Cubitt. We are told they comprise a spacious ball-room, with refreshment-rooms, kitchens, and other offices.

CARVED PANELS, FROM THE SCUOLA DI SAN MARCO, VENICE.



THE NEW PATENT LAWS.*

THE following is an abstract of the Patent Law Amendment Bill just passed, prepared by Mr. Campin, the patent agent:—

Section 1 appoints the Lord Chancellor, Master of the Rolls, English and Irish Attorney-Generals, the English, Irish, and Scottish Solicitor-Generals, and the Lord Advocate of Scotland, with such other persons as the Crown may specially appoint, to be Commissioners of Patents for Inventions.

2. Relates to the seal of commissioners which is to be received in evidence in the same manner as the Great Seal.—All copies, &c. of documents sealed therewith to be good evidence.

3. Commissioners to make rules for carrying out the Act. Rules to be laid before Parliament, and an annual report presented thereto.

4 and 5. Treasury to provide offices, and the commissioners, with the consent of the Treasury, to appoint clerks, &c.

6. In addition to the petition and declaration for a patent, the applicant must deposit a provisional specification, the date of the deposit whereof to be recorded at the Commissioners' office.

7. Reference of these documents to be made to one of the law officers (the Attorneys and Solicitors General, and Lord Advocate, being thus denominated).

8. The law officer to be at liberty to call to his aid such scientific or other person as he may think fit, and to cause to be paid to such person by the applicant such remuneration as the law officer shall appoint; and, if such law officer be satisfied that the provisional specification describes the nature of the invention, he is to allow the same, and give a certificate of his allowance, and such certificate must be filed in the office of the commissioners, and thereupon the invention therein referred to may, during the term of six months from the date of the application for letters patent for the said invention be used and published, without prejudice to any letters patent to be granted for the same, and such protection from the consequences of use and publication is hereinafter referred to as provisional protection. Provided always, that in case the title of the invention or the provisional specification be too large or insufficient, the law officer to whom the same is referred may allow or require the same to be amended.

9. The applicant may, if he likes, deposit his complete specification on applying for patent, when all the rights and privileges of letters patent are to be obtained for six months.

10. Any application in fraud of true inventor not to affect his rights during the provisional or other protection.

11. Commissioners to advertise the application.

12 and 13. Upon applicant applying to com-

* From the *Mining Journal*.

plete his patent (which must be in time to seal it within six months from the date of application), advertisement to be made, and objections allowed to be filed. At the proper time, the law officer to inquire into the matter.

14. Law officer may order by and to whom costs of inquiry are to be paid.

15. Warrant of law officer and sealing of patent.

16. The royal prerogative saved.

17 and 18. One patent for the whole United Kingdom and colonies. Patent to be void if the payments at the end of the third and seventh years, as stated in the schedule, be not duly paid. Patent to be recorded in the Chancery of Scotland, and (by sect. 29) in the Chancery of Ireland.

19. Letters patent not to be issued after three months from date of warrant.

20. Nor after the expiration of the six months' provisional or other protection.

21. Patent may be granted to personal representative of a deceased applicant during the term of said protection, or within three months after decease.

22. If letters patent be destroyed or lost, others may be issued.

23 and 24. Letters patent may be ante-dated by the Lord Chancellor, but not earlier than the date of application, and be good and valid.

25. Letters patent hereafter granted for "any invention first invented in a foreign country, or by the subject of any foreign power or state," not to continue in force after the expiration of the first foreign patent, and no patent granted after the expiration of any foreign patent to "be of any validity."

26. Foreign ships to be allowed to use a British patented invention on board thereof only, provided the foreign state to which such ships belong allows British subjects to use inventions patented there, on board British ships staying within the jurisdiction thereof.

27, 28, and 29. As to filing of specifications, &c. Copies of specifications to be open to public inspection at offices in London, Edinburgh, and Dublin.

30. All specifications, &c. to be printed by commissioners and sold to the public. Printed copies to be evidence. (34.)

31. Old specifications to be collected in the new office for filing specifications, &c.

32 and 33. Indexes of all specifications, &c. to be made and kept open to the public, &c.

34, 35, 36, 37, and 38. As to the registers and books of the Patent-office. Registration of transfer of proprietorship. Proprietorship of patent not to be limited to twelve persons, &c.

39 and 40. As to disclaimers, confirmation of patents, &c. The law to remain as now. Process to be subject to the commissioners' direction, &c.

41. In actions for infringements, and *scire facias*, particulars of objections to letter patent to be delivered before trial, &c.

42. Common law courts rendered competent to grant injunctions.

43. As to costs of lawsuits.

44, 45, and 46. Grant the Crown the stamp-duties, fees, &c. mentioned in the schedule.

47. Extra fees to law officers in regard to oppositions, &c.

48, 49, 50, and 51. Treasury to allow the fees and salaries to officers, clerks, &c. and pay the same. Accounts to be laid before Parliament. Compensation given to old officers.

52. Letters patent in progress before the passing of the Act may proceed under the old law.

53. An old patent right for England, Scotland, or Ireland, may, under certain circumstances, be extended to any one of the three kingdoms not covered by it, at one-third of the amount of fees on the schedule.

54, 55, and 56. Formal clauses.

57. Act to come into operation on Oct. 1, 1852.

Schedule of Fees, &c.—On leaving petition for grant of letters patent, 5*l.*; on leaving notice to proceed with application, 5*l.*; on sealing of letters patent, 5*l.*; on filing specification, 5*l.*; at or before the expiration of the third year, 40*l.*; at or before the expiration of the seventh year, 80*l.*; on leaving notice of objection, 2*l.*; every search and inspection, 1*s.*; entry of assignment or licence, 5*s.*; certificate of assignment or licence, 5*s.*; filing application for disclaimer, 5*l.*; caveat against disclaimer, 2*l.*

Stamp Duties to be paid.—On warrant of law officer for letters patent, 5*l.*; on certificate of payment of fee, payable at or before the expiration of third year, 10*l.*; on certificate of payment of fee, payable at or before the expiration of seventh year, 20*l.*

Notices of Books.

The History of the Painters of all Nations. John Cassell, Ludgate-hill. Part I.

THIS is the first part of a translation by Mr. Peter Berlyn of M. Charles Blanc's work, which is to be continued monthly, under the editorship of Mr. M. Digby Wyatt. Each part is to be complete in itself. This contains a complete biography of Murillo, illustrated by eight large and two smaller engravings from his more celebrated productions. It is well printed, singularly cheap, and may be made a valuable popular guide, bringing into view not only the life of the artist, but his works. We must confess, however, that we are not satisfied that the first part justifies a title-page with four names upon it. Some of the wood-engravings are merely caricatures, and the style of the writing is, we are sure, more inflated and artificial than Mr. Wyatt can approve. Take, for example Mr. Blanc's first sentence:—"With Murillo we are about to take a view of creation, and to soar through the universe, not only as it was fashioned by the Creator, but such as the imagination of man has peopled it beyond its outward and visible form."

The intention of the work is excellent, and we hope to see it satisfactorily carried out.

Report on Excavations made on the Site of the Roman Castrum at Lymne, Kent, in 1850. Published for the Subscribers. By CHAS. R. SMITH, F.S.A.

UNDER this title Mr. Roach Smith has furnished a copious description, with numerous illustrations, of the excavations carried on in 1850 under the direction of Mr. J. Elliott, jun. and himself, which were mentioned by us during the time of their progress. The whole cost of the proceedings has been but 138*l.* and the subscribers must feel that their money has been very satisfactorily expended. The volume will hand down with credit the names of all who gave their aid to a worthy investigation. It further contains notes on the original plan of the castrum, and on the ancient state of the Romney marshes, by Mr. Elliott.—Messrs. Smith and Lower propose to do with Pevensey what has been done with Lymne.

Lectures on Gold; for the Instruction of Emigrants about to proceed to Australia. By J. B. JUKES, M.A. F.G.S.; EDWARD FORBES, F.R.S.; LYON PLAYFAIR, C.B. F.R.S; W. W. SMYTH, M.A. F.G.S.; JOHN PERCY, M.D. F.R.S.; and R. HUNT, Keeper of Mining Records: delivered at the Museum of Practical Geology. Bogue, Fleet-street. London, 1852.

To this useful series of lectures we have already more than once alluded, and we are glad now to see them in a more permanent and public form. They cannot but be of use to many who meditate emigration to the Australian gold diggings not knowing "fool's gold" from the genuine article, and mistaking "all for gold that glitters," as but too many in more senses than one do.

Cyclopædia of Useful Arts, Mechanical and Chemical, Manufactures, Mining, and Engineering. Illustrated with several hundred Engravings. Edited by CHARLES TOMLINSON. Parts XIX. and XX. George Virtue, London and New York.

WE have had repeated occasion to speak favourably of this book: it still sustains its character, and is evidently an honest as well as an able work. The principal articles in the present instalments of it are on gas-lighting, gilding, glass, gold, graduation, granite, gravity, grinding and polishing, &c. There is also a portion of the preliminary treatise, treating of animal substances, chemical and pharmaceutical processes and products, machinery and machine tools, planing machines, cotton machinery, &c.

Miscellanea.

THE LATE MR. JOHN SMITH, ARCHITECT, OF ABERDEEN.—Mr. John Smith, of Aberdeen, died a few days ago in the 72nd year of his age. Mr. Smith was born in Aberdeen in the year 1781. About the year 1805, Mr. Smith commenced business, when he gave proof of his skill by planning and executing the town residence of the late Peter Milne, esq. of Crimonmogate, now the property of Sir Alexander Bannerman, bart. Mr. Smith's ability soon recommended him to a rapidly increasing practice; and the civic authorities of the day appointed him city architect and superintendent of public works, an office of which he regularly discharged the multifarious duties with ability and fidelity to the period of his decease. In his capacity of city architect, Mr. Smith completed the first correct survey of Aberdeen, in 1810, which was published in that year. Among the various public works in Aberdeen, the following are due to Mr. Smith:—The North, South, and St. Clement's Churches—the façade in front of St. Nicholas Churchyard—Dr. Hamilton's Monument—Gordon's Hospital—the Public Schools in Belmont-street—the Advocates' Hall—the new front of the Tolbooth, a beautiful specimen of the Baronial Gothic—the new Gaol and Court House—the extension of the Bridge of Dee—the additions to King's College—the Record Office, &c. Besides a great many residences in the city and its immediate vicinity, the following country mansions claim him as their architect:—Slains Castle, Auchmacoy, Cluny Castle, Strichen House, Dunecht House, Pitfour House, Manar, Phesdo House, Raemoir, Lairney, Fintray House, Aden, Forglen House, Dunlugas, Whitehaugh, Easter Skene, Candacraig, Banchory House, Menie, Drumside, Craigellie, Kirkville, extensive additions to Haddo House, Buchan Ness Lodge, Balmoral, now the residence of her Majesty, &c. &c. besides a great many churches and manses throughout the country.

MODEL DWELLING-HOUSES.—A site of land at the back of the brewery in Broad-street, Golden-square, Westminster, bounded by New-street, Hopkin's-street, and Husband-street, has been taken by the General Society for Improving the Dwellings of the Working Classes (Lord Viscount Ingestre, president), and the same has been cleared of the old and dilapidated buildings, long the haunt of the lowest and most vicious of the London poor. It is intended by the Society to erect at once on this site, under the superintendence of their architect, Mr. Lee, eight double houses, each to contain accommodation, consisting of a sitting-room, two bed-rooms, and other conveniences for eight families, or for sixty-four families in the whole. This arrangement it is hoped will, besides giving good accommodation to the families housed, produce improvement and change for the better in the character of the locality, which is one of the worst in that part of the metropolis. The expenditure is proposed to be about 7,000*l.* independent of the ground, and a return of about 7 per cent. is looked for.

PRESTON THEATRE.—RATHER WIDE!—The following tenders are for the boarding over the pit of the Theatre Royal, Preston, and fitting up nine tables in the same place for the purpose of holding a Conservative dinner:—

T. Coulthurst	£25	0	0
J. Bamber.....	25	0	0
J. Brown	15	0	0
G. Gillett	12	0	0
J. Walmsley.....	10	10	0
J. Gardner	8	8	0
T. Ladyman.....	4	15	0 !

Such ridiculous estimates as these do injury to the trade in general, by destroying the confidence of the public.—A FRIEND TO THE TRADE.

The Late Mr. Thomas Grainger, C.E.—This gentleman, who met with his death by a lamentable accident in a railway collision as we noted last week, was about fifty-seven years of age. He was born, according to the *Scotsman*, at Ratho, near Edinburgh, where his father was a small farmer. He was a pupil of the late Professor Playfair and Dr. Coventry, and commenced his career in Edinburgh as a land-surveyor, having succeeded to the business of the late Mr. John Leslie. The commencement of railways in Scotland opened up a new career for his active and enterprising mind; and to enumerate those with which he was connected in some capacity or another, would be to name most of the lines now constructed in Scotland. He was also engaged on a number of English lines; and was engineer-in-chief of the Leeds and Northern, on a branch or extension of which he met with the accident which resulted in his death, and on which occasion, it is said, he had insured his life against accident for 1,000*l*. Mr. Grainger's greatest work in Scotland was the Edinburgh, Perth, and Dundee Railway; and the largest undertaking with which he was connected in England was the Leeds and Northern line. He had realised a handsome fortune from his professional exertions. In the local affairs of the city of Edinburgh, Mr. Grainger took a warm interest, and was a member of the Improvement Commission up to its close. He was president of the Royal Scottish Society of Arts for two successive sessions. The estate of Craig Park, near Ratho, belonged to him, and he was also owner of some iron, mining, and smelting works in Fife.

The Royal Exchange, London, and the New Markets.—At a Court of Common Council, held on 29th ult. Mr. Norris brought under notice the disfigurement of the Exchange, to which we some time since gave publicity. One of the Gresham committee defended the act, on the ground that the tenants paid high rents, and complained of the unprofitable position of their shops. It came out, nevertheless, that although this shifting of shops into more profitable positions was carried out as a pretended compensation for highness of rents, these rents were to be raised still higher as a compensation for the cost of shifting the shops, a mode of proceeding which seems to leave the ground of the tenants' complaints much where it was, so far, at least, as highness of rents is concerned. Mr. Norris gave notice, "That it is undesirable to proceed further with the alterations, and that the city side of the joint grand Gresham committee, constituting with a portion of the court of the Mercers' Company the trustees under the will of Sir Thomas Gresham, be requested to convey to that body this opinion of the Court."——At same meeting it was stated that the new markets at Copenhagen-fields are to be proceeded with as rapidly as possible. We are glad to observe, however, that an important memorial from the inhabitants of Camden-town, complaining of the proposed site, has been already presented to the Court, and referred to the markets' committee, and we hope this memorial will be speedily followed up by other energetic proceedings against it.

Sussex Archæological Society.—This society held a very successful meeting on the 23rd ult. at Battle Abbey. The Earl of Waldegrave took the chair, and Mr. Mark Anthony Lower, Mr. Blaauw, Rev. Joseph Hunter, and Rev. E. Turner read papers. Mr. Hunter demolished the reputation of the "Roll of Battle Abbey." At the dinner nearly 500 persons sat down, the Earl again presiding, and Mr. Pelham Micklethwaite, Mr. Blaauw, Mr. Lower, Mr. Powell, and others made appropriate speeches. Mr. Britton said, in replying as one of the vice-presidents, "I can look, not only with veneration, but with intense delight, on what our ancestors did in the time that is commonly, but very improperly, called the 'dark ages.' Was it a 'dark age' when the architect designed the buildings around us? Was it a 'dark age' when the builder, from that architect's plans and designs, executed such windows, doors, sculptures, and other architectural features, which we find in these ruins? We come into the world when all the knowledge they possessed has descended to us, and have, in addition, railroads and telegraphs to impart to us with a rapidity and facility of communication which was never known to the ancients, either of Greece, or of Italy, or of Egypt. We live in a most extraordinary age. I often contemplate what has been done in the short space of time that I have lived on the surface of this globe? Look at the wonderful workings of the telegraph! at the surprising works of the railway! and also reflect on what the engineers, at the commencement of the Birmingham Railway, proposed to accomplish,—travel at the rate of fourteen or fifteen miles an hour; and compare that with the rapidity of our travelling to-day from Brighton. These are among the wonders and signs of our age."—Mr. Joseph Ellis, of Brighton, has made the meeting the subject of a poetical flight, "Ye Battel Daye," published in the *Brighton Gazette*.

The Iron Trade, &c.—It does not appear that any extensive amount of business was transacted at the late quarterly meetings notwithstanding the previous representations of unusual activity and the resolution not to raise the prices, but it is said, as usual, that since the meetings there has been more stir in the trade. Some branches of manufactures are busy. The brass foundry business, more particularly, is represented to be in a more than ordinarily active state, while copper goods, notwithstanding the late advance in the price of the raw material, are in unusually great request. This demand, it is stated, is occasioned by a general conviction that, high as the present price of copper is, it will be still higher and higher during the ensuing twelve months.——The *New York Herald* says: "The Illinois Central, the Erie, and most of the new western lines of railway want a great deal of iron, and it is our impression that within the next year or two from ten to fifteen millions of dollars worth of such iron will be imported into this country from Great Britain, most of which will be paid for in bonds."

Association for the Promotion of the Fine Arts in Scotland.—The annual meeting of this association took place last week, Sir W. Gibson Craig in the chair. The report—for the taste displayed in which, by the way, we cannot say much—tells us that the amount of subscriptions received for the year was 3,493*l*. from 2,106 old subscribers, and 1,221 new subscribers; being an increase in the amount of the subscriptions over that of last year of 407*l*. Of this sum 1,297*l*. have been expended in the purchase of forty-one paintings from the late exhibition of the Royal Scottish Academy, being more by 126*l*. than was expended by the committee of last year in the same exhibition; 206*l*. on statuettes in statuary porcelain—all first casts, selected from the best works which have been produced by Mr. Copeland,—and in bronze, from Mr. Steel's colossal equestrian statue of the Duke of Wellington, lately erected in Edinburgh; 776*l*. on engravings; and in conformity with the regulations of the Board of Trade, a per centage on the amount of the annual subscriptions has been set aside towards the purchase of a picture for the National Gallery. The committee have determined on issuing an illustrated edition of the principal poetical works of the national poet, Robert Burns, a portion of the work to be brought out annually until completed. The first part will consist of the "Cottar's Saturday Night," embellished with ten compositions by Mr. John Faed, R.S.A.; to be distributed among the members for the year 1852-3.

New Church at Croydon.—Christ Church, Croydon, has been consecrated by the Archbishop of Canterbury. We understand it is built of flint, with freestone dressings, and will accommodate 700 persons. It is in the Middle Pointed style, and consists of a nave having an apsidal termination eastwards, and transepts north and south, forming in the whole a cross church. It is simple in all its details. The communication with the apse is by a double arch, over which rises a single-storied bellcote. The interior arrangements agree with the exterior. The roof is an open timbered one throughout. The seats are all open, and there are no galleries except in the transepts, so that the congregational arrangement is in no way interfered with. The pulpit stands on the north of the chancel arch, and the reading-desk on the south. The apse is divided by a low rail of traceried panelling. The windows are glazed with very simply floreated painted glass. The decalogue is placed in the nave. The site is enclosed by a low flint wall, with entrance-gates of oak. Mr. Teulon is the architect.

Trinity College Church, Edinburgh.—A discussion is going on as to the expediency, or otherwise, of rebuilding this church, taken down, it will be remembered, to give a site for a railway station. Mr. D. Cousins declares against the use of the old materials, at all events for the exterior. He says,—"I have carefully examined Trinity College Church from its base to its topmost pinnacle: the exterior mouldings and carved canopies—nay, the very outline of its pinnacles and finials were so weather-worn as to present but shapeless masses, rendering it difficult to trace the original form, save at some sheltered nook where, protected from the storm, the original design could still be traced. The very joints and arrises of the flat masonry were completely destroyed: the cementing matter of the sand-stone had been so washed out by the storms of many centuries that the outer edges might be crushed between the fingers."

Marine Propulsion.—Being impressed with the belief that the great defect of the methods at present employed is that a large amount of the motive power is exhausted by levers, cranks, &c. I have endeavoured to invent a plan by which direct action would be obtained, and hope to do so by causing the expansive force of the vapour employed to act between the vessel and a resisting force in the water. This will be better understood by supposing a floating diaphragm (submerged) to be stationed under the vessel's stern, and an elongated piston-rod acting against it coming from horizontal cylinders and thus *pushing* the vessel forward. The resisting surface would assume a horizontal position during the backward movement, and thus offer no resistance, and again become vertical during the forward movement of the piston-rods: thus every ounce of power would be exerted.—O. H. H.

*** With reference to Mr. Gordon's plan, published by us, we received several schemes to effect the same object, one of which indeed was afterwards withdrawn in order that it might be patented.

The Peel Statue for Bury.—The statue of the late Sir Robert Peel, by Mr. E. H. Baily, R.A. intended to be erected at Bury, in Lancashire, has been cast by Mr. Robinson, at his foundry in Pimlico, in one piece, with the exception of the skirts of the coat. The statue is 10 feet 6 inches high, and is as in the act of speaking, with the right arm slightly extended. The figure seemed to us clumsy and unlike; the head a reasonably good resemblance. The right arm is a mere wisp of straw, without life or form. There are two bronze reliefs cast for the pedestal, called Commerce and Navigation, the latter much more like a dandy yacht-man than the symbol intended. It is much to be regretted, but so far as we have seen, the demand for statues of the late eminent statesman has not yet elicited a single spark of genius. The reason why may be worth inquiring into.

New Church and Schools in Limehouse.—The sum of 5,000*l*. towards the cost of the erection of a new church and schools, in Limehouse, has been given by Miss Burdett Coutts.

Elementary Drawing Schools.—By a decision of the department of ornamental art, the teachers for the elementary drawing schools shortly to be established will be selected from among the most talented and diligent pupils of the schools of design. The approved pupils will go through a course of preliminary training at the central school, and during that period will be allowed 1*l*. a week, and the lowest salary when they receive an appointment will be 70*l*. a year.

AGRICULTURAL ENGINEERING. — The proceedings at the Lewes meeting of the Royal Agricultural Society this year, showed an interesting advancement in agricultural machine-making, and in the number as well as the rank of competitors. "An impression," says a contemporary, "which must be produced on the mind of every attentive visitor to the show-yard of the society is the extraordinary attraction which the manufacturers of machinery for the use of the farm feel and own towards these annual exhibitions. At great expense, they continue year after year to compete with each other, and so strong is the spirit of rivalry which pervades them, that a blacksmith (not long ago in a very small way in this neighbourhood) exhibits goods to the value of 2,000*l*. Many of these men, who now employ hundreds of hands, commenced business like this blacksmith, and they have risen by degrees till their business at length embraces a variety of mechanical details, and calls forth an ingenuity which makes it not only an important branch of our national industry, but a prominent feature in that great system of labour economised by machinery, which is the chief source of our wealth as a people." The chief machines exhibited were improved reaping machines and portable steam-engines, draining-ploughs, thrashing-machines, chaff-cutters, &c. The principal exhibitors were Messrs. Ransome, Garrett, Howard, Hornsby, Fowler, Clayton and Shuttleworth, Richmond and Chandlier, &c.

THE HARBOUR AT GUERNSEY. — The ceremony of laying the first stone of the harbour is, we are informed, postponed from the 4th of this month (the day originally decided on) to the 18th. The contracts for the works not being yet signed, and not, as has been industriously rumoured, from any differences having arisen between the harbour committee and the contractors, or from any objection upon the part of the latter gentlemen to execute the instrument.

CREMORNE. — These gardens have been much improved: they are exceedingly well conducted, and do credit to Mr. Simpson, the proprietor. A benefit for a charitable institution led us there a few days ago, and we are bound to say that a larger amount of amusement for a similarly small entrance-fee was never given. The gardens were crowded, but everywhere the greatest order, propriety, and good humour prevailed. Balloons, a ballet, good horse-riding, clever contortionists, music, Kaffirs, and fireworks fill pleasantly every minute of a long but not late evening.

THE BURIAL ACT—KENSINGTON.—At a meeting of the vestry on the 2nd inst. a Burial Board was appointed for Kensington, with instructions to report to the vestry the results of their necessary inquiries on the subject, and not to enter into any contracts or arrangements without the sanction of the vestry being first obtained. Some of the speakers were in favour of arranging with one of the cemetery companies for part of their grounds.

ORNAMENTAL ZINC.—A process has been patented, by which zinc may be coated, coloured, and ornamented, so as to be calculated to bring the material into use for purposes to which it has not yet been applied. The coating or ornament given to the zinc is varied in character according to circumstances: in some cases a strong coating is formed on the zinc, and in others a mere stain; and, according to the patentee, the coating, being chemically attached to the metal, and in a manner identified with it, is exceedingly durable both in substance and colour; has no tendency to crack or come off, and is unaffected by moisture or moderate heat. The process is simple and inexpensive, and no machinery is necessary. Hence articles can be ornamented at a moderate cost, and when art has been brought to bear upon it, it will probably come into use for several purposes.

BATHS AND WASHHOUSES.—A third edition has been published of the "Observations on Baths and Washhouses," by Messrs. Ashpitel and Whichord (Weale). The pamphlet gives a brief sketch of their introduction, and an abstract of the Acts of Parliament relating thereto.

INAUGURATION OF THE PEEL STATUE AT TAMWORTH.—On 23rd ult. the bronze statue of the late Sir Robert Peel, by Noble, was inaugurated in the market-place of Tamworth, directly in front of the town-hall. The figure, which stands upon a pedestal of Aberdeen granite, is more than life size, being 8 feet 4 inches in height. It represents the late Right Hon. Baronet in the attitude of speaking. In his right hand is a scroll, the left resting on the hip. The modern costume is covered by a cloak, which drapes the figure. The likeness may be said to be good, though the expression be rather severe. Sir R. Peel and other members of the family, together with many other gentlemen, were present at the inauguration, and the meeting was addressed by Sir R. Peel, Mr. Frederick Peel, the Mayor of Tamworth, and others.

THE LATE SIR JAMES MACADAM.—An old and highly respected subscriber, Mr. B. Hawes, calls our attention to the fact that in the paragraph announcing the death of the late Sir James Macadam, he is inadvertently called the originator, instead of son of the originator, of the system of road-macadamization. Our correspondent, who knew both father and son, adds that the late Sir James, though not himself the originator of the system, was employed under his father while carrying it out, and continued to be so till his own appointment to his father's office of inspector of the metropolitan roads, &c. at the death of the latter.

ROCHDALE COMPETITION.—Nine designs were submitted in competition for the New Congregational Church, in Rochdale, from which the committee have selected one prepared by Mr. Moffat Smith, of Manchester, and have awarded the second premium to Messrs. Barry and Murray, of Liverpool.

BURY ARCHÆOLOGICAL INSTITUTE.—The eighteenth general quarterly meeting of this society was held on Thursday in last week, by permission of Mr. Steel, of West Stow, in the brick gate-house of the hall, where were arranged a number of objects of the Anglo-Saxon period found on the neighbouring heath, together with various other art curiosities. Nearly a hundred members assembled, and the party visited the church, old Saxon burial-ground, and Hengrave Hall by permission of Sir Thomas Rokewood Gage, bart. where also a variety of archæological relics was exhibited.

STATUE OF CORNELIUS FOR DRESDEN.—Hanel, a Dresden artist, it is said, has received the commands of the King of Saxony to proceed to Berlin, to execute a colossal statue of Cornelius. It is to be one of the eight statues, of the greatest artists of all ages, selected by the Saxon artists, to be erected in the hall of the new museum in Dresden. Cornelius is the only living artist to whom this honour has been accorded. His statue is to be placed next those of Raphael and Michaelangelo. Thorwaldsen is also named as one of the number decided on.

PERSPECTIVE IN DESIGN.—On reading Mr. Redgrove's excellent and instructive report on the works of the several students in the different departments of ornamental art, after noticing the advantage of geometry with reference to design, I do not perceive that he makes the slightest allusion to a knowledge of perspective. I am induced to refer to this from an observation I recollect being made by an eminent deceased architect, "That it was scarcely possible for an architect to make a design without a knowledge of perspective." There appears good reason in the above remark, for whatever object we behold, whether in the round or otherwise, we seldom or never see it in a geometrical position, or in other words, the eye can never be on a level with all parts. I cannot help thinking that if many of the artists who design some of the elegant vases and cups for distribution as prizes, &c. were to study their forms in perspective, they would produce more elegant compositions; for from a knowledge of geometry they would then apply the latest art judiciously, and I believe it would be found of the greatest utility, not only to our chasers in silver and gold, but also in our potteries, &c. I throw out these few hints with diffidence, and for no other purpose than endeavouring to promote and assist the praiseworthy cause that is now being pursued in the great improvement in our manufactures and taste.—W.

STATISTICS OF LABOUR, &c. AT MELBOURNE.—The following is from a young man who left Glasgow. The accuracy of the statement may be relied on. "Melbourne, March 23, 1852.—With the gold business everything is more than doubled in price. Bread, 4lb. loaf, 1*s*. 2*d*. short weight included; butter, 2*s*. per lb.; cheese, 2*s*. 6*d*. per lb.; eggs, 3*s*. 6*d*. a dozen; potatoes, 8*s*. per cwt.; tobacco, 4½*d*. an ounce, and very bad; but most people smoke cigars at 2*d*. each. Tea, common black, 1*s*. 6*d*. per lb. Good moist sugar at 4*d*. per lb. A carpenter or joiner, per day, 15*s*.; some 1*l*. and some 1*l*. 10*s*. for particular work; a labourer, 8*s*. per day, and some 10*s*.; blacksmiths, from 3*l*. to 5*l*. weekly; tinmen I cannot say, they seem to me as if they were making their fortunes: they set up shop in nook or corner, and thrive; so much tin work being required for the diggings. The greatest inconvenience here is want of houses, more especially to those who have families. Before the golden time the town was rapidly progressing. Within a gunshot of where I live, I heard a woman asking a young man 15*s*. for a single room about the size of my kitchen. The prevailing rage is for money—money! and certainly they do send it flying about like chaff. Plenty of money, and good wages here for everything."—*Ross-shire Advertiser*.

WAGES HEIGHTENED IN CONSEQUENCE OF IMPROVEMENT OF MACHINERY.—It is stated in a report of the Commissioners appointed in 1832 to inquire concerning the employment of women and children in factories, that "in the cotton-mill of Messrs. Houldsworth, in Glasgow, a spinner employed on a mule of 336 spindles, and spinning cotton 120 hanks to the pound, produced in 1823, working 74½ hours a week, 46 pounds of yarn, his net weekly wages for which amounted to 27*s*. 7*d*. Ten years later, the rate of wages having in the meantime been reduced 13 per cent. and the time of working having been lessened to 69 hours, the spinner was enabled by the greater perfection of the machinery to produce on a mule of the same number of spindles, 53½ pounds of yarn of the same fineness, and his net weekly earnings were advanced from 27*s*. 7*d*. to 29*s*. 10*d*." Similar results from similar circumstances were experienced in the Manchester factories. The cheapening of the article produced by help of machinery, says Mr. G. R. Porter, increases the demand for the article; and there being consequently a need for an increased number of workmen, the elevation of wages follows as a matter of course. Nor is this the only benefit which the working man derives in the case, for he shares with the community in acquiring a greater command over the necessities which machinery is concerned in producing.

TENDERS

For constructing 6,706 feet of brick sewer, and laying down 11,846 feet of pipe-drains for the Kilburn-park estate. Mr. W. H. Lindsey, architect.

Murrey	£5,351 2 8
Hill	4,794 4 0
Batterbury	4,727 8 6
Gibb	4,699 6 11
Rudkin	4,271 11 0
Frend and Hamill	3,551 10 7
Barns and Turner (accepted)	3,521 12 2

For the drainage of the Kilburn-park estate.

E. Murray	£5,351 2 8
W. Hill	4,794 4 0
Batterbury	4,727 0 0
Gibbs	4,699 6 11
Rudkin	4,271 11 0
Frend and Hammill	3,560 10 7
Barnes and Turner	3,321 12 2

For the erection of a dwelling-house, at East Hendred, Berks, for Mr. Charles Robey. (Bricks, lime, and sand provided by Mr. Robey). Mr. James Brooks, architect.

Hunt, Wantage	£2,064 0 0
Thomas, Abingdon	1,625 0 0
Woodley, East Hendred (accepted)	1,500 0 0
Brown, London	1,495 0 0

For Hurdsfield Parsonage. Messrs. Stevens and Park architects.

Ollerenshaw, Macclesfield	£1,324
Evans, Macclesfield	1,320
Bann, Stockport	1,284
Blackshaw, Macclesfield (accepted)	1,170

TO CORRESPONDENTS.

"G. A. jun." (drawing is at the office), "J. P." "A. Z. W." (the district surveyor can claim a fee), "F. G. T." "J. L." "C. C. N." "R. H." "E. M. A." "W. H." "C. P. S." "G. L." "D. and Son," "C. W." "A. Z." "T. G. B." (we shall be glad to see drawing), "S. W." "J. S." "J. B." "F. R." (we shall be happy to see the paper), "J. J. C." "T. M. F." "W. E. A." "S. I." "C. P. R." "Mr. R." "P."

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

ROYAL COLOSSEUM (every MONDAY at HALF PRICE. The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Chalet, &c. &c. Open daily from half past Ten till Five o'clock, and the Evening from Seven till Ten, "Paris by Night," and the whole establishment brilliantly illuminated. Admission, Day or Evening, 2s. Children and Schools half-price.

CRYSTAL PALACE (Admission 1s.). At the CYCLORAMA, Albany-street, daily at Three, Evening at Eight o'clock. Seven stupendous Tableaux of the Great Exhibition and its contents painted by Mr. Mac Nevin, from original studies, and on a scale nearly equal to the original. Reserved seats, 2s.

PATRON—H. R. H. PRINCE ALBERT.

ROYAL POLYTECHNIC INSTITUTION.—Lectures by J. H. Pepper, Esq., on Texas and its Cattle, and on the Australian Gold Districts; and also on the alleged Adulteration of the Burton Bitter Ale and Strychnine. By Dr. Bachhoffner on the Patent Polytechnic Gas Fire; and on the Mode of Preserving Fresh Provisions illustrated by Specimens from Messrs. Hatchett and McCall's Stores. By Mr. Crease, and Messrs. Smith's Preserved Milk. By Mr. Crease, on Morris's Patent Needles. By George Buckland, Esq., on Wines, illustrated by Patronage, and by English Songs, sung by Mrs. Blanche Venance, R.A. Mr. Mac Gregor's New Series of Dissolving Views. Exhibition of the Microscope &c. &c.—Admission, 1s.; Schools and Children under ten years of age half-price. For hours see Programme. Superb Specimens of the Patent Silvered Glass.

MONEY ON LOAN, at 3*l.* per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN that the Trustees of the Charity even left to lend out the Trust Moneys to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Ann, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the Fields, St. Mary-le-Strand and St. Paul, Covent Garden. The amount of each loan is not to exceed 10*l.* is to bear interest after the rate of 5 per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by any person, between the hours of one and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.

By order, EDWARD S. STEPHENSON, Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week to the Board before the first day of the month.—The sureties must be unexceptionable.

SOUTH WALES RAILWAY.—NOTICE is hereby given that the next HALF-YEARLY GENERAL or ORDINARY MEETING of the Proprietors of this Company will be HELD, pursuant to the Act of Parliament, at the PADDINGTON STATION of the Great Western Railway, on FRIDAY, the 27th day of August, inst. at, at One o'clock precisely for the general purposes of business. Signed,

C. R. M. TALBOT, Chairman.
WILLIAM MATTHEWS, Deputy Chairman.

The Transfer Books will be closed on the 14th inst. and will not be reopened until after the Annual (Half-yearly) General Meeting, on the 27th instant.—By order,

FRED. G. SAUNDERS, Secretary.

South Wales Railway Office, 1, East-arcade-terrace, Paddington, London, Augt at 4, 1852.

PARTNERSHIP.—A party who has for upwards of twelve years been engaged by architects and builders, is a good and expeditious draughtsman, surveyor, and accountant, can take out quantities, estimate, and value for jobs in the country, where, after a short trial, if suitable to both parties, he will have no objection to advance a sum of money in order to obtain a Partnership.—Address, prepaid, J. H. B. M. Office of "The Builder," 1, York-street, Covent-garden.

BUILDER'S FOREMAN.—WANTED, immediately, for the Country, a good practical general FOREMAN, one accustomed to the management of out-door works. Also a Youth wanted, who has been engaged in a builder's office.—Address, post-paid, stating full particulars, to Messrs SANDERS and WOOLCOTT, Guildford-street, Foundling.

WANTED, a respectable Person as WORKING PARTNER in a little jobbing business as CARPENTER and BUILDER. Apply personally any evening within a week at 28, Duke-street, Bishopsgate.

WANTED, a respectable TOWN TRAVELLER, on commission, or otherwise, who is well acquainted with builders, to sell articles of extensive consumption. - Apply to PHILIP HARE and CO 36, Mark-lane.

TO BRICKLAYERS.

WANTED, a good working FOREMAN of BRICKLAYERS, who thoroughly understands his business, and has been accustomed to the management of a number of men. None need apply who has not filled a similar situation, and can have a good character from his last employer.—Apply to GEO. S. S. WILLIAMS, Builder, 33, Thornhill-square, Islington

WANTED, by an Architect and Surveyor in the City, a DRAWING CLERK, accustomed to the general duties of an office. To state qualifications and amount of salary required. Also wanted, an Articled Pupil for the 4 or four years.—Address, L. M. Messrs Nixon and Arnold, 39, Poultry.

TO CLERKS OF WORKS, PRACTICAL ASSISTANTS, AND OTHERS.

WANTED, immediately, a first-rate practical CLERK, by an Architect in large provincial town. He must be thoroughly acquainted with scientific construction mechanical man pulation of iron, wood, and stone works, and superintending the execution of buildings; very rapid in getting out working and detail drawings, quantities, admeasurements, and calculations (this being an essential requisite), and extremely active and business-like as he will be required to superintend the office. A knowledge of land-surveying is also desirable. None need apply who have not had from fifteen to twenty years' practical experience. Also, wanted, a CLERK of the WORKS, of similar experience and qualifications, thoroughly competent to superintend the erection of extensive works. Every letter to be accompanied with unexceptionable references, addressed, T. R. S. Office of "The Builder," 1, York-street, Covent-garden.

A PUPIL WANTED by an Architect in the Country. He must be a well educated intelligent Youth, and possess a taste for drawing.—Apply, by letter, to G. B. Post-office. Market Harborough.

ARCHITECTURAL PUPIL.—Mr. YOUNG, Clerk of the Works of the Essex County Asylum, now erecting at Brentwood, wishes to receive as OUT-DOOR PUPIL an intelligent Youth, who has a taste for drawing.—Address, Prospect-place, Brentwood, Essex.

WANTED, in an Engineer and Architect's Office, an ARTICLED PUPIL or JUNIOR CLERK.—Apply to Mr. S. WORTH, at his chambers 36, Highgate, on Sunday July 25 1852

TO GRAINERS AND WRITERS.

WANTED, immediately, a steady, active MAN, as GRAINER and WRITER. Constant employment.—Address L. L. 71 Red Lion-street, Holborn

WANTED IMMEDIATELY, a CLERK of WORKS accustomed to Gothic work. Unexceptionable references required. Apply by letter to B. A. Office of "The Builder," 1, York street, Covent Garden.

TO ENGINEERS AND FOUNDRY MASTERS

WANTED, a SITUATION as FOREMAN, to take the charge of an Iron Foundry. The applicant is a moulder, and understands both branches of the trade, and has fulfilled the same situation before, and a good reference can be had.—N B. Please to direct for A. B. No. 136, Bradford-park-road, Manchester.

TO BUILDERS.

A YOUTH, age nineteen, of active business habits, wishes to learn the above business; no premium can be given. Address to A. B. corner of Mr. Prince's Saloon, 59, Rufford's-build ings, Islington.

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The Builder.

No. CCCCXCVII.

SATURDAY, AUGUST 14, 1852.

SUCH of our readers as attempt—stern in the pursuit of knowledge—to master the "Second Report from the Select Committee on Ventilation and Lighting of the House [of Commons]; together with the Proceedings of the Committee, Minutes of Evidence, Appendix, and Index," will find it a tough job. It fills 670 pages, the greater part of it, as, humbly, it seemeth to us, the merest verbiage and twaddle that ever nation had to pay for printing. Lots of *sack*, and only a "ha'porth" of bread. If it were not for the look of the thing, we should be disposed to paraphrase Colton's arithmetical aphorism concerning Shakspeare and modern dramatists, and say,—subtract from the big book all that is to be found in *The Builder*, and—rubbish remains. Modest, we are forced to admit, but true nevertheless,—"true as touch," as Spenser has it. On one point nearly all the witnesses, with the exception of those that might be depended on, are agreed, and that is the want of the first necessary and condition for life in the new House of Commons. Mr. Gurney finds "the atmosphere of the House in a desiccated and *ferruginous* state, and subject to constant disturbance from initial and retrograde currents passing in all directions, apparently at random and without control, producing direct draughts in particular parts of the House and oppression in others." Members of the House gave evidence that they always expected a head-ache when they were going into it, and were never disappointed. Mr. Leslie considers that "drawing air down long open brickwork shafts, pulling it by means of powerful steam-engines along damp, dirty cellars and vaults, moistening it, causing it to pass over heated iron surfaces, tempering, moistening, and equalising it, destroys all the original freshness and purity of the air, and forms a most deteriorated mechanical mixture, combining dust and other impurities, which, apart from other considerations, produce an atmosphere most injurious to the health and comfort of those who are compelled to breathe it." Mr. Price undertakes to say, that the air, before it reaches the House of Commons, is rendered unfit for respiration by the contamination it meets with as it travels from the towers into the House. Mr. Daukes thinks that the system adopted is bad, because it is "opposed to the natural principles of ventilation, forcing the air contrary to its natural movement, and requiring the constant application of powerful machinery to obtain results that may be obtained by allowing the air to take its natural course." And together the last two witnesses depose that the supply of air "is insufficient in quantity," the temperature "irregular and conflicting," and the quality of the air "so inferior, as to be unfit for respiration!"

The inquiry further proves, what is useful to be known, that we are still floundering in ignorance of this subject, and that opinions diametrically opposite, and in some cases dangerous to deadliness, are entertained by men who have the confidence of large numbers of persons.

The committee were evidently posed. They worked hard: some of them put pertinent questions, and tried to get at principles; but with small results, and the consequence is a report which leaves the real question very nearly where it was, excepting by negation. The report says,—

"Your committee are of opinion that the condition of the ventilation of the House of Commons and its appendages is still unsatisfactory, notwithstanding the improvement which has been effected in the House itself since the period when the committee were appointed.

"Much of the inconvenience in regard to ventilation has arisen from the want of a proper understanding between Sir C. Barry and Dr. Reid, to whom the superintendence of different parts of the building has been confided; and the committee are of opinion, that for the future, divided responsibility should be avoided, and that the ventilation of the Houses of Parliament should be placed in the charge of one person only."

As to the system,—

"The plan of forcing air into a building by mechanical power, to produce what is called plenum or plus ventilation, combined with the extracting powers of a shaft with furnace or steam jet to effect what is termed vacuum ventilation, with ascending and descending currents for the supply of fresh air and the abstraction of vitiated air, is, in the opinion of your committee, a complicated system, and one which they are not prepared to approve.

"The vaults used for the purpose of transmitting the air to the House of Commons are liable to be affected by damp and impurities arising from bad drainage; and unless this evil be effectually remedied these vaults ought not to be used as air channels.

"The air is deteriorated at times by over heating, which it experiences when in contact with the iron pipes, heated, some by steam, others by hot water, contributing to produce the disagreeable taste and smell which has been complained of. This disturbance of the wholesome condition of the atmosphere renders complicated manipulation necessary to restore the balance, an operation attempted in both the systems adopted in the New Palace, and, in the opinion of your committee, without success."

They find that—

"One of the causes of defective ventilation in the House of Commons is the want of a sufficient area of openings at the floor of the House, and the necessity which thence has arisen for admitting the air through the interstices of the carpet. This operation, it is found, causes the dust to rise with the ascending current of air, and produces grave inconveniences. Your committee is, therefore, of opinion that the openings for the admission of air at or near the floor of the House should be so enlarged as not to require any portion of the air to be drawn through the fibres of the carpet, which never can be free from dust and other impurities."

But still they are able to say that the "committee desire to give it as their opinion that the failure of ventilation of the House of Commons, at the commencement of the session, cannot fairly be imputed to any radical defect in Dr. Reid's system, because the House was hastily occupied, with an infinity of arrangements incomplete; and the lighting, from which the greatest amount of mischief arose, was neither contrived by Dr. Reid nor under his control."

They are of opinion that much improvement would be effected by an enlargement of the openings, both for the supply and discharge of air; but the only recommendation that they make, "in the present conflicting state of opinion," is, as regards future management, that "the entire responsibility of ventilating and lighting the house, and its appendages, should be confided to one competent person, under the direction and supervision of the Board of Works; and with a view to secure proper attention to any complaints that may hereafter arise, a committee should be named, at the commencement of each session, to confer with the Board of Works upon any measures that may appear necessary to remove such complaints."

Of our own opinion of the costly and complicated machinery introduced at the new Houses to fight in some cases against nature, and with no chance of success, our readers are aware.

One of the most scientific of the witnesses, Mr. Gurney, actually got so near common notions on one occasion as to suggest, that opening the windows would let in and let out a considerable quantity of air, should it be wanted! And when Mr. Henry Hope then naturally asked: "May we from your evidence draw the conclusion, that after having laid out 200,000*l.* on ventilating the House, no better plan is to be devised than that of opening the windows?" The witness replied: "You can devise plans, and you may change the system: the question before us, I take it, is one applicable to the present state of the building. I say, it is not worth while to interfere with the system as we find it: I would not, to alter the system of ventilation, go to a great expense, and upset the building: I would be content to introduce the means at hand, which appear to me self-evident would get rid of those evils which temporarily obtain, and which may only occasionally be felt."

As to that portion of the system, whether applied by Sir Charles Barry or Dr. Reid, which attempts to bring in the supply of pure air from the ceiling, we are forced to regard it as a dangerous error. It astonished us to find Dr. Arnott countenancing it by assenting to the assertion that good ventilation may be obtained by the introduction of cold air from the top, and the egress of vitiated air through the floor. "It has the advantage, he said, of blowing down the dust; but there is the disadvantage of the unequal descent of the pure air."

To this Lord Palmerston sensibly observed, —"Let us see whether there would not be other inconveniences attending that system. The air which is breathed by persons sitting in the House of Commons who sit near the floor, is heavier by its specific gravity, but lighter in consequence of the increase of temperature which it receives when it quits the human body: this bad air is constantly rising by its temporary rarefaction. At the same moment, you have a stratum of air, naturally lighter, but heavier by its temperature, descending. These two currents meet in some portion of the building, and that bad air which has been breathed must, sooner or later, be brought back again to the mouths of the persons who have already breathed it, before it can pass through the apertures of the floor; whereas, if the egress of the air were at the ceiling, that air, having once quitted the mouths of the persons who had exhaled it, never would return to them, but would be carried off, and they would receive a constant supply of purer air from the apertures in the lower part of the building. Would not that be so?" The reply was,—"Your Lordship has expressed, only in better words, one of the reasons which I gave for preferring the ascent of the air from below to the other mode. Yet the difficulty referred to may be in great part overcome by increasing the amount and speed of the pure downward current."

The Doctor did not venture to approve of

such a system, but we should have expected to hear from him a vigorous denunciation of it, in the place of such a reply as he gave. Dr. Arnott, we may note, is of opinion that there cannot be a perfect system of warming and ventilating, in a building having separate rooms, if there is a deficiency in respect to any one of the following six particulars:—

"Firstly. Means of moving through the building steadily the definite quantity of pure air known to be required.

Secondly. Means of duly distributing this air to the different rooms and compartments.

Thirdly. Means of properly diffusing the air in each room.

Fourthly. Fit means of discharging the vitiated air from the room.

Fifthly. Means of giving to the air the fit temperature.

And lastly. Means of giving the fit moisture."

Further, he thinks, that the more the apparatus is rendered self-regulating, or independent of the constant watching and interference of attendants, the better it is likely to be, both as to performance and economy.

We may add a crumb of practical information from Mr. Gurney's evidence. That gentleman thinks that "the quality of the air (in the building), wherever it is objectionable, is from the *horizontal* pipes"—of which he has "a great horror." When the heating-pipes are *vertical*, he says, "the air, the moment it becomes warm, strikes against the side of the vertical pipe, and escapes sideways by conviction before it has time to arrive at a high temperature;" whereas in the horizontal pipes air forms an eddy above, "and remains for a short time in a sluggish state, almost a state of rest, and thus becomes overheated." Messrs. Daukes and Price follow our views to a considerable extent. They recommend, in a report given in the Appendix,—

"In the first place, that the present practice of moving the air through the Houses by mechanical power only, should be abandoned; and that for the future the chief reliance (except in the summer months) should be upon the natural power of the spontaneous upward movement.

Secondly.—That the downward movement of the air-currents shall be entirely abandoned, and with this 'noxious fallacy' should also be relinquished the fallacious attempt to produce and sustain such opposite and contrary forces as the plenum and vacuum principles of ventilation, in the same rooms and at the same time.

Thirdly.—All the present air-passages, whether for the transit of fresh or foul air, should be reconstructed, or at all events so remodelled as to combine, in one appropriate and uniform system, a series of free and unobstructed, but closed, air-channels, arranged in strict accordance with the natural upward tendency of warm air-currents, and framed with a scrupulous regard to the greatest possible uniformity of form, and observance of those definite and proportionate relative areas between the main and branch flues, without which we do not hesitate to assert that no system of ventilation, however skilfully devised in other respects, can be protected from those adverse and disturbing influences which must peril the success of any scheme whatever.

Fourthly.—We advise that the use of steam at 230 deg. or even 212 deg. as a medium of heat for giving temperature to the air-warming surfaces, should be abandoned, and hot water, at a maximum heat of 170 deg. be substituted. Steam over-heats and over-dries the air, and admits of no gradual control over the extensive range of temperature that lies below 212 deg. Hot water can be employed at any desired degree of heat below the boiling-point, and admits of the most minute and gradual control over that range of temperature which lies below the degree of 212. * * *

Fifthly.—We recommend that the air-warming surfaces should be vertically, and not horizontally arranged, and that they should be so altered from their present form as to spread out the air and water in thin and numerous alternating streams; the first condition being essential for the full and free development of the natural ascending movement, and the second material for the rapid abstraction by the cold air of the caloric of the heated water.

Sixthly and lastly.—We advise, that in the manipulation of any system provided for warming and ventilating the Houses of Parliament, the attempt—the worse than useless attempt—to meet the continual and conflicting wishes of individual members, in respect of temperature, should be discountenanced; for we are convinced that the operation of no system whatever, however perfectly carried out, can be made generally satisfactory under such a course of proceeding." * * *

Mr. Bardwell, in a sensible letter printed in the Appendix, takes the same view of "the attempt to bring in fresh air by a ceiling, and cause the emanations to be breathed or inhaled over and over and over again!" He touches, too, a question to which we have before now referred, the effect of currents of air on hearing:—

"Nor is this all; for both in the House of Lords and in the House of Commons, provision being made for bringing in air from the top, from the bottom, and from the sides, commingling together like the waters of a maelstrom, up and down and round and round, the air is in that state of commotion that the sound of the voice cannot radiate. Throw a stone into the placid waters of a lake, and the effect will be seen in a series of concentric circles. Sir Isaac Newton says, that sound is communicated in a similar manner. But throw a stone into a maelstrom, and no such effect can be produced; hence the acoustical property of the Houses is rather destroyed by the mode of ventilation than by architectural defects."

Mr. John Leslie hits more than one right nail on the head in his evidence. He says justly, that often while the thermometer tells one tale, the human body tells another, because of the velocity with which the air is made to pass over the latter.

Again, he objects to the mode of egress provided in the House for the vitiated air,—longitudinal apertures less than an inch wide all round the panels:—"I think this egress most objectionable: the ascending current strikes against the whole bottom of the panel, causing a general reverberation, producing eddies and currents, consequently permitting only a partial escape of the vitiated air; the remainder of which, by this reverberation, is caused to diffuse itself again and return into the general atmosphere of the room."

He, too, would "shut off every sort of connection as to descending currents of air, which I hold to be most dangerous to health. I should take example from all previous failures. Sir Christopher Wren failed, Dr. Desaguillers failed, Sir Humphrey Davy failed, all from having too small apertures for the vitiated atmosphere to escape; and I believe that one of the great causes of the present failure is what I have already alluded to, reverberation from the ascending current on the bottom of these panels." He would take away all the panels, and said he felt satisfied they would be heard better, besides being better ventilated, because they would be speaking in the calmness of a summer day's atmosphere, instead of, as now in reverberating currents.

In closing our notice, we must say we have no sympathy with those who talk about *partially* pure air, and improving the vitiated air by the admission of fresh. Once breathed, it must be got rid of, and, in order to get rid of it, it must be allowed to go off at once while it is in a condition to ascend: cool it and it will remain by you until it has again been warmed.

STRIKE IN THE IRON TRADE.—The puddlers of South Staffordshire have struck for an advance of 1s. 6d. a ton on their wages. The masters have met in Birmingham, and have resolved to refuse the demand.

ST. WREN'S. No. II.

Unless you deem it necessary to *convert* the title above, like that of my former letter, and so save me the trouble, I would explain that I chose it in deference to public opinion, and to the view of this building that seems to pervade all discussions of its treatment; viz. that the object paramount to all others is to enhance its apparent size, or richness, to display it and its author's genius to the best advantage, and to avoid, at any sacrifice, whatever might interfere with any pictorial "effect," that its emptiness may have occasioned, or alter any thing that Wren did, or permitted, or that has any how obtained or palmed itself off under his authority. Now, in this case, the end of its existence must be the glorification either of itself, its owners, or its author, whose *monument*, according to this view, it literally is; not in the secondary sense claimed by the famous epitaph, but primarily and simply, just as Achmet's mosque, Henry VIIth's Chapel, or Sir John Soane's museum, are theirs. But if so, surely "St. Paul's Church" is a misnomer. We should call it *St. Wren's*, and not a *church* (which the learned tell us is short for ΚΥΡΙΟΥ οικος) at all.

Now, accepting for the nonce this idea of the building's purpose, I submit that it will be better answered,—that Wren's glory, and the city's and nation's, will be more truly consulted, by aiming at what he *would* have done, than by restoring what he or his fashion-enslaved masters allowed fashion to wring from them; that it will be better consulted by using our reason and added experience than by surrendering both to the authority of *chance*, and chance-governed fashions and precedents; that Wren's memory, in short, will be more revered and honoured by treating his monument as a living useful thing, a reality, and part of the live world, than as a dead obstructive carcase,—that he *meant* it (as all real architects have meant their works) to be (as all pieces of real architecture, church or barn, exchange or shop, *have* been) living, alterable, and adaptable to the changing times; alterable immediately on its completion, had it failed to answer some part of its immediate purpose; —that such immediate alteration would have annoyed him, indeed, as much as it would Mr. Tite, or any other honest erector of a public building,—have caused him annoyance at *himself*, not at the correctors of his work;—but that alterations to preserve or extend the life and reality of his work in better times than his own, and assimilate it more to his thwarted intentions, would not annoy but please him; and I hope to carry to his feet the news that such have been at least begun, and hear him thank God that they have.

Now, with regard to internal decorations, it appears to be Archdeacon Hale's opinion that until the dome paintings be restored, "no person will be thoroughly able to judge what ought to be done to the rest of the building." That is to say, in other words, he believes we have *no architect*,—not a man able to *design* us the decorations,—to know how half of them should be, till the other half have been executed! Now, if this be so, I would humbly submit that we are not in a condition to touch the work at all,—and that the only rational plan is to leave it unattempted, till we can satisfy ourselves that we *have* some one who knows what to do, before beginning to do it. The experimental mode of proceeding may be made to serve in a Crystal Palace or a Tubular Bridge, or wherever there is a real or supposed necessity for a work you have no one able to design. Sir Joseph or Mr. Stephenson may trust to have *their* works tied, if ties are found wanting, and roofed, if roofs are found wanting: the science and thought of the general public will run to their aid, and keep their works up and useable, *design them how they may*. It is widely different when you leave the province of bare necessity; and as pure decoration like this can never be matter of necessity, as the evidence of *design* (the opposite to chance and makeshifts and patchwork) is essential to beauty (if not the very measure thereof), I really do not see how it is possible for beauty to be produced without *an architect*, —*i.e.* a chief artificer,—one, and one only. I

really cannot conceive how his place can be supplied, in any degree whatever, by all the science of fifty centuries, all the gold of England, all the brass of engineerdom, or all three together. And so common sense seems to me to suggest that a decorative work would be more creditably let alone altogether than attempted to be groped out in the dark, by the hap-hazard way the venerable Archdeacon proposes. Nor can I yet believe the pride of this city and nation will readily stoop to such an attempt.

If, however, the "restoration" of Sir James Thornhill's work be a thing settled, of course so is the decoration as a whole. It is removed from the sphere of art into that of mechanism. The Dean and Chapter cannot surely, in this age of machines—dead and alive, expect real artists to *become* machines for them. If the work of apprentices or of monkeys be what is wanted, apprentices or monkeys must do it; and they can be readily had without sending to China, and without insulting respectable artists.

But in case the matter should remain open, I cannot refrain from a comment on the extreme singularity of the only reason yet given for this "restoration," that the works "are too far from the eye to challenge minute criticism." I thought this was the very reason of their uselessness, that they *are* too far off to get that minute criticism which alone could discover their *beauties* (which, I doubt not, are numerous: the painter's name guarantees it), and yet near enough to display all their *baseness*, whether looked for or not. Work out of place is all the worse for being beautiful or valuable—so much the greater waste. If they had no beauties, or called for no minute criticism, they would be all the less wrong and less deplorable; but it is the double mischance of these (as of most other chance decoration, and all chance architecture,—most things under your everlasting microscope system of odds and ends, your pin's-head-maker and pin's-point-maker division of labour) that, for want of an architect, *all* their beauties are where they might as well be, at the bottom of the sea, and *all* their faults blazoned on the sky. We can get neither the light nor our eyes near enough to make out one beauty of the painting proper, but the glaring baseness and absurdity of what stands for decoration would be conspicuous a mile off. Nobody, critic or not, can see the half that is a great man's work, and supposed to be beautiful, while everybody, critic or rustic, can see all that he *does* see is shabby makeshift and arrant nonsense, such as he may remember, before it was exploded, in third-rate theatres, or possibly may yet linger in its last refuge, those conjuring-shows that confine their rambles to third-rate fairs.

But let Malachi's test decide—"*Offer it now unto thy governor.*" Let us propose to the lord mayor, or say to the bishop, to decorate his lordship's dwelling—his *own*, not his official dwelling,—that dwelling for the taste of which he is personally credited, in the manner of the visible part of Thornhill's work. At any rate, get *some one* to accept and own it at home. If no one thinks it worth imitating, how can it be worth restoring?

But, says one of your correspondents, with regard to mimic coffers (why not to pilasters and all other mimic architecture, I cannot tell)—they are "a harmless sham" (a noble defence this, by the bye, for all costly and unsatisfactory works to the chief temple of a great nation. It was a great pity that Pericles, for instance, was not advised of this plea,—"only a harmless sham"). But let us see. He calls them "a sham," I suppose, because they may pass for features of the masonry, which they are not. Well, no one since Rosseau thinks *this* untruth will do any harm. On this ground I readily acquit these and all other shams. You may cover the vaults of any cathedral, like those of Milan, and London dome, with sham coffer tracery,—the walls with sham pilasters in sham marble (if you have nothing better to do)—the woodwork with sham panels in sham oak, the metalwork with sham rivets and nuts (why not) in sham brass,—the roofs with sham chimney-cowls in sham zinc—the windows with sham crystal palaces in sham crystal,—and the churchyard with sham tombs in sham stone. But do not flatter yourself you have done the cathedral any harm, or made me like it a bit the less. I do not even *see* your work unless I look for it. I can admire without knowing it is there. Do you think I care a dump for sham *coffers* or sham *marble*, as such. Oh no, but I care for the sham *art*, the sham *work* they show,—the story they tell of some one obtaining the pay of an inventor and an artist without exerting invention or art,—the encouragement they give every spectator to do the same,—the years of human life they waste in labour for naught,—the hundred honest hands they employ *only* to enable one impostor to live on his neighbour's follies,—the confusion of right and wrong they create,—the good service they do their prince,—the blood they drink up, the stomachs they starve, and the graves they fill. *These* are the things I object to in your "harmless shams,"—and let their defender mark this,—it is best to get out of a falling house. One by one these things will fall, and those whose toes are not out of the way will know, as each falls, how "harmless" it is.

But the question, as regards church ornament, assumes a far graver aspect. It is not merely or chiefly a question between real or sham work. It is put in a far more comprehensive form by Ruskin's invaluable argument on the "material of ornament," (one that will have just the same effect, observe, whether architects accept or reject it: let them not think its success will depend in the smallest degree on *them*). The question is, whether man's work or God's shall, in the house of praise, be made the subject of ornament, *i.e.* the *subject of praise*;—whether the order of nature or the five orders of Vignola are most to be extolled;—whether this earth does or does not contain anything more worth painting than Corinthian pilasters;—whether the choir audible and the choir visible shall be in unison, or one shall sing "The Works of the Lord are great, sought out of all that have pleasure therein;" and the other answer, "Palladio's work is worthy to be praised and had in honour: *he* hath so done his marvellous works that they ought to be had in remembrance."

Well, however this may be settled, I assume that the dome will contain something thought worth looking at. Now, before deciding what this may be, we must have the means of seeing it,—light. First, let there be light, and then the things to be lighted. Without this, it is vain to talk of making it "glorious with gilding." Can your gold shine in the dark?

Again, if the dome be the chief ornament, or to contain the chief, it must have the chief light. It is the nature of light to attract the eye, and of shade to repel it; and this puts it in the power of an architect to make you view the various features of one prospect in any order he pleases; the most lighted being always looked at first and most; the darkest always seen last and least. So the wisdom of this cathedral's last directors took care we should look most at checquered casements, and least at Wren's dome and Thornhill's painting,—most at the building's extremities, to show us how near they are, and least at the middle distance, to hide how much separates end from end,—most at the vestibules and approaches (as they must eventually be), and least at the temple's body, which must be the oratory when it is used. All this I take the liberty to propose reversing, by the following means:—

First, we have to throw on the concavity of the dome all the light that can possibly be got there (for it cannot be too much from those few windows above and below,—hardly even enough); and, secondly, to darken (by colour or otherwise) the other windows throughout the building, especially in its *outer* walls and towards its extremities, sufficiently to render its four arms always darker than the central space, and their aisles darker still—the exact reverse of the relations between the lighting of all these parts at present. Now the former can only be effected by reflection from silvered glass, which must be applied in the three places I have shown in the section enclosed, but which may be explained without its aid thus:—

1st. The twenty-four windows of the rotunda below the dome will each require three, four, or five appendages of the form of luffer-boards, light frames of metal, nearly horizontal, but slanting outward, extending to the outer plane of the wall, and inward at least as far as the pilasters project (how to decorate them I will tell you presently). The first in each window will lie on the sill, and the places of the others be determined by lines so drawn that a spectator at the furthest spot of the floor may have the near edge of each luffer just hiding the farther edge of the next above it, or may see no sky, which will give their intervals a graceful increase upwards, and make their numbers in the east and west triplets five, in the north and south four, and in the diagonal triplets three only—ninety in all. Their upper sides being covered with silvered glass (about 24 feet on each) will reflect up to the dome the whole of the light these windows now send straight down to the spectator's eye to dazzle and render it unfit to see the dome. He will still, observe, receive this light *eventually*, but in a diffused radiance from the whole illumined and decorated concave, instead of in winding partial glares from the square casements. It will be scattered from the dome to the floor, instead of, as now, from the floor to the dome. Their degrees of illumination will be just exchanged, as far as *this* light is concerned; but of course the floor has light also from other windows, and from those above the dome's eye.

2nd. But a considerable further quantity may be had from these eight windows above the dome's eye, not indeed by diverting that *small* part of their light (about a tenth) which falls now through the eye, but nearly all the remaining *nine-tenths*, now entirely wasted in the space between the inner dome and cone, totally useless either to the interior or the staircases. This space, never entered but by workmen, is actually the best lighted in the whole building. Well, to economise this light, suspend by tension rods (hanging through the upper tier of holes in the cone) a barrel-shaped light framing of wood or metal, fitting at bottom (but not necessarily resting on) the edges of the 24 feet eye, and rising to within 3 feet of the sills of the eight windows in the cone. The section of its sides must be each a portion of an ellipse, that has one focus at the sill of the opposite window above, and the other at the opposite under edge of the dome's eye below. (But a circular arc of 44 feet radius is near enough to serve in practice.) Line this barrel-shaped surface (about 3,700 feet) with silvered glass, and the whole of the light it receives will, on a single reflection, be thrown through the dome's eye, near its edges (crossing there), and fall evenly spread down the concavity, to the cornice, and no lower. Every ray of this light will meet the surface very obliquely, but every one of the former supply almost normally; one being the best light for displaying *polished*, the other the best for *dead* surfaces; so that both kinds of material may mix their full effects in the decoration.

3rd. Eight more reflecting planes, about 7 feet square, constructed like cucumber frames, and placed outside these cone windows, sloping from their sill up to the top of each sunk area, will reflect into these windows the light now spent in those areas. But only a portion of this will fall into the barrel, and what passes above its edges, or less than 3 feet below the window sills, cannot be turned to account by any means I can think of. Still the portion used will be worth the reflectors.

I need hardly add, that a great deal of light is lost by the extreme badness of the present glass, and that in replacing this by rough or roughened plate of good colour, all direct sunbeams will be scattered like daylight at their very entrance (which is quite necessary), and this *without loss*. Whereas the very extravagant proposal of Mr. Parris to effect this *by colour*, in the rotunda windows, would simply render the dome *totally black and invisible*, so that it might as well at once be an engine-house roof; and the space under it, still darker than at present, will be a sort of tunnel in the middle of the building, bringing its ends as apparently near as those of a tunnel.

Now, as I do not expect the above contrivances (though totally changing the character of the dome cavity, and making it as attractive as it now is repulsive) to render the space under it *much* lighter than at present, it will be essential to the effect I have in view to darken considerably the remaining windows (especially the aisle ones), that the bounds and extremities of the building may retire afar (though I think "expression of vastness" a very minor consideration in itself), and yet more, that the approaches intervening between the world and the oratory may interpose also a solemn preparatory gloom—a sort of night,—to divide day from day,—to obliterate the old and introduce the new, the different, the uncommon, unworldly light of the lofty middle oratory, shed from no visible windows, casting almost no shadows, so equably showered down from the great illumined concave, that will seem to phosphoresce with a mild splendour of its own, like the moon after sunset, because the source of its light, as of hers, will be unseen, and the intervening air be hardly crossed by a ray but from itself.

Now, whether this darkening of windows elsewhere should be chiefly or entirely effected by colour, or by other obstructions, is a hard question. Were it not for this need of darkening, I should, regarding the windows alone, give them but partial colouring, and that far from deep,—leaving *most* of the glass colourless. But then I should not hesitate a moment to replace the present iron substitutes for mullions by stone tracery,—*i. e.* in the round headed windows a pillar (of Corinthian proportion) between two pilasters, bearing two small arches and a circle, in the Byzantine manner; and in the segment-headed ones, two pillars near the sides, and a palladian head. The only foolish thing I ever read of Wren's is that objection to tracery (in the survey of Salisbury cathedral), as "thinking to add beauty to light." This is just like a few of Ruskin's pretty things, said for the sake of displaying a quaint, elegant turn, so that though all his principles, and nine-tenths of his details, are pure gold tried seven times in the furnace, you never can trust him out of sight one moment. Wren must have known that, whether we "add beauty to light" or no, we must add, in vaulted buildings, narrow window to narrow window, and perforation to perforation; or else, if we make great wide voids like his, add supports to the glazing; and the question is not, which *adds most* beauty to light, but which *takes away least*,—the stonework left between the grouped apertures of old, or the chequered gratings he has substituted, both for their stone, and their equally beauteous lead-work. Certes, I do not think *these* add much beauty to light.

Now the pillars, &c. above mentioned would be thick enough to obstruct fully half the present light, and so, perhaps, supersede much colouring. But milk for babes:—the present iron mullions (which are certainly well designed in their way) must, I suppose, remain as long as they will hold together, and then the public will be a little older; and till then, we have no resource for darkening but colour, deep and almost total, as in the Early English. But as the way of applying and managing it belongs to the decoration proper, which must centre in and depend on the dome, I must next recur thereto; and the length to which this lighting matter has extended warns me to make another letter of my ideas on the decoration, if you think them worth having; for I do not at all imagine they are so good as hundreds of other people could give, nor do I suppose any one of the things I have proposed to be new, or that they could fail to strike every architect who really determined to do his best. But I wish to make this distinction, that what I have said hitherto I put forth as *necessary*, as things that *must* form part of *any* successful scheme of decoration; whereas the rest will be merely my particular scheme, which is probably hardly worth notice, decoration being no talent of mine. But I do not believe the best decorator who ever lived could make it a successful work without the above preliminaries fully carried out.

E. L. GARBETT.

IN *RE* "E. L. G." AND ST. PAUL'S.

SOMETHING is likely to come out of "E. L. G.'s" scheme for remodelling the interior of St. Paul's, very much that he has said being calculated to call forth reply and lead to fresh subjects of discussion. Apart from the project itself, which will, no doubt, strike many as a very chimerical one, several of his incidental remarks are calculated to give umbrage in more quarters than one, since they hit where they do not appear to be levelled. Hardly will a writer whose views tend to upset so much of what has hitherto passed current as sound architectural doctrine and criticism, feel otherwise than disappointed should his opinions now elicit none from others, either in opposition to, or in support of them. The silence of acquiescence might be mistaken for that of contempt, or, *vice versâ*, the latter for the former.

Unless it be turned over, and well ventilated every now and then, criticism is apt to become exceedingly stale, mouldy, and musty. I myself, and E. L. G. appears to be the same, am for free trade in criticism,—for free discussion: what shrinks from such ordeal betrays the consciousness of weakness. And surely if unrestricted liberty is now allowed in almost everything else, certainly in politics, it may be very safely extended to matters of art and taste. At any rate, the wildest, most revolutionary, and most unprincipled doctrines with regard to them, neither endanger the state, nor embarrass a ministry; yet while the freest expression of opinion is allowed in regard to the conduct of public men, not even so much as a syllable must be whispered to the prejudice of Mr. A. or Sir X. Y. Z. Nothing at which such *illustrissimi* as the latter could possibly take offence may be even so much as breathed, so much more happy is the position of a Pecksniff to that of a Premier, or a Chancellor of the Exchequer. You may assail either Lord Derby or Mr. Disraeli with the foulest blackguardism, with impunity; but to show up a Pecksniff, more especially if he were one who could boast of well-greased paws, would be thought most illiberal; or if not actually thought so, would be so described. All this, it must be admitted, is deviating widely from my starting-point, but it also points to what operates greatly to the prejudice of architecture, by suppressing that interest with the public which it would derive from animated discussion and the legitimate conflict of opinions. Whenever any discussion of the kind does take place, it rouses public attention; and if it seldom does so to any purpose, it is because the discussion itself is hurriedly dropt,—broken off without anything decisive on either side being arrived at,—and so people relapse into their wonted drowsiness and indifference. There is nothing like keeping the game alive,—a principle acted upon, and not without success, in almost everything except architecture, whose friends and followers appear to be addicted to opium-eating, somnolency, and dreaming, the dreams of some of them being about invisible curves of the Parthenon!

Instead of striving to excite interest among the whole of the public, that is, among all the generally well-informed classes, the architectural profession appear to be solicitous to confine it to their own circle, which I cannot help taking to be, and therefore calling, exceedingly stupid policy. Save architecture, every subject, from singing to sermons, is made a topic of conversation: let that be attempted to be brought forward, and every one shuffles away from it as quickly as possible.

Never will architecture thrive steadily until the public become far better instructed with regard to it than at present,—capable of criticizing, and therefore capable of taking an intelligent interest in it, and accordingly of patronising it judiciously. Educate the public: that is one main point; and if it be asked, how are the public to be educated? the reply is, by unrestricted criticism, and by the freest possible discussion on both sides of every argument. To what purpose have we organs of opinion, if what is fearless opinion may not be uttered freely? If nothing is to be publicly said but that which cannot by any possibility give offence to any one, we may as well be silent, or go to sleep at once; and if not his whole paper, that passage in it ought to have been suppressed where E. L. G. says, "And as for capitals, if the architects cannot design a dozen, all better than any in Rome or Athens, I will engage in ten days to find Englishmen that can!" To have said "as good," would have been bold enough, but "better!" All I will say is, that in such case we can very well afford to discard both Stuart's Athens, and Desgodetz, and all our present *copybooks* of that description. Q. E. D.

MEDALS TO THE AUTHORS OF PLANS FOR THE BUILDING FOR THE GREAT EXHIBITION OF 1851.

OUR readers will remember the report, published at the time in our columns, of the Building Committee on the designs sent in for the Great Exhibition Building, which amounted to nearly 240. On 67 of these the committee reported them as "entitled to honourable and favourable mention on account of architectural merit, ingenious construction or disposition, or for graceful arrangement of plan," and called particular attention to seventeen of these as being "entitled to further higher honorary distinctions, on account of distinguished merit, showing very noble qualities of construction, disposition, and taste;" and the committee concluded by "calling attention to the designs accompanied by models of Monsieur Hector Horeau, architect, of Paris, and of Messrs. Turner, of Dublin, as evincing most daring and ingenious disposition and construction." We are gratified to learn that *each person* who submitted a design is to receive a *service medal*, which will be accompanied by a certificate, on which will be stated the more special commendation of the Building Committee.

The designs by Mr. Dyce for the heading of the two certificates, which will be made to serve all the parties engaged in the Great Exhibition, have been engraved. In the first, Peace descends in the form of a winged female, and scatters wreaths over emblems of Industry and Science. In the second, Peace has an olive-branch in her hand, and the lion and the lamb at her feet. Science has for his companion a child, who bears a Cornucopia, and the Great Building forms the back-ground.

THE EXHIBITION OF THE ART-UNION OF LONDON.

THE works of art selected by the prize-holders this year form a very interesting Exhibition, at the Suffolk-street Gallery, and show that they have exercised a very reasonable amount of care, when it is remembered how few pictures comparatively they had to select from, at the different galleries. All the works of the leading artists were commissions, and many others were bought on the private view days, before the prizeholders obtained their right to select. It consists of 163 works, all placed so that they may be seen, and thus giving the artists a second chance for public favour. Few who visited the Academy, will believe that Mr. Phillips's "Magdalen," (44), the great feature of the exhibition we are now speaking of, was there. It comes out in its present position as unquestionably one of the finest pictures of the season. Hereafter when Mr. Phillips is a R.A. and has all his works bespoken, so that Art-Union prizeholders will not be able to get them, we hope he will not follow a bad example by turning up his nose, and without a thought for the disinterested labours of the conductors of the society, sneer at it with the remark that the pictures bought are mainly those of young and second-rate artists! Mr. Knell's large sea piece (23), is better seen than it was. The principal prize, "Our Saviour with the Woman of Samaria," by Cornicelius, of Munich, selected by the Rev. H. Sibthorp, is not very satisfactory: the subject, doubtless, weighed with the rev. prizeholder. We have already given a list of the principal pictures, and need not now enter into particulars. Danby, Allen, Boddington, Willis, Witherington, R. A. West, Williams, Clint, Hulme, Tennant, Wilson, Jutsum, and others have some excellent landscapes. Gill's "Leap-

frog" (88) is as good as anything Webster has painted for a long time: if we mistake not, the latter artist would be the first to admit his obligation to the painter of it. Gale's "Isabella," from Keats', has high merit. There is great promise in "The Foundling," by G. B. O'Neill (70), the painter being a young man. Mr. Uwins, R.A. has a favourite subject, "The Vesper Bell," and there are two excellent specimens of Hurlstone's art. One small picture is marked as selected by the Mechanics' Institute of Downham Market (99). Forty-two of the members, it seems, each subscribe sixpence each, to show annually that art is beginning to be considered in their neighbourhood.

In the water-colour room there are some nice specimens by W. C. Smith, Mrs. Margetts, Bennett, Callow, D. Cox, Mole, Robins, Copley Fielding, &c. The purchaser of Mr. Fielding's picture, we understand, before he saw that, had selected one from the New Water-Colour Gallery, and ultimately bought both! The sales at all the galleries, we are able to state, have been very large this year, irrespective of the Art-Union's. As its founders always asserted would be the case, it has made picture-buyers.

We must add that the rooms contain an interesting collection of the bronzes and statuettes produced by the society, with a specimen of one of the prints for the coming year, and of other fine engravings now finished.

THE PRACTICE OF GLASS PAINTING.

ST. PAUL'S.

MY attention has just been called to a letter signed F. W. O. in your excellent paper of the 31st inst. on which, as it seems rather to impugn my accuracy in some respects, I trust you will allow me to make a few observations. Your correspondent differs from me in thinking that the flatness of glass paintings, earlier than the sixteenth century, is the result of want of skill, and not of design; and says, that "his experience equally disagrees with mine, that the best works of the fifteenth and sixteenth centuries are distinguished by strong contrasts of colour, and light and shade; that the windows in Brussels Cathedral quoted by me, if your correspondent's recollection serves him truly, would not support any such view; and that he can quote a very late and (in some respects) a very fine window, now in St. George's, Hanover-square, where the flatness is perfectly preserved, in support of his remarks," &c. I am sure that if your correspondent were to refresh his memory by revisiting the glass to which I alluded, in Brussels Cathedral (the four side windows of the chapel of the Miraculous Sacrament, and the two transept windows), he would find that they fully bear out my remarks; and I assert this with the greater confidence, having lately refreshed my own recollection of those windows by the sight of a spirited sketch, just made of one of them by Mr. Hedgeland, the artist charged with the execution of the great west window of Norwich Cathedral. Your correspondent would also find my remarks borne out by the windows of the apse of Lichfield Cathedral, which are nearly contemporary with those at Brussels. Indeed, the powerful contrasts of light and shade, to which I alluded in the paper referred to by your correspondent, are not commonly found before the end of the first quarter of the sixteenth century. I know of none so early as the "fifteenth century," as your correspondent states. The glass at King's College chapel, whose date is about 1525, is on this account, and also from some of the enamel brown having perished, as flat as your correspondent could wish; and the window of St. George's, Hanover-square, which he erroneously calls "a very late," specimen, may be placed in the same category as the glass at King's College, to say nothing of the nature of its design—a stem of Jesse—which demands a flat treatment. And, with regard to our difference in opinion touching the cause of the flatness of ancient glass, I feel equally sure that your correspondent will discover, after he has extended his observations to a great quantity of painted glass, of all dates,—to paintings on panel, as well as to illuminations in MSS.—that the opinion I embrace, that the flatness of ancient glass paintings is the result of ignorance and accident, may be more easily maintained than the contrary opinion, which he asserts.

In some respects I agree with your correspondent. The lost pigment to which Archdeacon Hale alluded, is the "enamel brown," used for painting the shadows and outlines upon glass executed like that in the windows of Brussels and Lichfield Cathedrals, in King's College Chapel, and St. George's Church. It is true, as stated by the archdeacon, that the enamel brown now used is, in certain respects, inferior to that of the sixteenth century; but this inferiority is really so trivial that I was surprised at hearing it made a ground of objection to having windows for St. Paul's executed at present. The only real obstacles to the production of windows in all respects equal, and in point of drawing superior to the windows at Brussels, are—1st, the difficulty of obtaining a material equal in tone and hornlike texture to that of the sixteenth century, a difficulty which, I may say, is now quite overcome in consequence of the experiments mentioned by me in the paper to which your correspondent alludes; 2nd, the difficulty of procuring *artists* to execute painted windows; 3rd, the difficulty of procuring judges capable of appreciating artistical windows when painted, or of causing them to be painted. The second difficulty would vanish on the removal of the last; for there must be, amongst the 800 exhibitors at the Royal Academy, some, at least, ready to respond to a call for really good windows if such call were made. But what is to be expected when the very persons who are to make the call are themselves so thoroughly ignorant of the subject? I do not believe that there are six people in England who have ever *studied* the windows at Brussels, or ever bestowed upon them more than a cursory glance. I doubt much whether there are a dozen people in England who have ever *studied* painted glass at all. I am, therefore, not sorry to think that the decoration of St. Paul's is not a work likely to be commenced forthwith, since the longer it is postponed the greater will be the chance that those who will have to pronounce opinions on the painted windows will have so far studied the subject as to have arrived at a clear conclusion in their own minds whether the dulness of the modern Munich school or the brilliancy of the Cinquecento is most in accordance with the principles and conditions of glass painting. Having mastered the grammar, so to speak, of the art, it will be time enough to consider the design of the windows, and whether flatness or such rotundity as glass is capable of, on which point there exists the most laughable misapprehension, should be a characteristic of the design of some, or all, or none of the windows.

If I might hazard a remark on so large a subject as the painting the windows of St. Paul's Cathedral,—a subject which involves the consideration of the whole question of decorating that building,—I should say that, if there is to be any pictorial mural painting, the glass in the windows should display but little positive colour,—an opinion which by no means would exclude picture glass paintings from the windows. On the other hand, if the walls were decorated with pattern work, which would admit of bright colouring, variegated marbles, and gilding, the windows might be richly coloured. It should, however, be most carefully borne in mind that in painting either windows or walls, we are decorating St. Paul's as Wren designed it, and left it to us; and, therefore, that no design should in either case be tolerated that would be more severe in character than the building itself, or than is prescribed by the conditions of the means of decoration adopted. The style of the sculpture in the tympanum of the portico, and on the west point; of the statues at the top of the building; even of the ornaments and cherubs' heads sculptured upon and about the window cases, ought not to be disregarded by those who are to select designs for the walls or window painting. But, in saying this, I am not to be supposed to recommend our going back to the manner in which glass paintings contemporary with the finishing of St. Paul's, were manipulated. Such would, indeed, be a piece of antiquarian pedantry. I merely say that, in the drawing and composition, regard ought to be had to the style of the building; and I say this the more emphatically, because I know that some persons, in their fervent disgust for everything "Pagan," would, if they could, introduce windows in the style of the thirteenth century into this building, for the sake of "Christianizing" it.

I therefore should say that the Cinque-cento style of manipulation ought to be adopted, as most conformable to the laws and conditions of glass painting, and that the designs should be selected with reference to such manipulation. And that it would be quite right to use the "round glass" of Germany for the glazing of such of the windows as are intended to contain only patterns. The silvery effect of this "round glass" must be seen to be appreciated, and may be seen, on a large scale, in the Cathedral of Nuremberg. Its sparkling effect would harmonise with the brilliancy of picture-glass paintings, manipulated on Cinque-cento principles, but would not harmonise with the effect of picture-glass paintings of the modern Munich school, whose dulness would require any pattern windows in their vicinity to be filled with *ground* glass.

C. WINSTON.

NOTES IN THE PROVINCES.

Richmond, Surrey.—A new parsonage-house is about to be built here on a site of land on Richmond-green, presented for the purpose by Government, to the new vicar, the Rev. H. Dupuis. The architects are Messrs. Hardwick; and the building has been entrusted to Messrs. Long and Son. We understand the cost will not be far short of 3,000*l.*

Winchester.—The dean and chapter have enclosed a considerable portion of the cathedral yard with iron fencing, pulled down the wall that formerly obstructed and defaced the north-eastern portion of the building, and levelled various portions of the ground where time had produced unsightly inequalities. They have also determined to prohibit the erection of any more mural monuments in the aisles of the cathedral, and to admit in future only memorial windows.——On Friday week the foundation stone of the intended district church in the parish of St. Maurice, was laid. The site is between the Middle and Upper Brooks. The new church is to be known as that of St. Mary Kalendar, the name of a parish now united ecclesiastically to that of St. Maurice.——The enfranchisement price of a piece of land in the suburbs of the city, adapted for building private houses on, according to the *Hampshire Advertiser*, has just been fixed by the owners of the fee simple at 700*l.* per acre. The tenant besides holds a lease of this property for 21 years, a large portion of which term is unexpired. Land for agricultural purposes contiguous to the city is equally high, as much as 7*l.* per acre for meadow, and 4*l.* for arable land, being at this time paid.

Cheltenham.—The new wing to Lord Northwick's picture gallery is approaching completion: it will be some time, however, before the interior can be fully prepared for the reception of the works in course of selection for its adornment. A new gymnasium and raquet-court is now being erected in the rear of Cheltenham College for the use of the pupils.

Taunton.—The following tenders for a new tower to Wilton parish church in this town have been sent in:—

Wainwright	£304	£378
Bool	320	400
White and Norman	346	411
Woolfrey	345	426
Poole	350	400

The second line includes extra stone enrichments. Messrs. Carver and Giles are the architects.

Leek.—Tradswell Church, at Leek, in North Staffordshire, has been considerably enlarged, and the old part "improved and beautified" by the exertions of the incumbent, the Rev. P. Maitland, and was opened on Monday in last

week. Three painted windows have been added, by *gift*, to the church, two in the new part and one in the chancel.

Sheen.—The Bishop of Lichfield consecrated the rebuilt parish church of St. Luke, Sheen, in the Moorlands of Staffordshire, on 4th inst. This church has been rebuilt at the cost of Mr. Beresford Hope, the patron. Mr. Burleigh, of Leeds, according to the *Staffordshire Advertiser*, was the architect originally employed; but his health having failed, the works were completed, with various alterations, under the care of Mr. W. Butterfield, architect. The present nave is of nearly the same dimensions as the former church, and is of wide span. Its roof is open, with a band of coloured ornament round the cornice. All its windows are filled with stained glass, of the kind called *grisaille*. The tower is open to the church, and has a west window of glowing colours, containing effigies of St. Peter and St. Paul, the work, like all the stained window glass, by Messrs. O'Connor, of London. The east window contains three figures, under canopies, of St. Luke, the patron-saint of the church, St. Chad, and St. Etheldreda; and above, in a sex-foiled opening of the tracery, there is a half figure of our Lord (a "Majesty"), in the attitude of benediction. The south window of the chancel has figures of St. Stephen, the protomartyr, and of St. Alban, the protomartyr of England. The chancel has a stone roof, of considerable height and span, having six bays divided by arched ribs. The three easternmost bays, which are over the sanctuary, are coloured with a slight pattern. There is a screen with gates under the chancel arch, and stalls with subsellæ on each side. The sanctuary is raised on several steps, and the altar, richly vested, stands beneath a reredos of polished alabaster, in which is inlaid a cross of red Derbyshire marble, with circles of black marble on each side. This and the font were wrought by Mr. Oldfield, of Asbford. An arched door opens from the north side of the chancel into a double vestry, which is the work of Mr. Butterfield. It is of stone, the external roof being of very high pitch, while internally it is open to the ridge, with solid ribs. Mr. Lomas was the mason employed in the completion of the works. The former works in the church were executed by Mr. Taylor, of Coventry. The organ, built by Walker, of London, has a Gothic case of open tracery, and stands on the ground in the nave on the south side of the chancel-arch. This position, according to our authority, is effective for sound, being so near the singers. A peal of six bells has been presented to the church by Mr. Beresford Hope, from the foundry of Messrs. Mears, of Whitechapel. This is the only peal of more than three bells for many miles round. Mr. Dent, of London, has fixed a new clock in the tower. On the south side of the school a parsonage-house is now building, by Mr. Myers, of London, from the designs of Mr. Butterfield. The old village cross, the stump of which remained on a small green before the church, has been restored, and on the day of consecration was ornamented with flowers and shrubs. A sort of triumphal arch of boughs and flowers was also erected over the churchyard gate.

Darlaston.—The consecration of the newly-erected church of St. George, Darlaston, took place on Tuesday week. It is built of stone, in the First Pointed style, and consists of a nave, with a tower surmounted by a spire at the north-west angle, north and south aisles, chancel, and robing-room, and a western gallery in the nave for children. There are two entrances—one at the west end, through the tower, the other by a south porch. The tower is incomplete for want of funds, and is only carried a little higher than the aisle roof. The edifice will accommodate 473 adults (150 seats being appropriated) and 200 children. The architects are Messrs. Johnson and Son, of Lichfield, and the builders Messrs. Higham, of Wolverhampton. Messrs. Johnson gave the font, and Messrs. Higham the encaustic tiles in front of communion rails. The east window was the gift of Mr. Robert Drury, of Sheffield.

Darlington.—The local gas company has recently declared a dividend at the rate of ten per cent. per annum.

Staindrop.—The ancient church of Staindrop, in the county of Durham, has lately received at the hands of its vicar, the Rev. H. C. Lipscomb, a history and pictorial illustration, which has been published for the benefit of all interested in ecclesiastical architecture. The engravings are numerous. This church contains some memorials of the Nevilles and Vanes.

Whitehaven.—Great excitement, says a provincial paper, has been caused, and much damage done to property, in Whitehaven, by the giving way of the foundation of a great many houses in consequence of part of the tunnel sinking which joins the Whitehaven and Furness with the Whitehaven and Carlisle Railway. A great many of the houses are uninhabited; and most of the inmates of Scotch-street workhouse have been removed. The floor of one house is said to have sunk upwards of 30 feet.

BUILDINGS AND DOINGS IN HULL AND LEEDS.

I have been spending a day or two at the important towns of Hull and Leeds; and being unable to repress any strong feelings that arise on inspecting public buildings and institutions, I leave to thy discretion the insertion of the following free remarks:—

At Hull the only objects I noticed are the Wilberforce Monument and the Baths and Washhouses.

It is impossible to advert to any memento in honour of the great and Christian patriot Wilberforce without, at the same time, recalling the noble and interesting one in York—"The School for the Blind!" Nor is it other than a problem, not easily solvable in the writer's mind, how the sagacious worthies of the town of King ton-upon-Hull contrived to stumble upon so senseless an idea as a lofty column in the very centre of crowded streets; the statue surmounting which never being seen but by either a sort of under-perspective, with an upturned eye; or, if at a distance, at the entire expense of any recognition of the features of him whom this folly is designed to commemorate, and which when seen conveys but a transient—yea, ephemeral association of the great man himself. Whereas at York, a perpetually flowing stream of philanthropic good at once attests the city's admiration of the virtuous stateman, and the truly noble object of the institution erected to his memory.

The other public establishment, of which I had heard much and was desirous to visit, was the Baths and Washhouses, on which, if report say truly, a sum of not less than 14,000*l.* has been expended. The situation of this important adjunct to the sanitary provisions of the town of Hull was, as the writer thinks, well chosen, being in a back street, and in the midst of a dense population. Much money has been spent upon the frittered and semi-Elizabethan front, which professes to adorn its exterior, at the principal entrance. The writer, whose professional pursuits as an architect have now ceased for seventeen or eighteen years, has no hesitation in asserting his confident belief that the amount expended on this one establishment might, with judicious management, have sufficed for the erection of three similar ones in different parts of the town.

Another large edifice, of recent erection, demands a word of notice,—the new Workhouse, on the right of the line as you approach the station. Although but a hasty glance was taken, the writer cannot withhold the expression of his admiration of much that his limited time permitted him to inspect. He dare not, however, quit the town of Hull without coming back to the *condemnatory*, in relation to a new Dissenting College, on the left of the road to the cemetery.

This kind of institution seems a favourite here; but, alas! a previous one is now converted into *almshouses*, and that which seized the writer's astonished vision, is in a condition alike disgraceful to whatever society instituted it, and to the town, as tolerating its neglected appearance. The main mass of the building in its principal front is a staring white;—while the columns of the portico are left to the dingy colour of their original stone! A broken window, grass-grown carriage drive, and miserably defective palings behind, denote altogether either some grievous mismanagement, or want of success, in the object of its original erection.

So much for my hasty visit to Hull; and now for Leeds:—

A friendly appointment with an official personage brought me last week to that busy and improving mart of the woollen stuff trade; and without dwelling on its many public and pretentious edifices, civil and ecclesiastical, the writer is glad to find that, in the march of sanitary progress, Leeds is setting a spirited example. Its drainage, in a most efficient style, is now rapidly going on, and in another twelve or eighteen months will leave the town scarcely behind any other in this one important respect.

A new insurance office, in a central and commanding situation, is also about to be erected.

Would that the writer could stop here, and thus record only the language of approval of the town's doings in the way of buildings; but now, alas! comes the text of the heading to his present letter, "Buildings and Doings." At the office of one of the respectable and numerous architects residing in Leeds, the writer was shewn in "THE BUILDER," an advertisement emanating from the Corporation, for a new Town Hall and Courts of Justice, which nothing short of *seeing* would have induced the writer to believe could have been perpetrated by any sensible body of men, surrounded by practical persons who could have undeceived them as to their utter ignorance of the profession of an *architect*, displayed in the advertisement in question. By its terms, every competing candidate is expected to supply, not only fair plans, elevations, sections, and general estimate of the proposed extensive building, as is usual in all competitions, but such "*working drawings and detailed specification*," as shall enable the committee to obtain estimates for the execution of the works; reserving, at the same time, the right of discarding even the party whose design they adopt. A grosser insult to a liberal profession never was offered! For all this, premiums of 200*l.*, 100*l.* and 50*l.* are offered. From some considerable knowledge of the real history of such requirements, the writer unhesitatingly states, that it would require more than the largest of these three premiums to pay even the salaries of drawing clerks engaged completing the stipulated requirements!

Not a word more need be said, surely, to justify the writer in his strong and unhesitating condemnation of the Corporation of Leeds, in issuing the advertisement to which he has referred, and which he further condemns for the exceedingly limited time given for sending in the designs.

These are days of progress, friend Editor, in all the arts, and conveniences—and, it must be added—the duties of life, such as society now demands; and I, for one, should be wanting in respect for the profession which I love and honour, not less as an amateur, than as a former member, did I forbear entering my strongest protest against the ignorance and unreasonableness of those who have sanctioned the advertisement now animadverted upon.

In the sincere hope, that these remarks may lead the Corporation of Leeds to retrace their steps, and issue a more fitting notice of their intentions,—I am, &c. E. S. R.

FRIGHTFUL QUARRYING ACCIDENT.—At Llanyattoch, Monmouthshire, are several large limestone quarries, on which a great number of men are employed. On Friday week, from some hitherto unexplained cause, the side of one of these quarries gave way; about 60,000 tons were detached; and two unfortunate men, if not several more, were buried beneath the fallen mass. It was expected that some days would elapse before they could be reached.

OUR THOROUGHFARES.

THE thoroughfares in a great commercial city like London should be paved by night as well as day: a supply of gas renders the one equal to the other. The serious interruption that so frequently happens could often be avoided, and should be. I also would complain of the loading of the pavement with mud and rubbish, so that the moment any rain falls the whole neighbourhood in the vicinity of a new pavement becomes in a filthy state. This is an idle folly, useless in the extreme, and is only practised because it was the custom in the time of Oliver Cromwell.

After the liquid cement has been poured into the interstices of the stones, nothing is required but some finely-sifted gravel, which makes no dirt, and the pavement, before any traffic commences, should be swept clean.

EXPERIENCE.

*** The stoppage of Piccadilly, and consequent invasion of the mysterious precincts of Mayfair, which all vehicles going westward or eastward are compelled to make, has brought us a host of letters from people, who, like ourselves, feel the annoyance. How long it is to last, at the rate the works are now going on, we will not pretend to say, and there are evidently preparations for further proceedings, which will give Berkeley-square the *advantage* of the Piccadilly traffic. A quiet, grave friend of ours, who has taken a house in Curzon-street, and called it "The Shelf," because it is so high up that he thought he might lie there in peace and quietness, admire the works of art with which he has sprinkled the walls, and study without interruption the history of architecture in "The Letters to Sorilah" (of whom, *nota bene*, he wants us to give a portrait), vows that he has never been able to hear himself speak since he moved, through the "row" made by bus-compelling horses and dust-disturbing carts. He thinks there is no longer a refuge for a peace-loving Londoner nearer than some *Bellevue* at Richmond, or some Cliffden cottage in the Isle of Wight, and implores our assistance to make his "Shelf" habitable again, and his voice heard. These blockades of Piccadilly seem to have taken their place amongst the Annuals of the season: with the fall of the leaf comes the rise of the stones, as regularly as can be. At all events, we must insist on having the nuisance put into the smallest possible volume,—hot-pressed.

EXTENSION OF THE 'FERRO-VITREOUS' ORDER OF CONSTRUCTION.

IN noting the immense profits which railway companies reaped during the Great Exhibition, we took occasion to remark that they ought to take a hint from the circumstance, as they would have been great gainers even had they erected the building at their own cost. They do seem to have taken the hint; for not only is the new erection at Sydenham mainly a railway project, but it is now proposed by the chairman of the South Devon Railway Company to erect a "People's Crystal Palace," in connection with public gardens, for the combined towns of Plymouth, Devonport, and Stonehouse, with their 120,000 or 130,000 inhabitants. Mr. Woollcombe's scheme embraces gardens to the extent of from 25 to 30 acres, and a crystal palace covering an acre of ground. The land to be leased by the trustees of the manor of Stoke Damerel, free of cost, with a view to the improvement of the surrounding property. The cost of laying out and of the crystal palace is estimated at 25,000*l.* of which the palace would cost about 12,000*l.* The site selected is contiguous to the Cornwall Railway, and just in front of the Penlee Villas. It commands views of the Sound, Mount Edgcumbe, the Channel, and a considerable extent of country on the eastward.

A project has been started also, though not in this case, ostensibly at least, by railway shareholders, for the erection of a people's palace, in Bath. An elevation and sections of the building were exhibited before the horticultural society. The originator is Mr. John Peacock, of Bath, architect. The site proposed is the Sydney Gardens. The eastern side of the open space has been chosen with the especial view of preserving the central avenue. The building, like the original, consists of a nave and transept. The nave is 144 feet long and 48 feet wide, and the transept 96 feet long, 48 feet wide, and 70 feet high. The outside is supported by ornamental iron buttresses, and several improvements are introduced in the construction. The cost of the building is estimated at 6,000*l.*; and it is proposed to form a company, and to raise the amount in 1,200 shares of 5*l.* each. If the returns from the building should not be remunerative, the *Bath Journal* remarks, it might easily be removed and sold for a palm house or other purpose. Messrs. Fox and Henderson have agreed to erect the building, and render it fit for use in twelve weeks from the day of its commencement; and there is much probability, it is said, of the design being accomplished. Mr. Peacock contemplates several works in connection with the building, such as the erection of fountains in front of Sydney Hotel; the formation of a museum, to which the Gothic Hall would be appropriated; and generally the renovation of the gardens.

The new building would be used by valetudinarians and others in winter as a promenade and winter garden, and in summer horticultural and other exhibitions could be held in it.

BYLAUGH HALL, NORFOLK.

A SPIRITED paragraph in the *Athenæum* has made known the near completion of Bylaugh Hall amongst hedge-rows and turnip-fields, and prepared the way for the more complete information we were about to give our readers. Here they have a view of the building, and a plan of the ground-floor. It was erected under the provisions of a will of Sir John Lombe, bart. who died in 1817, and left a sum of money for the purpose of building a mansion on part of his Bylaugh estates, directing that so long as the house remained uncommenced the money should be invested, and allowed to accumulate at compound interest. By the terms of the will, also, the holder of the estate was to take the surname and arms of Lombe. Edward Lombe, esq. during whose possession and at whose instance the present house has been built, recently died abroad, and the present possessor of this fine estate, said to be worth 15,000*l.* a year, is Charles Lombe, esq. The new mansion was begun in the year 1849, under the supervision and control of the trustees, in whom the building fund was vested.

The mansion stands about twelve miles north-west of Norwich, and six miles north-east of East Dereham, in what was recently an arable field, but which is about to form, with the surrounding property, a fine park of about 600 acres in extent, through which the river Wensum winds, at a short distance from the house, which is placed advantageously on rising ground, open to the south, and commanding extensive and pleasing views in that direction. The style adopted is what is now generally understood by the term Anglo-Italian; a style which identifies itself, by its masses and outlines, with what is properly called English architecture, yet allows of the elegancies and finish of the art of the south.

The house is of ample size, though of less magnitude than has been indicated in the notice referred to, and the engraved plan will best show its arrangements for comfort and convenience. The Chancery joke, too, of our able contemporary, unluckily falls to the ground, since, by the wish of those who are interested, the inscription referred to, "*Ex jussu Curiæ Cancellariæ*," has been cut out and replaced by a frieze ornament. The building has been erected from the design and under the superintendence of Messrs. Banks and Barry, of London, by the Messrs. Piper, of Bishopsgate-street, who have performed their work in a very creditable manner, to the satisfaction of the architects. Their contract, which has just been completed, amounted to 29,389*l.* a sum below the original estimate, and the work has been brought to a conclusion without any extra expenditure. The material is Magnesian Limestone, from the quarries of Mr. Grissell, from which the Houses of Parliament have been constructed, and, seen without the disadvantage of London smoke and dirt, is of a warm and pleasing colour.

Passing the vestibule, one enters the saloon, which communicates with all the rooms, as seen in the plan, and by which arrangement passages are avoided; and it is lighted from above by means of a rich elliptical vault, with panels, filled with cut glass, and it, together with the reception-rooms, has been decorated with arabesques and flowers by Mr. Sang and his band of German artists, under the direction of the architects: two elliptical panels, one over and the other opposite the entrance to the saloon, have well-executed bas-reliefs, representing Peace and War, designed and modelled by Mr. Raynard Smith, of London.

The offices and stables, which are attached to the house, are built with the well-known bricks from Lord Leicester's estate at Holkham, and harmonise well in colour with their stone dressings, which are of the same stone as the house.

Messrs. Piper have just entered into a second contract for the formation of the terraces, conservatories, and enclosure walls and balustrades (which, it is understood, are very complete), befitting a mansion of such importance; and these works, as well as the enclosing of the space appropriated to the park by means of a brick wall, with lodges in the Norwich, Dereham, and Fakenham Woods, will be at once commenced: indeed, until that portion of these works immediately around the mansion is completed, the edifice appears to considerable disadvantage, all around being at present in its rough agricultural state.

The park and pleasure grounds will be arranged and laid out from the designs of Mr. W. A. Nesfield, the well-known landscape artist, whose advice, it seems, was also followed in the outset as to the precise position where the mansion could best be placed, and whose choice in this respect has met the approval of all the parties concerned. The formation of the park and the erection of the above accessorial buildings will take about two years, and, when all shall be complete, and the trees shall have attained their growth, the property will form not the least beautiful and perfect among the many seats of our English nobility and gentry.

It may be well to mention of the architects, that Mr. Banks was for many years the chief assistant in the office of Sir Charles Barry, of whom his partner, Mr. Barry, is the eldest son, and, we may add, as the question has been asked us, the only architect of the name now in practice who is related to him.

OXFORD INDUSTRIAL SCHOOL.

IN justice to the guardians I cannot allow the observations of your correspondent "Justice," which drew from you a censure upon them, to pass unnoticed. It is true that in the month of February last the guardians advertised for plans, and on that occasion three were sent in. Mr. Bruton's was unanimously selected as being the only one possessing any merit; but it was at the same time unanimously resolved that if the builder's tender exceeded the sum of 2,250*l.* by more than 10 per cent. the plan would not be carried out, that being the amount sanctioned by the Poor-law Board. This proved to be case. The guardians thereupon felt that they had no other course to pursue but to advertise anew: they did so, and the same three architects only sent in designs. They were referred to a committee of the guardians. Mr. Bruton's altered plan was again unanimously recommended by the committee. A meeting of the guardians was called expressly for the purpose of considering the committee's report. At that meeting Col. Pigot was present, and said he was pleased that the committee had recommended that plan, as he thought the Poor-law Board could, if they chose, insist upon Mr. Bruton's original plan being carried out, they having approved of it, but he did not say so positively, nor did he say that it was not in the power of the guardians to revoke the decision; and after he left, the report of the committee was taken into consideration by the board of guardians, and unanimously adopted. The altered plan has since received the sanction of the Poor-law Board, without any observation as to the alteration. * * *

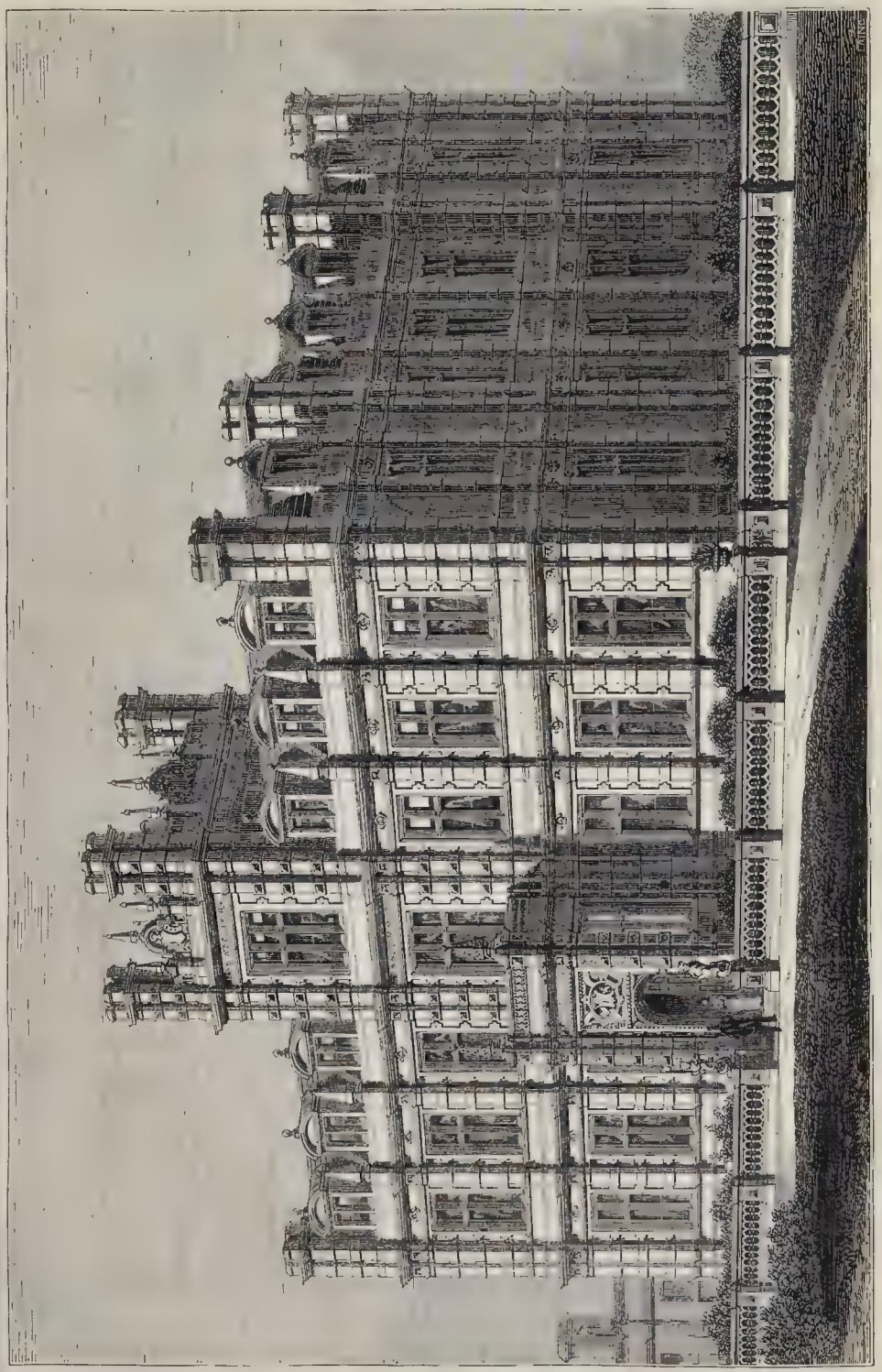
H. JACOB.
Clerk to the Guardians.

BYLAUGH HALL, NORFOLK.—GROUND PLAN.



REFERENCES.

A Entrance-hall.
B Porter's room.
C Hats, &c.
D Dining-room.
E Billiard-room.
F Vestibule.
G Servants' stairs.
H Private staircase.
I Dressing-room.
J Mr. Lombe's room.
K Corridor.
L Saloon.
M Stairs from basement.
N Principal staircase.
O Breakfast-room.
P Drawing-room.
Q Ante drawing-room.
R Library.
S Service-room.
T Top of kitchen.
U Bed-room passage.
V Bed-rooms.
W Laundry staircase.
X Laundry.
a Stable yard.
b Stables.
c Harness-room.
d Loose box.
e Cleaning porch.
f Double coach-house.
g Coachman's entrance.
h Cellar.
i Brewhouse.
k Dung-shed.
l Coals.
m Sick horse-box.



BYLAUGH HALL, NORFOLK.—Messrs. Banks and Barry, Architects.

TESTIMONIAL TO AN OVERLOOKER.

LOOKING over your last Saturday's impression (as is my custom), I saw a report of a presentation of a snuff-box as a testimonial to an architect, and it occurred to me that working men were too slow in taking advantage of the press to make known thereby their doings. Believing you would feel a pleasure in helping them in this, I make free to tell you that, within the last fortnight, an elegant silver cup, with a suitable inscription, has been presented to Mr. William Conquest, nearly twenty-five years principal foreman in the joiners' department of Mr. T. Cubitt's establishment at Thames-bank, on his retirement. It was given "as a mark of respect for his uniform kindness and due consideration for their comforts, during his superintendence over them for several years."

I think, Sir, you will agree with me, that an instance like the present, which seldom occurs, deserves to be chronicled. I verily believe that the disposition of the employer was so in unison with the foreman, to act justly by the men, that he met with little or no obstacle from that quarter, for he enjoys the character (and deservedly too) of being second to no other employer in the desire to see his workmen provided with every comfort and convenience necessary to their wants. I think the presentation of this testimonial fully testifies that working men are not wanting in gratitude when the opportunity offers, and that we have shown by this that we can appreciate good and kind treatment. We trust this kindly feeling between foreman and men, the employer and the employed, may spread and extend to all classes of society, and bring about a happier future. A WORKMAN.

SIGHTS AND SCENERY.

Haymarket Theatre.—The Adelphi company, who have moved to these more "extensive premises," have produced a piece of fun and murder called "The Writing on the Wall," wherein the Model Farms and Farmers get a harmless and amusing rub. Fancy Mr. Wright entering upon a farm, determined that his workpeople shall have proper recreation; that his cows shall not be milked if they do not like it; that all shall be dressed alike and do everything in order: see him bothered by a 'cute countryman who has sold him the place, with the simple proviso that he may come in *when he pleases*, just to get a drop of water; the pigs all out, and no one to put in the corn when it rains; and you may get a notion of the comic part of the piece. The graver part is very well played by Mr. Emery, Miss Woolgar, and Miss Chaplain.

Vauxhall Gardens.—Those who collect records of the doings at this long-standing place of amusement, will have two novelties to add, in the shape of a superior ballet company, and the appearance there of all the principal singers from her Majesty's Theatre. Several new dioramic pictures have been put up, the amusements are numerous, the lights numberless, and all the arrangements such as make a visit to the gardens on a fine night very pleasant. A curious system of mirrors is exhibited, wherein they are made to take different brilliant colours by the interposition of coloured media before a central light. They might be useful as signals.

BATHS AND WASHHOUSES.—From the returns issued by the "Committee for Promoting the Establishment of Baths and Washhouses for the Labouring Classes," it appears that during the month ended July, 1852, the receipts at the six metropolitan establishments have amounted to the sum of 2,768*l.* 5s. 5d. against 1,506*l.* 3s. 4d. in the same period last year. The number of bathers was 199,934 against 104,856 in the corresponding month of 1851; showing an increase of 1,262*l.* 2s. 1d. in money, and 95,078 bathers. In the same month of 1848, the first year of the "model" establishment being opened, the number was 7,934 bathers, and the receipts then amounted to 91*l.* 5s. 10d. only.—Virtues are "catching" as well as vices.

Notices of Books.

A Practical Treatise on Chimneys; with a few Remarks on Stoves, the Consumption of Smoke and Coal, Ventilation, &c. By G. F. ECKSTEIN. London: Weale. 1852.

IT certainly must be a difficult thing to construct a chimney and fire-place certain not to smoke, or there would not be so many persons trying to tell us how to do it. The book before us is mainly a collection of cases setting forth the success with which Mr. Eckstein has improved certain flues under certain circumstances. If it professed to deal with principles, we should not be able to excuse the statement that "there is no disposition in smoke to go up a flue *unless that flue is warm*." It would be as correct to say that a piece of cork will not rise from the bottom to the top of a pint pot filled with water unless the pint pot be warm!

The chief deduction that he draws from his facts are, that flues are generally built too small, and that the shorter the flue is, the *larger* it should be. He says,—

"Kitchen chimneys with small fire-places should not be less than 14 inches by 9; and if the opening of the fire-place exceed 3 feet 6 inches in width, the chimney should be 14 inches square, or 18 inches by 9, whichever may be most convenient in the arrangement of the building, only providing that the flue have an area of about 200 square inches. But the square chimney is preferable, it being more suitable to the brush for sweeping than is 18 inches by 9. If the opening of the fire-place exceed 6 feet in width, the chimney shaft should be 18 inches by 14, or of an area of about 250 square inches. If the chimney shaft be less than 36 feet in height, the sizes should be severally 14 inches square, 18 inches by 14, and 18 inches square, in lieu of the above dimensions.

Dining-room, or ground floor, and drawing-room, or first-floor chimneys in lofty houses, may be built in the usual way, 14 inches by 9.

Upper stories, the chimneys of which are usually 10 feet or more shorter than the drawing-room floor, should have them 14 inches square.

Attic chimneys should be still larger, till near the top, where they should be reduced, to keep out the weather, or to receive a chimney-pot.

Cottage buildings, or detached houses which are usually low, should not have any chimney less than 14 inches square, and the upper floor 18 by 14. When chimneys are exposed to the air and damp, by being in an external wall, it will be a considerable advantage if the brickwork can be left 9 inches thick between the flue and external air, instead of 4½ inches, as is usual.

If a kitchen fire-place be required in the upper part of a house, and consequently the chimney cannot be long, it must be made up in size. I would recommend two flues of the dimensions given for low buildings, or one flue of double these given dimensions; the top to be reduced to about 150 square inches, or, if two flues, about 150 square inches for the two."

This is his argument:—

"As a 24-inch cube of wood will, if immersed in water, support more weight than one of 12 inches, by displacing eight times as much water; and as a piece of board, 24 inches square, will support upon water four times as much as one 12 inches; or, as a balloon of large dimensions, filled with light gas, will carry up with it more weight than one of less bulk; or, as a pump with a large barrel will, when the bucket or plunger is removed, make a larger vacuum, or will allow more water to follow it, by the pressure of air upon the surface of the water in the well or tank, than a smaller one, so will a flue of large dimensions, when heated, be more powerful than a less one of the same temperature (the case being analogous to the action of water in a pump, &c.): the air in the heated flue being of less specific gravity than that in the room, and being disposed to rise, is closely followed and acted upon by the more dense air in the room pressing forward towards the mouth of the flue."

Quarterly Return of the Marriages, Births, and Deaths Registered in the Divisions, Counties, and Districts of England. Marriages, Jan. Feb. March, 1852. *Births and Deaths, April, May, June,* 1852. Published by authority of the Registrar-General.

UNDER the head of "State of Public Health," in the last issue of the Registrar-General's most instructive and useful reports, we find it stated that "the deaths in the Spring quarter were 100,813, and the mortality was at the rate of 2·227 per cent. per annum, which is slightly above the average of the season. The excess of deaths was chiefly in the town districts, which still maintain their fatal pre-eminence over the country in destroying the lives of the population. The rate of mortality in the 506 districts, comprising chiefly small towns and country parishes, was 2·052; in the 117 town districts 2·436; so that out of the same population, for every 4 deaths in the districts where the air and water are comparatively pure, there are nearly 5 deaths in London and our other towns, where all the sanitary arrangements are still left so imperfect that no improvement sensibly affecting the rate of mortality has hitherto been effected. In the three months that have elapsed 48,357 deaths have been registered in the town districts in the place of 40,000, who would have died if the mortality had not exceeded 2 per cent.; a standard of salubrity by no means high or unattainable. The season has been unusually cold, but food has been abundant, and from the notes of the Registrars generally it may be inferred that the people are actively employed."

The worldly prosperity of the industrious order throughout the country is doubtless enhanced, to those who remain in it, by the departure of an immense tide of emigration, flowing in a startling, though not clearly determined, excess to the advents by birth whereby the country is mainly recruited. "As the births in the quarter were 159,136, the deaths 100,813, the increase of population by natural causes is 58,323. The increase in the previous quarter was 55,094; in the corresponding quarter of 1851, 59,499. In the quarter ending June 30th, 1852, 125,112 emigrants sailed from the ports of the United Kingdom at which there are emigration agents: 21,890 sailed from Irish ports, 8,687 from the Scotch ports of Glasgow and Greenock, and 94,535 from English ports; namely, 3,224 from Plymouth, 15,304 from London, and 76,007 from Liverpool.* It is known that a large but unknown proportion of the emigrants from Liverpool are of Irish origin; but the birthplace is not distinguished in the abstracts."

There are numerous meteorological notes in these Returns which must be extremely useful to all interested in the state of the weather and the returns of the seasons. To those also who meditate change of residence, whether temporary or permanent, the notes and statistics from all parts of the country on the health, &c. of towns must be valuable.

Penny Maps: a new Series, in large quarto, completed in twenty-five Parts. Part XXV. Chapman and Hall, Piccadilly, 1852.

THE Penny Map Atlas is now complete. It comprises a hundred maps, each of its twenty-five parts containing four. The whole may be had coloured as well as plain, and from the care and distinctness with which it is prepared, this Atlas is to the people at large a decided acquisition: it is, *par excellence*, the people's atlas, and it must especially, we should think, be useful in schools, although containing a vast deal more than will usually there be compassed or made good use of.

INSUFFICIENCY OF SCAFFOLDING.—A fortnight ago, a poor fellow named John Roberts (in whom we were interested), at work as a plasterer at some houses in Hackney-fields, was handing up a board from one part of the scaffold to another, when the putlog, a crooked one, came out: he fell 30 feet, and died two days after in consequence, leaving a widow and five children. Without having any evidence to throw blame on the master, we are told the scaffold was slight, and we would make this occurrence the opportunity to impress upon masters the obligation of providing efficient scaffolding and appliances to avoid risk, and on workmen the necessity for care and thoughtfulness. In the present case, it is to be hoped that the contractor and employer will find means to alleviate the distress of the bereaved survivors.

* From a return with which the Registrar-General has been favoured by the Emigration Commissioners.

Miscellanea.

THE ORDNANCE SURVEY OF SCOTLAND.—An officer of the Ordnance engineering corps has been at Kelso, according to a local paper, making preliminary observations previous to commencing the Government survey of that district. There is a desire expressed in various parts of Scotland, to have the survey laid down on the large instead of on the small scale, although the small scale was adopted after repeated complaints, on the part of the people of Scotland, of the slow progress of the survey, and in order that it might be hastened more rapidly towards completion.

HEXHAM ABBEY CHURCH.—A fund is being raised for the restoration of this church, and for the purchase and removal of houses blocking up the lady chapel, which is falling into ruin.

DEFECTIVE DRAINAGE OF LOWER HOLLOWAY.—A movement is in progress for sending a deputation to the new Commission of Metropolitan Sewers to urge the necessity of immediate operations to drain the neighbourhood, especially as for some years past there has been a sixpenny rate levied for that purpose.

STAINED GLASS WINDOWS.—Several windows of stained glass, designed and executed by Mr. William Holland, of Warwick, have been put up in St. Mary's Church, Sydmonton, Hants. The east window contains incidents relative to the life of Christ. In the side openings are subjects of the "Baptism" and "Last Supper," with "The Crucifixion" in the centre light; each under an appropriate canopy, with angels, &c. in recesses. The cross and pine, upon ruby and blue backgrounds, form the pedestals. Each opening is surrounded with elaborate borders composed of the vine and ivy. The openings in tracery contain the dove and Holy Trinity; also angels bearing scrolls, with inscriptions and shields, upon which are the instruments of the crucifixion. The arch of the window is illuminated with the following words: "If ye love me keep my commandments." Beneath the window, and immediately above the communion-table, upon a scroll, the words: "This do in remembrance of me," are inscribed in illuminated characters. On the south side of the chancel is an obituary window, in which is introduced the subject of "Christ blessing little Children," under a canopy. The windows on south side of nave are filled with ornamental patterns, in which are placed the emblems of the four Evangelists, in medallions, the back grounds interlaced with bands of colour, in various forms, with the vine and oak dispersed over the whole, and each being surrounded with a vine border. The windows in south side of nave are filled with the same description of glass, in which are placed angels bearing scrolls, on which are texts of Scripture; also in centre of one the monogram of St. Mary, with rose background, which is surrounded by a border composed of the monogram of St. Mary, crown, lilies, and fleur de lis, the whole being emblematical of the Virgin Mary. The west window contains the figure of the Virgin and Child, to whom the church is dedicated. They are placed under a canopy, surrounded by an elaborate border composed of the fleur de lis and rose. There are other smaller windows also of stained glass by same artist.——A Coventry paper states that the Right Hon. Edward Ellice, M.P. for that city, being gratified at the manner in which St. Michael's Church has been restored, has offered to bear the whole expense of filling the great east window with stained glass.——Another step in the improvement and beautification of Trinity Church, Cambridge, has just been made, by filling the large east window with stained glass. This object has been effected by subscription, promoted by the vicar, the Rev. C. Clayton, and materially aided by a contribution from himself. In design, the window is in the Decorated style, the heading containing the Trinity shield. We hear, says the *Cambridge Chronicle*, that it is the intention of the vicar to fill in another window with stained glass as a memorial to his late parents.

FRENCH EXPLORATIONS AT NINEVEH.—M. Place, consul of France at Mossul, has examined the whole of the palace of Khorsabad and its dependencies, and in so doing, it is said, has elucidated some doubtful points, and obtained proof that the Assyrians were not ignorant of any of the resources of architecture. He is also said to have discovered a gate 12 feet high, which appears to have been one of the entrances to the city, several constructions in marble, two rows of columns, apparently extending a considerable distance, the cellar of the palace, containing rows of wine-jars, at the bottom of which there is still a sort of deposit of a violet colour. M. Place has, moreover, discovered the storehouse of pottery. He has also caused excavations to be made in various hills on the left bank of the Tigris, within ten leagues of Khorsabad. In them he had found monuments, tombs, jewellery, and articles in gold and other metal, and stone. At Dgigiran there is a monument supposed to be as large as that of Khorsabad. At Mattai and at Barrian M. Place has found bas-reliefs cut in solid rock: they consist of colossal figures and full-length portraits of the kings of Assyria. He has taken copies of his discoveries by the photographic process; and announces that Colonel Rawlinson has authorised him to make diggings near the places which the English are engaged in examining. These details were recently transmitted by M. Place to the French Minister of the Interior.

SCANDINAVIAN EXHIBITION.—A letter from Copenhagen, of the 29th ult. says, that "the palace for the exhibition of Scandinavian manufactures is now completed. The vast edifice, constructed according to the plans of Messrs. Hansen and Moeler, architects to the court, is of iron. The internal arrangements closely resemble those of the Crystal Palace of London. It covers nearly the whole of the grounds of the palace of Christianburg, at Copenhagen; so that, in fact, it stands within the inclosure of the royal palace, and exactly faces the windows of the state apartments of the royal family. The opening of this first exhibition of Scandinavian arts and manufactures is fixed for the 1st of September next."

TRANSMISSION OF MOTIVE POWER.—M. Fontainemoreau, of South-street, Finsbury, has patented a plan for the transmission of power in lieu of cog-wheels and pinions, straps, and bands. This is effected by means of an angularly grooved wheel, with another working therein of a wedge form; and by the grip to be obtained any description of machinery may be set in motion.

THE SAFETY OF BOW STEEPLE.—As I see you are on the subject of lightning conductors, could not you manage to draw the attention of the Corporation of the City to the state of Bow Church in that respect? There is at present nothing in the shape of a conductor to it, the iron spindle of the vane terminating about half-way down inside the obelisk, where the bottom of it is fixed in two cross iron bars. Of course, we may naturally conclude that the portion above the upper gallery will be blown to atoms (whenever it may happen to be struck), at least, while it is very probable that all above the great circular cloister round the base of the spire may share the same fate, considering that that drum is only $8\frac{7}{8}$ in. thick of stone, which with the twelve circular detached columns, 1 ft. 8 in. above base, is the whole which supports the spire, at the same time it being out of the upright, and one of the columns being split, and only held together by metal rings. Surely the parish or the corporation cannot be so poor as not to be able to do this, even although they may not like to lay out the money for putting it in a proper state of repair, and save the glory of the city, next to St. Paul's, from going to ruin. The iron cramps are splitting the stone to pieces both in the upper part of the tower and in the spire, while the stone must have gone quite half an inch in some parts. It is interesting to see the wonderful skill with which everything has been seen and provided against excepting only the quality of the stone and iron employed.

J. S. I.

COKE BRICKS.—An invention has recently been patented by Mr. Wm. Pidding, of Chiselhurst, Kent, for the adaptation of a preparation of coke, by which bricks, paving slabs, door and stair-steps, columns, cornices, capitals, tiles, pipes, blocks, railway sleepers, and other articles in request by builders for all the ordinary purposes of their trade, for which clay, brick, stone, or marble is now used, can be produced. On the specification, it is stated that an article similar in shape, size, and colour to the various kinds of bricks now in use, of tenfold durability as compared with the best manufacture supplied from the kilns, and but of one-third the weight, can be produced at a cost varying from one-third to one-sixth of the price of the present article. It is said to be impervious to damp, or any other atmospheric influence; and that by a peculiar process it is rendered indestructible by the agency of fire. We know nothing of it beyond the specification.

PROPOSED NEW DOCKS FOR LONDON.—An advertisement has appeared of a new dock company for the port of London, which has been long in contemplation, and is now incorporated by Act of Parliament. The site chosen is on the Plaistow Marshes, adjoining the North Woolwich Railway, where the area of water accommodation, consisting of a dock and tidal basin, will be upwards of 90 acres, together with a mile of wharfage-room, with 160,000 feet of fireproof warehouses. 400,000*l.* is the proposed share capital, authority being given by the Act to borrow a further sum of 133,000*l.*; and an offer has been received from Messrs. Peto, Betts, and Brassey, to purchase the land and construct the whole for 425,000*l.* These parties have likewise proposed to take a lease of the undertaking for 21 years, allowing the shareholders 5 per cent. on the outlay, and the half of all profits beyond 5 per cent. such proposal to remain open for acceptance until February 1, 1853.

SALES OF PROPERTY.—August 4, by Messrs. Chinnock and Galsworthy, at the Mart.—Reversion to 254*l.* Three per Cents. receivable at death of a lady aged 77—sold for 165*l.*: leasehold carcase of a corner private house, No. 1, Ledbury-road, built to contain fourteen rooms, term ninety-nine years, at a ground-rent of 10*l.* 10s.; annual value when complete, 90*l.*; will cost to finish, 300*l.*—640*l.*: a ditto, adjoining the preceding, with shop; annual value when complete, 60*l.*; ground-rent, 10*l.* 10s.; term, ninety-nine years; cost to finish, 200*l.*—240*l.*: freehold and copyhold estates at Walsham, in the county of Suffolk, near Bury St. Edmunds, containing mansion and 602 acres of land, annual rental 985*l.*—bought in at 24,000*l.*: freehold estates in the adjoining parishes, comprising 177 acres, annual value 199*l.*—5,400*l.*

CONTRACT COMPETITION.—Having watched with considerable and painful interest, for years, the system of contract competition, and witnessed numerous instances of the ruinous effect upon the circumstances of contractors, in the various departments of the building trade, by the eager acceptance of low tenders on the part of committees and other public, as well as private, individuals, I am led to say that if their professional man on such occasions were properly consulted by the committee, or other party, on whom the decision of acceptances or refusals of contracts rests, and he himself were a man of principle, so many cases of fraudulent description—imperfect work and materials—or in the absence of these, certain loss to the contracting parties, could not well occur. My feelings and judgment in the matter—even before I retired from the profession, seventeen years ago,—are very strong, and I greatly fear that not a little of the mischief arising from the eargerness for low tenders has its origin in the architect, not unfrequently tempting his clients, whether public bodies or private individuals, by too low estimates, and then finding himself in the dilemma of either confessing this fact, or, for the sake of saving his own reputation as a careful estimator, driven perforce to support the deciders in their acceptance of an unduly low offer for the work.

E. S. R.

Glass Fittings for the Dairy.—At the Agricultural Society's meeting at Lewes, which, satisfactory as it was in some respects, will prove a considerable loss to the Society, many inventions in glass were introduced by Messrs. Cogan and Co. of Leicester-square, carrying out their original notion of producing every article of glass for the dairy. All who keep dairies are interested in obtaining this cleanly material at a reasonable price. The German pans, recommended by Capt. Carr, and now imported by this house, are made of bottle glass, somewhat deeper, though of smaller diameter, than the English ones generally used, and are sold at 21s. per doz. instead of 36s. English pans were also shown, of the same size and price, of the light green metal. Stout pans, made of plate glass in its rough state, and now reduced to the same price, appear more durable, being the same substance throughout. They have cream-pots; Lord Camoys's syphon, for separating milk from cream; lactometers, for testing the richness of milk; a glass pail, of the ordinary size, protected at the bottom with a loose basket, and with a portable bail and hoop of wood, an accompaniment to their patent glass churn, which was also exhibited; butter slabs made of glass; butter presses; butter dishes; dairy shelves; glass ventilators; bee glasses, and a variety of other articles.

Blasting in Scotland.—At the Garantally Quarry, in Scotland, on Monday week, half a ton of powder, divided into thirteen charges, was fired simultaneously by means of the electric current—the result of which is said to have been the perfect dislodgement of probably about 140,000 cubic feet of stone.

Monument by Gibson, the Sculptor.—A monument has been executed in Rome by Mr. John Gibson, sculptor, to the memory of his brother, Benjamin Gibson, the well-known antiquary, who died last year at the Baths of Lucca.

A View of Oxford.—I have enjoyed the rich treat of a visit to Oxford. I should think it must present immense attractions to a student of the fine arts. To me it seemed like the fulfilment of some romantic dream. Though I went full of expectation, I found it quite as beautiful as I anticipated. The venerable monuments of antiquity, the exquisite architecture, the windows all ablaze with Scriptural histories, the libraries, the galleries of pictures, the museums, and, above all, the holy memories that come around you as you behold the portraits of England's best and wisest, or walk in the footprints of the martyrs, produce a species of sacred intoxication from which it is not easy to recover. As I walked round the top of the Radcliff Library, and looked down on the forest of pinnacles, the tall spires, the beautiful quadrangles interspersed with gardens and groves, the river with its bridges, and the beautiful woodland landscape glowing to the horizon in the clear light of a cloudless sky, I was lost in admiration. The modern improvements are very extensive. One of the most exquisite things in Oxford is the chapel of Magdalen College, which was restored in 1833. The window representing "The Last Judgment," and the altar-piece representing "Our Lord carrying his Cross," are things which, having been once seen, grave themselves on the memory for ever. The restorations were done on the spot by English workmen. At Queen's, 30,000*l.* were left in 1841 by Dr. Mason to be laid out in books; this sum has been raised by subscription to 60,000*l.* I think they told us; and the whole has been applied to the formation of the present beautiful library. The Botanic Garden has been greatly improved lately. Certainly, if the accumulation of buildings, works of art, and books would suffice to produce good clergymen, England would indeed be a blessed place. We know very well, however, that these things are useless unless it please God to send His spirit from above; but we have reason to be thankful that he *has* done so in so large a degree, and that notwithstanding our divisions and worldliness, He has made England, to so great an extent, the nursery of the true faith, and has enabled her to propagate it to the very ends of the earth.

Z. Z.

A New Plastic Material.—A Parisian sculptor, M. Duthoit, has obtained an English patent for a chemical combination of certain agents for obtaining a new product to be used in the plastic arts. The patentee combines with gutta percha oxide of zinc, amianthus, and sulphate of baryta, in conjunction with various colours. The gutta percha is first prepared and bleached by being dissolved in rectified naphtha, bensole, or sulphuret of carbon. When the compounds do not possess sufficient elasticity, caoutchouc is added. The gutta percha being prepared, after filtration he places the solution in a still, adds the other ingredients, and stirs the whole well together. Heat is then applied until all the volatile oil is driven off, when the material is removed to the desired moulds. It is said to be suitable for numerous moulded works of art, tissues, or artificial flowers: it may be used as leather, when rolled into sheets, or it may be diluted with naphtha, or bensole, and employed as liquid paint.

The Timber Trade at Liverpool.—An influential meeting was held on Saturday week for the purpose of considering the high rates of inward carriage paid at Liverpool, compared with other parts of the kingdom. Mr. Fleming (of the firm of Chaloner and Fleming) entered into a statement from figures received from Mr. Braithwaite Poole, to shew that by rail from Grimsby to Manchester is 107 miles, and the rate at the present time is 10s. per ton; that the distance from Liverpool to Manchester is 31 miles by rail, and the rate 7s. 6d. per ton; that by water-carriage (canal) from London to Birmingham, the distance is 160 miles, and the rate 10s. 6d.; that it is 112 miles by rail, and from Liverpool to Birmingham 98 miles, and the rate is 11s; that from Liverpool to Manchester is 48 miles by canal, and the rate is 7s. 6d. He had made inquiries as to the rates between other places, which he laid before the meeting. From Liverpool to Manchester, he found the rate was 2¾d. per ton per mile, and from Hull to Manchester only 1¾d. per mile. After some conversation, Mr. Chaloner moved the appointment of a committee to collect evidence upon the whole subject, and suggested that if a memorial were presented to the Earl of Ellesmere he would at once meet their views. Mr. Steele and other gentleman thought the railway companies would be the most likely to do so. The resolution appointing a committee was put and carried, and a subscription entered into for carrying out the views of the meeting.

Pompeian House in Bavaria.—We hear from Bavaria that the Pompeian house which King Louis the First ordered to be erected in the midst of the park of his domain is completed, and has become an object of great interest to the archæologists of Germany. It is executed after drawings by Herr Klenze. The principal mural pictures are by Herr Nilsson, of Munich; who took the subjects from Pompeii itself, where he resided five years for the purpose. In the middle of the back wall of the atrium is the superb antique mosaic presented to King Louis by Pope Pius the Ninth; and to render the illusion complete, the King has surrounded the edifice with orange, palm, and other Italian trees. From the terrace of the grand court, the eye ranges over a magnificent panorama, embracing in the distance Mount Taunus and the chain of the Odenwald and of Freigericht. —*Athenæum.*

Continental Railway Communication.—A company is in course of formation in Holland, with a capital of 36,000,000 florins, in order to place that country in railway communication with Germany, Belgium, France, &c.

Electro-Telegraphic Progress.—A subterranean telegraph has just been opened between Naples and Gaeta. The wires are covered with gutta percha.——An old proposal is again on the *tapis* for communicating between railway trains in motion and stations, by means of the telegraph, so that they may reciprocate signals, in the event of danger, at given distances.——The various police stations in the metropolis and its outskirts will shortly be connected with one another and the railways by electric telegraph.

The Great Irish Industrial Exhibition.—We understand that the committee are now occupied in considering the designs, for the building to be erected, that have been sent in, and to aid them in their labours in this respect, have called to their assistance the professional services of Mr. Hemans, the engineer of the Midland Great Western Railway; Mr. George Miller, of the Great Southern and Western Railway; Mr. Fairbairn, of Manchester; and Mr. Lanyon, of Belfast.

The Electric Light.—An experiment with the electric light for the Parisian *fête* of 15th of August was made in the Champs Elysées on Monday week, at midnight, under the direction of M. Romieu. It is said to have been perfectly successful.

New Steam-Engine.—Mr. James Sinclair, of Stirling, according to a local paper, has invented a steam-engine "entirely divested of the complicated machinery commonly in use. It consists of an oscillating cylinder, working in a journal and bush at the bottom, by which the steam is admitted to and escapes from the cylinder, without the aid of any mechanical contrivance, but simply by its own oscillations. The inventor," it is added, "has a small model of it working by water power, and another of larger construction now in course of progress."

A View of Lancaster, by Mr. W. Linton, lithographed by Mr. Needham, has just now been published, and makes a very agreeable picture. The town, terminating with the castle and the church, groups well, and Morecambe Bay and the Lake mountains form the background.

Limerick School of Design.—We hear that Mr. David W. Raimbach, late second master at Belfast, has been appointed by the Board of Trade to the mastership of the New School of Design and Ornamental Art in Limerick.

TO CORRESPONDENTS.

"H. and C." (we are unable to reply without seeing the drawings), "C." "W. S. G." "Capt. J. N." (we cannot advise a patent), "Howden" (any efficient smith will fit up proper iron doors for the purpose), "G. P." "C. P. R." "T. L. D." (thanks), "Rev. A. H. G." "C. C." "Ed. of N. W." "B. and M." Ross (the expense should fall on M.), "Y. and Son," "H." "Mr. G." (similar accounts have been given already), "M. L." "C. V." "C. and G." "E. B." "An Architect's Apprentice," "One of the Contractors," "A. and C." "Sir J. P." "G. F. E." "W. L." "R. J." (we have not time to refer), "M. P." (ditto. Look for yourself), "G. W. S." (hydro-fluoric acid will "obscure" the surface of glass, but it must be used with care, being virulent in its effects on the skin), "J. W. W." "Non Competitor," "Wandering Amateur."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and *not* to the Publisher.

ADVERTISEMENTS.

LIGHTNING CONDUCTORS.
R. S. NEWALL and Co.'s PATENT COPPER ROPE,
3-8ths diameter, 72s. per 100 feet.
Office, 130, Strand, London.
Manufactory, Gateshead-on-Tyne.

SIR W. S. HARRIS'S LIGHTNING CONDUCTORS.—The public attention, as well as that of Church-Building Committees, and those interested in the preservation of churches and all description of buildings, is called to the very numerous recent disastrous effects of the heavy thunder-storms which have prevailed. THOS. W. GRAY, 73, King William-street, City, London, respectfully announces that he is the only person authorised by Sir W. Harris to apply his Lightning Conductors, and who will not be responsible for their application by any other persons. The peculiar form and adaptation of these Conductors is such as to safely carry off any amount of electric fluid, as evinced in many authenticated instances at sea, both in the navy and merchant service as well as in buildings; and to shew the importance of these Conductors, it may be stated that the Prize Council Medal of the Great Exhibition was awarded for them.
Mr. T. W. GRAY will be happy to supply any information that may be desired, and to furnish estimates of the cost for fitting the Conductors.

SOUTH WALES RAILWAY.—NOTICE is hereby given that the next HALF-YEARLY GENERAL or ORDINARY MEETING of the Proprietors of the Company will be HELD, pursuant to the Act of Parliament, at the PADDINGTON STATION of the Great Western Railway, on FRIDAY, the 27th day of August, instant, at One o'clock precisely for the general purposes of business. Signed,
G. R. M. TALBOT, Chairman.
WILLIAM MATTHEWS, Deputy Chairman.
The Transfer Books will be closed on the 13th inst. and will not be re-opened until after the said Half-yearly General Meeting, on the 27th instant.—By order,
FRED. G. SAUNDERS, Secretary.
South Wales Railway Office, 10, Eastbourne-terrace, Paddington, London, August 4, 1853.

AN ARTICLED PUPIL.—A SURVEYOR and BUILDER at the West end is willing to receive a respectable YOUTH in his office where he will have an excellent opportunity of acquiring a thorough knowledge of land surveying and estimating, together with the more practical branches of building. A small premium required.—Address A. B. care of Messrs. HOLMES, 195, Oxford-street.

WANTED, in a Timber Yard, an experienced MAN, who can take the management of the same. Good reference required.—Apply by letter only, stating terms, &c. to A. B. No. 60, Westbourne-park Villas, Paddington.

TO PLUMBERS, PAINTERS, AND GLAZIERS

WANTED, a respectable Youth as an OUT-DOOR APPRENTICE to the above business. A moderate premium will be required, and a progressive salary given.—Address by letter prepaid to X. Y. Z. care of Mr. B. E. Noble, 5, Down-street Piccadilly.

TO JOINERS.

WANTED immediately, for a constancy, several good JOINERS, either as floors or bench men, steady and advanced rate of country wages. Apply to W. WILLICOMBE, Builder, Calverley, Tunbridge Wells.—N.B. None but sober, industrious, and good workmen need apply.

TO PLUMBERS, PAINTERS, AND GLAZIERS.

WANTED, a good steady, active, middle-aged, Three-branch HAND in the above trades, for a permanency, in the Country. Must be a good plumber. Good references as to character and ability indispensable.—Apply by letter prepaid, to A. K. Post-office, Ongar, Essex.

TO DRAUGHTSMEN

AN experienced and clever DRAUGHTSMAN is REQUIRED for a few months; he must have been accustomed to the general routine of a civil engineer's office, and thoroughly understand making finished and detail drawings, taking levels, &c. and must also have a good knowledge of carpentry, brickwork, masonry, and in work. Application to be made by letter only, stating qualifications, extent of experience, and salary expected, addressed to ENGINEER, Messrs Sotheran, Son, and Draper, booksellers, Little Tower-street.

MERTHYR TYDFIL UNION.—TO SURVEYORS, VALUERS, &c.—The Guardians of this Union are desirous of APPOINTING a VALUER, to value the parish of Aberdare, in the county of Glamorgan, for the purposes of the poor's rate. The parish contains upwards of 30 miles of railway, including two chief stations, and about four miles of canal, three ironworks containing 10 blast furnaces) about 2,500 houses about 2,000 cottages, and about 200 other dwelling houses. The total number of separate assessments is 3,039. The acreage is 16,858 acres, of which 700 arable, 5,000 meadow, 1,100 wood, and the rest mountain, &c. and the population (census 1851) 14,096. Further information may be had of Mr. HOWELL WILLIAMS, Assistant Overseer, Aberdare, or of the undersigned.—Apply by letter, pre-paid, stating terms and qualification on or before the 21st day of September, 1852, to FRANK JAMES, Clerk, Merthyr Tydfil.

TO CARPENTERS AND BUILDERS.

WANTED, to APPRENTICE a respectable Youth, aged fifteen years, to the business of a CARPENTER; in-door preferred.—Address S. S. 10, Vincent-street, Vincent-square, Westminster.

TO PLUMBERS AND BUILDERS.

WANTED, a SITUATION, by a respectable Young Man, as PLUMBER, PAPERHANGER, PAINTER, and accustomed to the various branches of the business. Salary a secondary consideration.—Address, A. Z. care of Mr. Summerlin, 1 A, Silver-street, Golden-square.

TO BUILDERS, PLUMBERS, PAINTERS, AND GLAZIERS.

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August 7, 1852. B. ROBT. HALL, Clerk.

BALL'S-POND.—TO BE LET, on Building Leases, with advances from Freeholder, if required, one of the PLOTS of GROUND, suitable for the erection of fifth-rate houses. —For plans and particulars, apply to Messrs CHAMBERS and PORDEN, Architects, Surveyors, and Land Agents, No. 7, Great Tower street, City

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AN ADVANTAGEOUS BUILDING LEASE, or LEASES of FRONTAGE of above 200 feet, in a rapidly improving neighbourhood, within three miles of the Bank, will be granted, upon approved application, with two houses already finished and some materials.—Apply, H. V. Mr. Houghton, stationer, No. , Poultry, City.

TOLLINGTON PARK. — Valuable FREEHOLD BUILDING GROUND TO BE LET, on LEASE, for ninety-nine years, suitable for the erection of about one hundred houses, of the second and third rate. Omnibus communication from City and West-end every five minutes. Money advanced if required.—For particulars apply to Mr. C. HAMBRIDGE, Jun. Architect and Surveyor, 4, Coleman-street, City.—WANTED to PURCHASE from TEN to TWENTY ACRES of FREEHOLD LAND.

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FREEHOLD BUILDING LAND, situate in Chesterton-road, Balaam-street, in the centre of the healthy village of Plaistow, close to the projected new Victoria Docks, for which an Act of Parliament is obtained, and within from one to five miles of seven stations, on the Eastern Counties, North Woolwich, East and West India Dock Company and Blackwall Railways, TO BE LET, on BUILDING LEASES, for ninety-nine years, direct from the freeholder. The soil is gravelly from within two feet from the surface, first-rate roads and sewers are made, and the East London Waterworks Company pipes are now being laid down on the whole estate. There are upwards of 2,500 feet frontage. The land-tax is redeemed. It is distant from White-chapel Church four miles there are twelve omnibuses daily to and from town, fare 6d.; railway fares, 4d. and 6d. It is not subject to the Metropolitan Building Act, and the Stratford Gas Company will supply the proposed houses with gas at 4s. per thousand. Good third and fourth-rate houses are much wanted in the neighbourhood, and would all let before they could be finished. Money can be advanced, but only to respectable builders.—For view, plans and designs, and for further particulars, apply to Messrs HABERSHON Architects, 29, Bloomsbury-square, London; or to Mr. RILES, the Fire-holder, Plaistow, Essex

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TO BE DISPOSED OF, the LEASE and GOODWILL of convenient PREMISES, situate within about four miles of the City, where an excellent business has been carried on for nearly fifty years, in the Building, Plumbing, Painting, and Decorating Trade. The premises are held for an unexpired term of nearly twenty years at an exceedingly low rental Stock and fixtures at a valuation (not exceeding £500).—For particulars and cards to view apply to MARSH, Auctioneer and Land Agent, 2, Charlotte-row, Mansion-house.

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This result affords strong corroboration of a fact stated upon Lord Cottenham's Bill, viz. that BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

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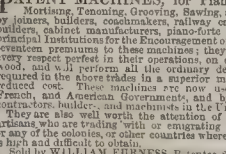
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Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.
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HUBBUCK'S paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.
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A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

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THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of
PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.
Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride is in most, if not in all respects, a far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.
But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than a paint.
In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

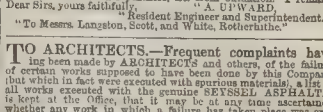
AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 8, Upper Thames-st.
LIVERPOOL	Mr. Richd. Cooke, 7, Rise-lane.
MANCHESTER	Messrs. Johnson and McGowan.
LEEDS	Mr. James Douglas.
SUNDERLAND	Messrs. T. and E. G. Jepson.
DEVONSHIRE AND CORNWALL	Mr. John Young. Mr. Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SOUTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun. and Co.

ATTESTED PRACTICAL SUBSTITUTE FOR WHITE LEAD.
WHITE or OXIDE of ZINC for PAINT, &c. under H. M. Royal Letters Patent.
LANGSTON, SCOTT, and WHITE,
Sole Manufacturers in the United Kingdom,
Grand Surrey Canal Dock, Rotherhithe, London.
CERTIFICATE.
"Gas Works, Curtain road, July 20, 1852.
"Dear Sirs,—In answer to your inquiries respecting White Zinc Paint, I have used a considerable quantity, and have some lime waste which were painted with it three years ago now in very good condition. This I consider one of the most severe tests to which paint can be put; however, the White Zinc Paint has stood it well, and saved the purifiers, &c. from oxidation.—I remain, Dear Sirs, yours faithfully, "A. UPWARD,
"Resident Engineer and Superintendent.
"To Messrs. Langston, Scott, and White, Rotherhithe."

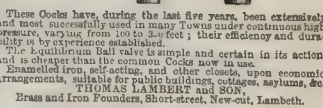
TO ARCHITECTS.—Frequent complaints having been made by ARCHITECTS and others, of the failure of certain works supposed to have been done by this Company and that which in fact were executed with spurious materials, a list of all works executed with the genuine SEYSSEL ASPHALTE, is kept at the Office, that it may be at any time ascertained whether any work in which a failure has taken place was executed by this Company.
J. FARRELL, Secretary.
SEYSSEL ASPHALTE WORKS, Stangate, London.
ESTABLISHED 1838.
N.B. The exclusive supply of Asphalte from the Mines of Pyrimont Seyssel being conceded to this Company, the Directors particularly recommend Architects, Builders, and others for the purpose of securing the use of the genuine article) to insert in their specifications "SEYSSEL ASPHALTE, CLARIDGE'S PATENT," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar, and other worthless and offensive compositions have been introduced.

1852.
IMPORTANT TO BUILDERS.



REGISTERED CAST-IRON CHIMNEY HOPPER and CHIMNEY BAR COMBINED, ensuring a perfect formation of the Flue, and rendering smoky chimneys impossible. One trial will cause their adoption in every building.
Price from 8s. 6d. each, according to size.
CAST-IRON KITCHEN SINKS, with overflow and cleansing pipe, at 8s. 6d. each.
RAIN-WATER PIPE and EAVE GUTTERS, at wholesale prices. Also, O. G. gutters, sash weights, STABLE FITTINGS, pumps, tomb railing, cattle and pig troughs, and COLUMNS with caps and bases, and every kind of builders' castings, in stock, at LYNCH WHITE'S Iron Wharf, Upper Ground-street, London, near Blackfriars-bridge.

TO WATER COMPANIES AND PLUMBERS.
HIGH-PRESSURE COCKS and CLOSETS.

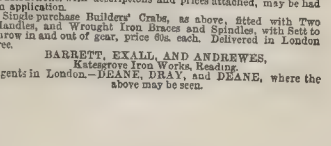


The Health of Towns Commissioners having recommended the adoption of the high pressure principle in all towns, WARNER'S HIGH-PRESSURE COCK is recommended as a Cock free from leakage, and applicable for all purposes and situations. Patent Closets and Basins with supply-valve for attaching direct to main pipes without a cistern, cocks, or wire.
LEAD, IRON, and TIN PIPE.
JOHN WARNER and SONS, Manufacturers, 8, Crescent, Jewin-street, London.

PRIZE MEDAL, CLASS 23.
HIGH-PRESSURE VALVE COCKS.—LAMBERT'S PATENT.



These Cocks have, during the last five years, been extensively and most successfully used in many Towns under continuous high pressure, varying from 100 to 300 feet; their efficiency and durability is by experience established.
The Equilibrium Ball valve is simple and certain in its action, and is cheaper than the common Cocks now in use.
Enamelled iron, self-acting, and other closets, upon economic arrangements, suitable for public buildings, cottages, asylums, &c.
THOMAS LAMBERT and SON,
Brass and Iron Founders, Short-street, New-cut, Lambeth.



IMPROVED SLUICE COCKS for Water Gas, or Steam, brass-faced, and Sluices raised by square thread, case-hardened screw, working in Brass Nut, in every respect as good as can be manufactured, are offered at the following prices per inch:—

2 inch,	3 and 4-inch,	5 to 9-inch,	10 to 15-inch,
10s.	14s.	13s.	12s.

Lithographs of the improved self-lubricating, and various other constructions, with descriptions and prices attached, may be had on application.
Single purchase Builders' Cranks, as above, fitted with Two Handles, and Wrought Iron Braces and Spindles, with Sett to throw in and out of gear, price 8ls. each. Delivered in London free.
BARRETT, EXALL, AND ANDREWES,
Katesgrove Iron Works, Reading.
Agents in London.—DEANE, DRAY, and DEANE, where the above may be seen.

CHESTERTON CHURCH.—The attention of Architects, Clergymen, and all persons engaged in the erection of Churches, Chapels, &c. is respectfully called to the following extract from the description of this model church:—

"The floor within the communion rail is laid with Parquetry of Oak and Walnut of a star pattern, laid crossways; it was supplied by the London Parquetry, and was adopted to obviate the apparent as well as real effect of coldness, when laid with flags or tiles; and the effect produced is rich and satisfactory."—*Staffordshire Advertiser.*

Designs for PARQUET FLOORS and BORDERS, suitable for Hall, Billiard, Club, Dining, and Drawing Rooms, Libraries, Halls, Galleries, &c. may be had on forwarding dimensions and particulars to

THE LONDON PARQUETRY, 8, WHITEFRIARS-STREET.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c. Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD, Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 300 Patterns of MOULDINGS, on receipt of two postage stamps. T. A. continues to offer all the advantages as stated in his previous advertisements.

SEASONED FLOORING PLANED to a parallel width and thickness by improved patent machinery, at very reduced prices, as under:—

Per square.	Per square.
¾ inch yellow .....13s. 0d.	1 inch white.....13s 6d.
2 " " 14 0	1¼ " " 15 0
1 " " 16 0	1¼ " " 15 6

9½ per cent. discount allowed off amounts exceeding twenty pounds. Also timber, planks, deals, battens, scantling, sash-sills, &c. at equally low prices. Delivered free to any railway station in London. Terms, cash.

ARCHBUTT and ATKINSON, St. Pancras Saw-mills, Cambridge-street, Old St. Pancras-road, close to the Goods Terminus of the Great Northern Railway.

TO BUILDERS AND OTHERS.

SEASONED WOODS by the Patent Desiccating Process, at E. I. FULLER'S Depôt, 27, Wharf-road, City-road. Spanish and Honduras Mahogany, Wainscot, Hornbeam, Limetree, Birch, Beech, and Veneers. Flooring and Match Boards, &c.



MUIR'S PATENT — PLANING MACHINE.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle; Boards, &c., prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantage of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham street, Pimlico.

N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF, SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, near Waterloo bridge,

are prepared to supply timber and deals, &c. cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c. from the company, will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, from drawings, &c. with an accuracy and despatch which must insure satisfaction.

The moulding list containing nearly 300 diagrams, with prices attached, may be had at the mills, or shall be forwarded on receipt of six postage stamps (the amount of the postage thereon)

CAPITAL MAHOGANY SASH, with PLATE GLASS, TO BE DISPOSED OF. May be seen before taken out, at 415, Oxford-street.—For particulars, apply to Messrs. ROPER and SON, Builders, &c. 121, Wardour-street, Oxford-street.

CHARLES WM. WATERLOW,



Manufacturer of Sashes and Frames, and Joiner to the Trade,

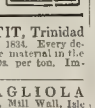
121, Bunhill row, Finsbury-square.

Well-seasoned materials, superior workmanship, lowest prices.

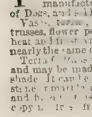
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes and Frames, always on sale.

Glazed goods securely packed for the country. Steam-struck mouldings in any quantity

N.B. This establishment is worth the notice of all engaged in building.



NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade,

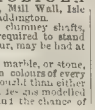


beg to inform their Customers and the Public generally, that they have removed to more extensive premises in

BAKER-STREET,

BAGNIGGE WELLS-ROAD,

where they have convenience for carrying on a larger business.



N.B. By inclosing a postage-stamp a full list of prices may be had by return of post.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Roofing executed with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

TERRA COTTA and SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs, and 34, Paddington-street, Paddington.

Vases, busts, friezes, capitals, coats of arms, chimney shafts, trusses, flower pots, and all ornamental work required to stand bear and the outside can be set of cleaning colour, may be had at nearly the same cost as casting in cement.

Terra Cotta is more readily than iron, granite, marble, or stone, and may be made of black, red, and light cream colours of every shade. It can be moulded out and delicately wrought with either stone tools, and when fired can have the brown lines modelled and finished in material with a little chiselling and the chance of copying it from the hands of the artist.

SIENNA MARBLE COLUMNS.—For SALE, FOUR handsome SIENNA MARBLE COLUMNS, 11 feet high, of the Doric order, complete, well adapted, from their rarity and beauty, for any mansion or public building.—Apply for particulars to H. H. care of Mr. Johnson, Percy-cross, Fulham.

MARBLE.—To SCULPTORS, MASONS, BUILDERS, &c.—J. B. WHITE and SONS beg to announce that they will hold their usual annual public SALE of MARBLE during the month of September. 17, Millbank-street, Westminster.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has establish[ed], in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank, Mr. THOS. THOMPSON, Agent.

MARBLE.—To MASONS, BUILDERS, and OTHERS.—Now on SALE, at the Stone, Marble, and Wood Sawing and Planing Mills, Commercial-road, Pimlico, the largest stock in England of veined and other MARBLES, in slab or block, to select from, at the lowest current prices. Marble sawn carefully packed, and delivered to railway station or vessel.

Vein and Sicilian sawn at 5d. per foot for cash.

Portland, Part Spring, Robin Hood, Hare-hill, Wingerworth, York, and other Stone in general use, from the best quarries, either in blocks, landings, slabs, or sinks. Granite, Portland, Hare-hill, and other Curb.

Now landing, in *Chronometer*, 172 tons of Statuary, Vein, and Sicilian Marbles. JOHN HOLMES, Agent.

N.B. A lot of Marble Chimney Pieces on hand to be sold cheap.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.

A liberal discount to the Trade.

MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.

Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

TO SCULPTORS, MARBLE MASONS, AND BUILDERS.

ITALIAN and GALWAY MARBLE QUARRIES

Depôt, Whitehall Wharf, Parliament-street, Westminster

Mr. FRANKLIN begs to inform the above that he is daily expecting the arrival of a cargo of very superior BLACK MARBLE, in blocks of very large dimensions, and 10,000 feet in slabs, of various thicknesses, the produce of his own quarries, which, on account of their superiority, have supplied the London market for the British Museum.

Just arrived, ex *Wandsworth* and *Favourite*, Leghorn.

Superior Statuary, Vein, Sicilian, Dove, Black and Gold, new coloured Marbles, and St. Ann's, at reduced rates.

The following vessels are expected from Leghorn:—

Sceptre, *Fewer*, *Merchant*. } 150 tons, 80 blocks of Statuary, Dove, Vein, Sicilian.

CHIMNEY-PIECES.—E. HUNT has a large stock of ENAMELLED, SLATE, and MARBLE CHIMNEY-PIECES FOR SALE, at moderate prices. Can be seen at his Show Rooms, Nos. 36 and 37, Baker-street, Paddington, where the above are manufactured. N.B. State cisterns, filters, and flower boxes made to order. Conservatories, larders, dairies, wine cellars, &c. fitted with shelves, &c. plain or enamelled

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELSH SLATES, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Herefordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABYS Belvedere-road, where terms may be obtained.

THE PIMLICO SLATE WORKS, Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted), continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Sabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN and STONE-MERCHANTS, BATH.

(DEPOTS.)

Great Western Railway Station....	PADDINGTON.
Great Western Railway Station....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all orders and inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

YORKSHIRE FAIRHEAD BRAMLEY FALL QUARRIES.—This Stone, of superior quality, can now be supplied at a very low price, in consequence of the reduced charges of carriage. Cargoes shipped direct from the quarries to London and all parts of the coast.—For application of prices, apply to Mr. BEWICK, Grosmont, near Whitby, Yorkshire; or to Mr. G. H. CLARK (London Agent), Devon Blaster Wharf, Rotherhithe, London.

CAEN and AUBIGNY STONE.—F. POUCARD, Stone Merchant and Quarry Proprietor, Quai des Abattoirs, Caen, and at 39, Stoney-street, Borough-market. Contracts taken for any quantities. Cargoes shipped to order from Caen or any port.

CAEN and AUBIGNY STONE.—Gates and George, late of the firm of LUARD, BEEDHAM, and Co. Quarrymen and General Stone Merchants, Caen Wharf, Rotherhithe, London, and Caen, Normandy Depôt.—Hope-street, Mount Pleasant, Liverpool; Castle Fields, Manchester.—Information and samples forwarded on application to Caen Wharf, Rotherhithe.—Samples may be seen at the Office of "The Builder."

TO CONTRACTORS, BUILDERS, AND OTHERS.

TO BE DISPOSED OF CHEAP, about 1,000 tons of New Bramley Fall and other STONE, in random sizes; also a few thousand feet of coping, 1 ft. 6 in. by 6 in. The above (or any portion of it) can be shipped in cargoes and delivered in the river, or any port coastwise with immediate despatch.—For price and further particulars apply, by letter or otherwise, to Mr. MORTIMER, 28, Saint Thomas's-street, Borough, London.

E. and W. STURGE respectfully announce to Builders, Masons, and others, that they have made a FURTHER REDUCTION in some of their prices of STONE, &c. a list of which they will be happy to forward to the trade on applica ion. Sinks, 1s. 8d. per foot; Paving, 3½s. 3½s. and 4½s.; Slab, &c. 2. and W. S. are confident the quality of their goods will give satisfaction, and their prices will be found very much lower than the usual charges.—Bridge Wharf, City-road-basin.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

TO BE SOLD, cheap, TWO prettily-designed PORTLAND STONE MONUMENTS, massively worked, eligible for the cemetery or churchyard. Also some chaste sculptured statuary, black and gold chimney-pieces for sitting-rooms or bed-rooms, at very reduced prices, to be seen at No. 2, Quickset-row, New-road.

FOUNTAINS.—Architects are respectfully referred to Mr. SEELEY'S List of Fountains, as published in THE BUILDER of July 26, 1851. He is prepared to execute any of those designs in "Austin's Artificial Stone," Portland Stone, or Marble, as may be preferred. Nos. 1 to 4, Keppel-row, New-road.

ORNAMENTAL CHIMNEY SHAFTS.—About a hundred different patterns and sizes of chimney tops for Gothic, Elizabethan, or Italian buildings are kept in stock. J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel-row, New-road.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 43, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement, and last quality. Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it is improved with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall. March, 1852.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength, has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial Bushels, QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the supply. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PATENT PORTLAND and ROMAN CEMENTS. WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for either of the above Cements. Many highly respectable references can be given where their cements have been successfully used. Orders received and executed either from their works at Greenwich, or their wharfs Lindsey Wharf, Chelsea, or at Wharf, Harrow road, Paddington.—Agent at Southampton, Mr. GEORGE SHARP, Union Wharf.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Terras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

The Builder.

No. CCCCXCVIII.

SATURDAY, AUGUST 21, 1852.

READERS would scarcely look to a book on "The Practice of Measuring and Valuing Artificers' Work," for an exposition of views on design, and an endeavour to reform generally the architecture of our time. They will find these, however, in the second edition just now published by Weale of Mr. Dobson's volume on the former subject, first issued in 1843, which is edited by Mr. E. L. Garbett, and now takes the title of "The Student's Guide to the Practice of Designing, Measuring, and Valuing Artificers' Works." When asked, in the absence of Mr. Dobson, to add such memoranda to the work as seemed most necessary, the present editor thought the most useful addition he could make would be "a brief account of the present practice of designing the works of each trade, with a view to its improvement." This he has done with acuteness and ability. He has availed himself largely, with due acknowledgment, of the labours of the late Mr. Alfred Bartholomew, whose work on "Practical Architecture" will long keep his name in respectful memory. At starting, Mr. Garbett enforces the useful distinction between "decoration" (gracing, *decor*—grace, beauty) and "ornament." All human work should have decoration, but all need not have ornament.

"By ornament (he says) is properly meant something extraneous to the work, added for the sake of beauty; some *thing* added, observe, while decoration is only some *work* added. Thus decoration includes all ornament, but there is plenty of true decoration which is not ornament. That only is ornament which involves either the adding of unnecessary matter (as an ancient statue or finial, a modern tower or portico), or the leaving matter that would, with less labour and equal structural efficiency, have been removed (as a crocket, a bas-relief figure). To confound, therefore (as an excellent critic has done), the terms beauty, decoration, and ornament, is as new and perplexing as if we should confound blackness, blackening, and blacking."

The structural and the decorative excellence must both come through one mind; ornament may be put on afterwards, but the gracing of the structure,—the production of beauty out of usefulness, without waste of means or the use of manual labour to save thought, must be the work of the designer.

"You may have men called engineers, and men called decorators, but neither *real* engineering nor *real* decoration (of building) can you ever have, except the same man profess *both*. For observe, a pile of useful undecorated things, covered with beautiful useless things, is neither right building nor right beautifying. It is right in no sense, for it is not human,—it is no more than a beaver and a monkey could make between them out of old clothes. To be a work of art—to be worthy of humanity—not only must the whole, but also every member, every detail (except ornaments), be a piece of decorated utility. So that every the smallest part (except ornaments) must be designed by some one who is engineer and decorator at once."

Looking, then, for this decoration in all structures, that our works may be distinguished from those of the brutes, and finding none of it in modern engineering works, wherein as he maintains the most extravagant expenditure of money,—the employment of mere hand labour to any amount,—is made to hide want of previous thought and design, he is constant, and violent, and unexceptional in his abuse of these.

"Engineering and antiquarian mimicry," he writes, "are both varieties of the same art, the art of concealing the absence of art. Or rather, the latter is the art of concealing it, and the former that of palming it off by impudence and noise. Both are open abdications of the same human prerogative, both brutish; only that one takes the monkey or parrot, the other the swine for its model. Now it is not, in this latter, the material, or the absence of ornament that disgusts; but simply the absence of design,—the reversal of that quality most admirable in the works of nature, viz. foresight and provision for all contingencies from the first. Architecture, in its progressive times, aimed at the utmost approach to this,—at an excellence the same in kind with that of nature's works, though of course always imperfect in degree; and so did the earliest works called engineering, (Smeaton's, for instance), which are architecture,—far more truly so than Chambers's or any then or now called so. But *now* engineering works appear to renounce this aim, to be planned just as they proceed, or as difficulties occur to the mind; the *design* usually impracticable or useless, and every failure cobbled up just as it occurs (either actually, or to the designer's mind, or to *other people's*); whereas, in a work of art, all the members have so mutually influenced each other's design, that often we cannot discover by inspection any one thing to have been certainly planned before or after another; and if we can, we call this an "*afterthought*" and a blemish. But the principle of engineering is to be *all* afterthoughts, from the second thing made or planned to the last. And this, its exact contrariety to *design* or *art*, as well as its expression of unparalleled, unbounded, self-sparing,—unchecked power and will to waste *any* amount of others' labour for the *least* of the designer's own, is what must render our great iron structures ever painful and humbling to behold, like the pyramids of enslaved Ham,—ghastly blots permitted on our planet's face, as monumental warnings to what self-interest in its unalloyed simplicity may bring us."

To a great extent he is right; errors and ignorances have been plastered over with gold: were the works of some of the civil engineers holding high reputation minutely and honestly inquired into, their authors would stand exposed as dunces and jobbers: some of the "triumphs of engineering" are due to little other than the command of unlimited expenditure, uncontrolled power, and the means of trying again, in the event of failure.

Nevertheless, unconditional abuse of a whole class is, in this case, as it must always be, unjust.

The writer says truly, that the ugliness of English brickwork springs from irrationalities in construction, and would disappear, if we would make the various arrangements simply with a view to their material ends.

"These would require the roof to overhang as a cornice, and thus to present a surface of incombustible material alone, which is very easy, though never attempted; the London roofs being, to avoid it, kept within the building in an absurd manner. The next absurdity is the fenestration, brought to its present state by the window-tax, which has taught us to do with about half or one-third the windows thought necessary in the same latitudes elsewhere. Now the removal of this tax, and of the restrictions on the manufacture of bricks, leaves no pretext for any one of the peculiarities that have made our fenestration so unique in ugliness; viz. *fewness* of openings, excessive *width*, irregular positions *not over each other*, extreme *shallowness*, and the sinking or cracking *square top*. Even supposing habit to shut our dwellings against more light, or more quantity of window area, it ought to be divided among twice as many apertures. Of course, under a tax regulated by their number, not their quantity, it was expedient (though constructively absurd) to make them few and wide; but otherwise, every object, whether the equable diffusion of light in the room, or of strength in the wall, requires them just the reverse, numerous and narrow. Hence even the *temple* windows of all real architecture (which, like everything about a temple, were properly enlarged beyond the same features in a dwelling), are yet, if not actually narrower, far narrower in proportion to their height than ours. This applies to all old windows, Greek, Roman, Byzantine, or Gothic, not indeed equally, but increasingly, as art improved."

The increased number of windows and their more graceful proportions would improve the exterior, he continues,—

"But this is not all; the number of openings being no longer restricted, there is no reason for getting the utmost light from each, and therefore no reason for a square top fitting the ceiling;—all imitations of antiquated or infant art (as of straight coverings, after the invention of the arch, for instance,) being barbarous and apish. The forms proper for window-arches are the semicircular, the segmental (of not less than a quadrant), the pointed in any proportion lower than equilateral, the segmental pointed (or castle arch), the three-centred and four-centred pointed (each in any proportion lower than equilateral), and the round or pointed trefoil arch; all except the two last being producible with one, or at most two, wedge-shaped bricks, without cutting, except to accommodate their tops to the courses of the wall. Thus we have plenty of scope for more variety than those spurning utilitarian fetters seem ever to have developed."

His assertion that the use of girders to support a cross partition, over an undivided room below is "wholly indefensible and inexcusable under any circumstances whatever, or in any materials," seems to us untenable. The writer says,—

"Indeed, the subjecting lengthy bars or beams, or any masses longer than twice or thrice their depth, to a cross-strain or any force tending to bend them, is (except in the unavoidable cases of flooring-boards and their immediate bearers) at once too unnatural to occur to barbarous builders, and too inartificial to be palmed off on any civilised community not blinded by excessive sophistication; and we owe the appearance of such things (unseen till the last few years) solely to a school of self-styled "engineers," that seem to expect the world to believe rude and artless shifts become prodigies of science by a mere change of their material; that *skill* is shown in getting made in iron, things too rude and skilless to stand in weaker, or be tolerated in more familiar materials; and that because its strength and stiffness enable it to retain almost any form, the produce of Colebrook Dale furnaces is not only a substitute for brains, and to do *their* work, but *they* do get the credit of it."

What should we say, he writes, of a beam of *stone*, in any rude antiquity, ten or twenty times its depth, supported only at the ends, and loaded somewhere between them with a wall or column? and yet engineers would persuade us that in iron such an arrangement is allowable. And why not? We can be quite certain that the iron will perform its duty efficiently, just as efficiently as the "tied arch," which the author proposes to substitute: and why should we not avail ourselves of the convenience it offers? It is no argument against the employment of girders, to say that the tendency of the material in that position is to break. The tendency of joists is to break; the tendency of the brick walls which carry them, is to crush; but we know they will not, because we shall not put sufficient weight upon them to bring this about.

The whole "copyism question" he finds resolved by the one formula of Mr. Ruskin,—

"That all ornament is base which takes for its subject human work, that it is utterly base,—painful to every rightly-toned mind, without perhaps immediate sense of the reason; but for a reason palpable enough when we *do* think of it. For to carve our own work, and set it up for admiration, is a miserable self-complacency, a contentment in our own wretched doings."

He thinks it makes clear,—

"How a form that is beautiful on an old building might, when exactly copied, be base and odious,—how what is lovely on Westminster Abbey might be grossly vulgar on Westminster Palace, or what is grand on the Parthenon be ridiculous on a Philadelphian bank. If a person did not see that the same form which on the old work evinced a man's mind, on the new evinced a monkey's, we had nothing more to say, no common standing-

ground. Now Ruskin's formula makes this a degree plainer, and I should think plain enough. The thing which we copy (say a pinnacle) is, in the old work, a *member*, an organ, a piece of ornamented utility; its general form or design, for material usefulness, is of course a human invention,—or it may be the millionth version, imitation, or, if you will, "copy," of a human invention,—but *it is not set up as ornament*. What it may have of ornament, is abstracted imitation of nature. But the same form copied, as we copy it, is no longer an ornamented member, but simply *an ornament*; therefore an imitation of human work as ornament,—and therefore base, if you accept the above rule."

Against the "restoration" at Westminster, Ely, Chester, he speaks violently, and says,—

"Nothing would induce me to make, on any cathedral, any addition or restoration, great or small, from a door to a nave (for which there was not *complete* authority), *in any style but my own*,—that which, on due study, I should deem to arise out of the materials, knowledge, and social condition of the present day, at that place, and keeping in view the harmony (not mimic identity) to be kept with the skeleton form and degree of decoration (not style) of the old work. And I believe any mason of moderate intelligence, pursuing this plan honestly, would do more satisfactory things for this purpose than the first architects of the day following the present system."

Of the writer's views on ventilation, we may take another opportunity to speak. Suffice it at present to say, that the book is full of thought, and eminently suggestive; it is extreme in some of its views, and open to objections, but nevertheless calculated to advance the progress to rational architecture, right structure, and right decoration.

THE NEW NATIONAL GALLERY.

CAN it be true that so preposterous an idea should have been started as to convert Kensington Palace to the purposes of the new National Gallery? Can it be supposed that we should set at nought past experience, and play over again the extravagant and wasteful farce enacted in Trafalgar-square? There the old royal stables were patched up, and the costly parsimony practised of bringing in the portico of Carlton House to produce a building, the most insignificant, unsightly, diminutive, and unfit for the purpose, that could be well conceived; and that on the plea of economy! Away with such puerile ideas! What has hitherto been the result? The present National Gallery cost some 90,000*l.* and every one exclaims against it, as in every respect unworthy. It is a total failure. No such parsimonious feeling directed the works at Windsor. There a million, and perhaps more, have been spent. But there is something for the money. There is a certain air of dignity, a certain grandeur of intention; in fine, *some* success. Who asks the costs? Who, now, that looks at Whitehall Chapel, or Greenwich Hospital, or King's College Chapel, Cambridge, or any one of our Gothic cathedrals, for a moment considers the enormous sums bestowed on these noble erections? The reason is obvious. Do anything well, and then no one will accuse you of extravagantly laying out your money, whatever the sum. Paris is a noble city, but millions upon millions have been expended to render it so. The Madeleine, the *Arc de l'Etoile*, the Luxembourg, the Louvre, the *Hôtel de Ville*, the *Palais du Ministère*, *Quai d'Orsay*, Versailles, Fontainebleau, have absorbed countless sums. Did past—does the present generation feel it?

H. R. H. Prince Albert has taught us a great lesson: let us profit by the wisdom which guided his proceedings in the Great Exhibition of 1851. It was a gigantic and well-digested plan: it embraced every contingency: all nations were to take part: no branch of natural or manufactured productions was to be omitted: the vast space of twenty-two acres were to be covered in, and a pile raised to cost 150,000*l.* and this for a mere temporary purpose.

Let me endeavour, however feebly, to impart a like completeness to our new National Gallery, conceived on no puny scale, and including many classes, connected with art, which with us find no home at present.

In the first place, the leading ostensible object is a National Gallery for the exhibition of pictures. Let this *be* the leading purpose if you will; but it should be *one* of *several* important features. There must be galleries for historical and religious pictures, and for landscapes on a large scale, with light from above properly admitted and distributed, and in spaces capacious enough to allow them to be seen and appreciated, at a distance as well as near. There must be smaller galleries and rooms for cabinet pictures and productions of less size down to minatures, where the visitor may study them undisturbed by other disproportionate subjects; the attention not be distracted by incongruities of juxta-position, and the light entering from the side rather than from above. There are some paintings seen best alone on a screen, other objects of art in glass cases. The cartoons of the masters, their sketches and models, demand every variety of accommodation, and one production will occupy well the space or walling unfitted for another.

So much for the collection of pictures, which, I presume, is to give room for the exhibition also of medals, drawings, prints, and such like works.

But we are a practical people. The amateur will admire and gratify his refined mind by the contemplation of these masterpieces: they infuse a taste also into the multitude. But shall this be confined to pictures alone? Shall it not pervade our manufactures, and let us at length breathe an atmosphere of art in our dwellings and throughout our every-day wants, where our furniture and utensils, the fabrics we constantly employ and wear, shall not satisfy us, unless, as Redgrave and Owen Jones justly remark, they please us in form and colour and in the making up.* I claim, then, a suite of rooms for a collection of a series of the best examples of art applied to manufactures; and where so appropriate as in this building, this palace of art? Our earthenware, our china and porcelains, our plate and plated articles, our carpets and hangings, in fact, every species of handicraft connected with fine art, compared with samples of the highest class from other countries and of other times. How suggestive, how instructive, how appropriate would such a collection *here* be. I start no new idea, except as to the *locus in quo*. It has already been partially acted upon by the Prince and the Royal Commissioners of the Great Exhibition.

Again, where could there be a spot so appropriate for a museum of our national antiquities? And this, to be complete, would occupy a considerable range of halls and rooms, and many might very properly be distributed in the courts. Nor would I neglect the hint afforded by Louis Philippe's deeply interesting collection of historical memorials at Versailles. I would hunt the country through, rich in such precious relics, and not a mansion, a church, or public building should be unsearched for authentic portraits, statues, and busts of our sovereigns and distinguished personages, which should be reproduced and placed here in regular chronological order, so as to afford a complete summary and illustration of British history. And the very school-children should be brought hither, to gain their most impressive lesson of their country's doings and their country's ennobling characters in past times.

But there is still a national want unsatisfied,—an object, the absence of which is each day more felt, and each day the remedy more called for. If a great man dies, and the voice of the people demand a monument to perpetuate his virtues,—to bring them more palpably and constantly before the attention, and to stimulate the emulation of future generations,—the question arises, "*Where is it to be placed?*" Westminster Abbey is full. St. Paul's, and, in fact, every place of worship, is unfit to receive memorials of all men of all beliefs, and whose great claim on a nation's gratitude may be irrespective of the religious creed of the individual. A provincial town may be too local for his wide-spread glory; and our atmosphere is inimical to the exposure of works of art to our rugged, variable seasons. We want a Walhalla, such as Bavaria has for her great and good men. We want our Pantheon of Antiquity, not to deify and worship our noble spirits who have lived among us, but to pay this tribute to their worth, to recall their features to our children's children, and bid them deserve a like reward for services rendered to their country, perchance to all humanity.

Let this, then, be the central object of our national museum,—a hall of glory to receive groups, statues, busts, and pictures of our great ones. Here no religious scruple need deny a spot to the statue of Byron, or a tablet to the historian Hume.

The last and not the least important question in the eyes of most people, upon which I shall briefly touch, is the cost. Now, without for a moment justifying a lavish expenditure, but merely to produce what is fit and becoming, it may be assumed that no work of art, executed with the highest skill, and with the best materials, and conceived by first-rate intellect, will cost a *little* money; and there is none which makes a better return for the outlay.

Such a project, grandly planned, and adequately carried out, must be nobly paid for. The House of Commons will, first and last, and very properly, spend perhaps a couple of millions upon the building for the legislative business of the nation. Will this National Gallery be a less useful, or a less important object, when we consider it as instructing the people, improving the art manufactures of our kingdom, and thereby increasing our commerce; paying a debt of gratitude to departed worth, teaching the nation its past history, and preserving the memory of its peaceful glories? A three-decker will cost from a hundred to a hundred and fifty thousand pounds, to last only a few years. Shall we then meanly seek to impoverish by our niggardness a noble monument of art, which must be progressively built, which will occupy our best artizans and artists, develop the capacities and resources of our men of genius, display the fine materials of our country, bring into operation our rarest inventions, and enshrine the mementos of England's noblest hearts and most gifted minds? And shall we forget that our New National Gallery is to be the receptacle of the generous contributions of individuals, who have already announced their intention to present, if a fitting building be erected, their collections of works of art, the lowest estimate of which may, without exaggeration, be taken separately at tens of thousands of pounds? Are these to be housed in a patched-up barn?

T. L. DONALDSON.

University College.

* Did not the French department of the Great Exhibition most fully and satisfactorily prove this by the delight imparted to every visitor in the varied application of tasteful design to every object, however humble.

A recent number of THE BUILDER records the rumour, "that a *certain comic artist* is actually making designs *at the request of the authorities*, for the proposed National Gallery." If this be true, *Punch* must be at the bottom of it, and we shall have a "Comical National Gallery." *Risum teneatis amici.*

EXCURSION TRAINS.—We regret to notice that the excursion-train system, which we may be said to have originated, and which is still yielding a profitable harvest to the railway companies, is in many cases conducted in so disorderly and shameful a manner, that it is but too likely to come altogether to a speedy terminus. Ideas of scrambling want of accommodation, neglect of time, destruction of clothing in open horse-boxes near the engines, and other disagreeables, are fast obliterating all pleasanter associations as to *railway* excursions in the minds of the working classes; and the companies, in their desire to turn the system into all profit and no outlay, are likely to disgust all and sundry with it, and very soon to bring the profits themselves arising from it to a contemptible *minimum*.

A QUESTION AS TO RESTORATION AND PROGRESS.

IN common with most London folks, I have managed to steal a day or two from business in beautiful weather, and in the course of my travelling I visited one of our famous old abbeys. So many thoughts crowded upon me during and after my visit, that I venture, at the risk of being thought presumptuous, to send them to you for insertion in your excellent paper, if you think them worthy of it. In the first place, I was struck with the appearance of desolation and ruin, where anciently it was apparent grandeur of design and magnificence of decoration had been combined to produce an overwhelming effect upon the worshipper; and I then thought why should we not restore this building as it was —build up the wounds caused by the destroyer, trace out carefully the labours of the decorator, and in the spirit of the ancient workers replace its lost beauties. The building was well worthy of it; but then arose one difficulty, about which my thoughts were busy: —the central tower, both transepts, and some bays of the nave were Romanesque in design: the extension of the nave was Early English; the choir again was Decorated: a screen at the east end was in the Perpendicular style; the organ loft in the north transept was in a debased style of the Renaissance; while immediately behind it arose the large window lighting the transept, which had a four-centred arch, and therefore, I suppose, belongs to the Tudor period.

Now, one thing that perplexed me was, how was all this mixed material to be harmonized? If you had begun to dispense with any one style you must dispense with all, for it is quite evident that the building is a r flex of the fashions that prevailed in architecture through the different ages of its erection. Now, what I want some of your learned friends to solve for me is how to deal with the restoration of such a fabric. As to favouring one style at the expense of another, that is absurd; because a succeeding generation might think differently from us, and undo our work, and all what we had done in our wisdom by quite a different name fifty years hence. This is the first point I want answered. Now for another.

Over the small door that leads from the side aisle of the chancel into the south transept, I observed that the thick coating of whitewash on the Romanesque arch had been in one place rubbed off, and what to my prying eyes seemed to be revealed was a Byzantine or Roman scroll in colour. Now, I have no doubt that this part of the building, when first erected, must have been one glow of colour from floor to roof: the small glimpse I got would lead me to expect great things from a careful scraping of the walls. The point here, then, is,—how will you harmonize all the styles I have named in point of colour? If I recollect my lesson right, the treatment of Romanesque colour is breadth and boldness, while the Tudor is little better than heraldic dabs of paint and gilding. Answer me this, ye wise men. And then, again, the utilitarians will say, what is the use of restoring a building for merely rustics and visitors to gape at, and which only stretches out its huge length like an ichthyosaurus in the heart of a dull fossilized country town, from which the stream of busy life has been diverted? Now here I will turn Solomon, and tell you what I think about it. I should like to see the building restored thoroughly throughout, not as a place for rustics to gape at, and vergers to profit by, but to make it what it was originally intended for,—a centre of intelligence and a means of usefulness to the surrounding neighbourhood. Such were the intentions of the founders and benefactors, though they were perverted by the ambitions, the selfishness, and the ignorance of those by whom the trusts were to be administered and the benefits conferred. Those who abused their trust were put to the rout long ago; but, unhappily, the institutions themselves got such a bad name through the wickedness of their administrators, that they have never recovered the blow, and only remain like fossils in an age of remarkable progress. Now, how shall we galvanize them? I will tell you, Mr. Editor. The choir and transepts I would retain for divine worship exclusively. The Lady and other chapels are at present in ruins. These I would devote to my purposes; also the chapter-house, library, dormitory, refectory, cloisters, &c. &c.; and all these I would restore exactly as they were built; and all these together I would make a great public educational establishment, open to all who chose to avail themselves of it.

England is confessedly too utilitarian. Unless a pursuit leads to pounds, shillings, and pence, it is naught; and so only those are followed that lead to this desirable end. These are mostly mere dull systems of routine, not generating thought, and so the age becomes an age of mediocrity. Now, Sir, restore each of these old abbeys, and establish in each of them a dozen professors, with stipends of 300*l.* per annum or so:—your men of genius, so they pursue their studies, care little for more than will honourably sustain them. Exact from them a moderate amount of teaching for their stipend, and you will soon find the institution crowded with students of all ages, desirous to add to the little they know,—the young farmer to his chemistry, the young squire to his policy, the gardener to his botany, the grazier to his zoology, the miner to his geology, the poet to his rhapsody, &c. &c. It is generally supposed that education is merely shaping the mind of the child; but that which we, as a nation, mostly want is, the scientific attuning of the erratic genius,—the hammering the native ore into the tuneful metal that rings responsive to the prompting of noble thoughts, and else would return but a dullard sound. Such institutions as these scattered over the country would do an incalculable amount of good, by drawing up the hidden genius that now expends itself on trifles or worse things, would elevate the tone of surrounding society, and diffuse its influence even to the hearth of the humblest villager, whose gifted son would carry his spark of genius to this fount of knowledge, and cease not till the broad refulgence of his lamp had lighted up the land.

Aha! my enemy of the breeches pocket will say, where are your funds to come from? I answer that no doubt Mr. Whiston and gentlemen of his way of thinking could show where they might be found sufficient to restore the buildings, appoint the professors, and render what are now fossil reproaches living engines of progress.

A WANDERING AMATEUR.

THE VICTORIA PIER, PORTSMOUTH.

A LOCAL paper, with reference to the desire of the directors of this "snug little property" to extend their structure beyond its present boundaries into the harbour's mouth, and excavate the bottom to enable steam-vessels to come alongside at the lowest time of tide, suggests in lieu "a *floating stage* to run out from the present pier or platform to the distance of fifty feet or more, with a guy chain each way, as, when occasion required, it would only be necessary to let go one chain, north or south, to remove the obstruction to the free navigation of the harbour. This simple contrivance would meet all the requirements of the case, and cost the company at the utmost not more than 500*l.* to do well." It is time something was done: we crossed from the Isle of Wight the other day and were tossed about in a small boat, and wetted through, before we could land, the steam-boat not being able to approach the pier.

We, in our turn, will give the directors a piece of advice, and that is, not to charge a traveller carrying a carpet-bag, 3d. for the miserably insufficient accommodation they are able to afford. Persons who are interested in the Isle of Wight should strive to lessen the obstacles to a ready communication.

At Ryde they should contrive some means of carrying passengers from one end of their long pier to the other. In this town there seems to be much activity and life just now; indeed, throughout the island the visitors are numerous. The cottages and other buildings which have been recently erected or are going on, do not seem calculated to increase the beauty of this, which is certainly one of the most beautiful pieces of England. A central "committee of adornment," with branch boards, could do much good here, if it were but by preventing much ill.

CURSORY COMMENTS AND SUGGESTIONS.

IT has often struck me, Mr. Editor, that under an occasional title such as this, many useful and amusing scraps or crumbs of comment and reflection or suggestion, on points, topics, or illustrations which have previously appeared in your columns, might be gathered up and recorded under separate side headings, —scraps, I mean, not altogether meriting the dignity of separate articles, however short, but of too much importance sometimes to be quite thrown away, without some little loss of interest or utility. Many a time, I am sure, in reading an article, on whatever topic, in your pages, the reader must pick up ideas or suggestions of this description, of which he would willingly "make a note," however rough or hasty, for you to put into shape and to thrust in amongst others under this standing title, whereas, having no such fitting place for them to appear in, they drop into oblivion, although they might even happen to be of value when afterwards turned over and farther reflected on in the minds either of other readers or of the author himself.

"What improvements in science might we not flatter ourselves with the hope of accomplishing," says Dugald Stewart, in his Elements of Philosophy, "had we only activity and industry to treasure up every plausible hint that occurs to us! Hardly a day passes when many such do not occur to ourselves or are suggested by others; and detached and insulated as they may appear at present, some of them may, perhaps, afterwards, at the distance of years, furnish the keystone of an important science."

I speak from experience: while yet a mere youth, I stumbled on this very passage in reading the works of Stewart, and immediately converted it into the standing motto of a series of note-books under the title of "Chaos," which I have continued now for about a quarter of a century. I have found this practice of noting down, on certain subjects, every likely hint that occurred to me, either in my reading or reflections, to be a most valuable one, and I can compare it to nothing so correctly as to a potent lever for lifting up the mind out of immaturity, passivity, and ignorance, and teaching it to think. Such a lever as this, let me incidentally recommend your younger readers to lay hold of without loss of time. My more immediate purpose in alluding to it, however, here, is merely to say that it is the benefit derived from this system of collecting stray ideas and suggestions in my own experience that induces me to propose the adoption of an occasional string of "Cursory Comments and Reflections" in THE BUILDER. These I do not mean that you should confine to mere suggestions in science or art, however, but think they should be made as miscellaneous as possible.

Perhaps the best way to indicate my meaning would be to begin at once with a few comments or reflections of my own; but my purpose was merely to suggest the occasional notification of such comments, not to make any; and to this purpose I would have felt it the more prudent to confine myself, inasmuch as not being either an architect or an artist professionally, any comments or reflections of mine on such subjects must necessarily be regarded as of little value: nevertheless, in order all the more clearly to indicate my meaning, and perhaps to show that even non-professional readers may be able in some measure to amuse or interest, in this way, on minor points at least,—I shall, *pro formâ*, note down two or three little comments and suggestions which I recollect of having made while lately reading in some of your past numbers.

The Guilloche and Fret in Greek Architecture. —Some remarks on magnetic science, and on certain "magical-looking experiments by Faraday" in diamagnetism, in an article on

1st May last, brought vaguely to my recollection a leader of yours on Mr. Ruskin's "Seven Lamps of Architecture," in which some allusion was made to crystals of bismuth. I turned up the leader in question, which, I found, dates so far back as 19th May, 1849. There it appears that

"In treating of beauty, Mr. Ruskin, insisting on the fact that 'all most lovely forms and thoughts are directly taken from natural objects,' assumes the converse of this, namely, 'that forms which are *not* taken from natural objects *must* be ugly,' and then attacks the Greek fret, on grounds which cannot be admitted as valid. He says,—'The first so-called ornament, then, which I would attack, is that Greek fret, now, I believe, usually known by the Italian name guilloche (!), which is exactly a case in point. It so happens that in crystals of bismuth, formed by the unagitated cooling of the melted metal, there occurs *a natural resemblance of it almost perfect*. But crystals of bismuth not only are of unusual occurrence in every-day life, but their form is, as far as I know, unique among minerals; and not only unique, but only attainable by an artificial process, the metal itself never being found pure. I do not remember any other substance or arrangement which presents a resemblance to this Greek ornament; and I think that I may trust my remembrance as including most of the arrangements which occur in the outward forms of common and familiar things. On this ground, then, I allege that ornament to be ugly; or, in the literal sense of the word, monstrous; different from anything which it is the nature of man to admire; and I think an uncarved fillet or plinth infinitely preferable to one covered with this vile concatenation of straight lines; unless indeed it be employed as a foil to a true ornament, which it may, perhaps, sometimes, with advantage; or excessively small, as it occurs on coins, the harshness of its arrangement being less perceived.'"

Now I merely desire here to note, in connection with this subject, the rather curious circumstance, that while on the one hand the Greek temples are supposed to have been devoted to magical rites, on the other it appears that in those really magical-looking experiments by Faraday to which reference has been made, as well as in others of a like and even of a more extraordinary nature to be yet anticipated, diamagnetism is the agent, and the principal or most distinguished and peculiar instrument by means of which this quasi-magical agency is brought into play, is bismuth itself! May there not, after all, have been some truth amid the imposture or delusion of the ancient temple rites, and may not that heretofore obscure, but now again distinguished, substance, bismuth, actually have been the anti-type, as it is the only, the *peculiar*, and the perfect example of the Greek temple ornament in question? I do not mean to say that this "plausible hint" is at all likely to constitute the "keystone" to any further light on the origin of such architectural ornaments; but "detached" and "insulated" as its terms may appear, still in these days of new lights on Egyptian hieroglyphics, and of new discoveries of priestly sculptural symbol and architecture in Assyria, I do think that the hint is worth noting, all the more especially since bismuth is regarded as a species of antimony, which is well known to have been a distinguished instrument in the hands of the ancient magicians and alchymists, who called it their "foliated *magnetia*," and who, moreover, spoke of a regulus of iron and antimony (magnetic and diamagnetic!*) which they called the signate star of "*omogene* and *magnetia*," and the "seal of seals:" explanative of this I may add that as bismuth crystallizes in the form of a sort of squared scroll, volute, or spiral, so antimony regulus crystallizes in the shape of a star, which, as Brande remarks, these ancient men of science regarded as a sign and exponent of its pre-eminence amongst minerals. N.B. If I mistake not the star is an ornamental form itself on ancient Greek architecture no less than the scroll or volute and the guilloche and fret.

And, by the way, it is even a singular circumstance that multitudes of beautiful volutes or spirals, so close as at first to appear like innumerable concentric circles, appear on the sides of a glass vessel when chloride or bromide of antimony is precipitated in water and the subhaloidal oxide diffused over the glass and then dried; and that a precipitate of bismuth, when sublimed with iodine, displays much the same phenomenon in the midst of iridescent colours. I may here add, too, cursorily, that the very same singular chemical elements, antimony and bismuth, with others in different combinations, display strange forms, precisely such as the most marked of those on the ancient Egyptian sculptures,—*e.g.* the staff of power, the crux ansata, the royal frontal serpent symbol and other serpentine forms, and, most strange of all, the mummy form of Anubis, with projecting snout, and funereal feathers! There is also a marked vegetative power in these substances that displays itself in beautiful crystalline arborescence and flower shapes, with a multitude of others, such as tridents and even shining or iridescent fish forms, the latter of perfect outline, with fin and tail projections, but all mere laminated crystals, like the pearly fish forms used in card-playing more than anything else.

Patterns of Paper-hangings.—Mr. Owen Jones, in a lecture quoted by you on 3rd ult. remarks, amongst other objections to many absurd patterns of paperhangings, that "nothing is more common than to find strawberries and cherries, or other equally impossible combinations, growing on the same stalk. . . . Strawberries (he adds) do not grow on walls but on the ground; and although roses may be trained over walls, they are not endless representations of the same bunches, nor are they interlaced with satin ribbons." Now amid much that is truthful, it is a pity to be hypercritical, and I think that Mr. Jones is here rather severe on the paper-stainers or their pattern-designers. Perhaps he may have himself thought so since his lecture, if he has seen a little quotation from the *Revue Horticole*, titled "Strawberries grafted on roses," which has been going the round of the newspapers. "Strawberries and cherries" do not seem to be one whit more "impossible" as a combination, than strawberries and roses; and moreover, the rose tribe is a most extensive one, which comprehends, if I mistake not, even the cherry-tree itself, as well as the apple, and other pomaceous trees and shrubs. As for the endless representations of the same bunches, we have nature's authority and example for endless repetition of sameness no less than for endless luxuriance of variety. Look to the rose-tree itself in bloom, or the cherry-tree,—what an endless repetition of one and the same flower,—same not merely in form, but in colour. Indeed, it is only in the vagaries of the fanciful horticulturist that we have anything else. Nevertheless, I do not desire to blunt the edge of Mr. Jones's weapon on this face of it, as I think that some variety thrown in among the sameness of the "bunches" is much called for; but I can tell Mr. Jones, that although it is not very usual to interlace flowers with satin ribbons, it so happens that not a few within my own sight at the present moment were actually tied up and interlaced with silk tape or narrow ribbon, in the spring of the present year, for want of the more usual material at the moment, and it never struck me that there was anything *outré* or devoid of taste in such an accidental trimming to my flowers. By the way, it delights me to observe, that the art-acquirements of my antediluvian friends, the Chinese, as well as those of other Orientals, are noted, as, in many respects, worthy of imitation. These acquirements are inherited and traditional, and they add to the varied and still accumulating evidence of the existence of a grand and shall I say luxurious era of enlightenment or illumination throughout the east in extreme antiquity. N.B. The "wise men" dwelt in "the East."

Scotch Fir and Memel Timber.—One of your correspondents, "N. G." on 17th inst. says, in a short article on Pine Timber, that "the red fir or pine is the 'Pinus Sylvestris' common to the north of Europe, by our people called Scotch fir: in commerce it is called Baltic fir, Riga fir, Memel timber, &c.: it grows also in British America and the north of the United States, and is called red pine in commerce." Can it be possible that Memel timber is in England confounded with and called Scotch fir, or *vice versâ*? In Scotland, as I have reason to know, having there had a good deal of experience in timber, both native and foreign, Scotch fir is regarded in commerce as quite a different sort of article from Memel or Baltic timber. Your correspondent states truly that American pine is freer and less knotty than the red fir of the north of Europe, meaning thereby than either Memel or Baltic timber or Scotch fir. Memel timber, however, occupies a middle place in these respects between Scotch fir and American pine, as it also does in respect to size. Scotch fir is quite a dwarf species compared even with Memel, which is seldom if ever more than half the girth of the enormous American pine. I have seen Memel, however, of greater *length* than American, but Scotch fir in commerce not half so long. Moreover, the girth of Scotch fir is generally so much smaller, that the timber is usually prepared and sold in the round, while Memel, as well as American, are squared before being shipped or imported into this country. To the form of "deals" and "battens," in which form fir wood is also imported, I need not here allude, nor to the distinction and difference in commerce between Memel and Riga, or other northern firs besides the Scotch.

Buckingham Palace and a new National Gallery.—About the time that it was proposed to improve Buckingham Palace, you suggested that since the erection of such noble palaces for the Lords and Commons, the formation of at least as noble an edifice for the Sovereign herself could only be a question of time, and that, as a new National Gallery was then also talked of, it might be well to consider the propriety of converting Buckingham Palace into a National Gallery, and of devoting the money required for the latter instead towards the construction of a new royal palace, as worthy of the country and the Sovereign, as Westminster is of the Lords and Commons. Could not some such arrangement still be carried out?

Brompton Groves.—We all know the value of open spaces to a great and crowded population, but we do not always keep in view the vast importance of adjoining or of intermingling vegetation, as of trees, gardens, parks, in not only absorbing the foul or used-up air (carbonic acid) expelled from the lungs of that crowded population, but in recruiting the atmosphere with the free oxygen or vital air which they ought to breathe. Keeping these most important facts in view, the importance of the vegetation and the open space of such a gore or gushet, running in between inhabited districts towards the centre of population, as the groves and vales of Old Brompton constitute, cannot be exaggerated. Is it not possible to prevent the choking up of this breathing-funnel with brick and mortar? Should not the Government purchase the property, were it but for a foul-air consumer and an oxygen manufactory, wherewith to refresh the millions of the metropolis? Might they not do so, while at the same time erecting their proposed National Gallery in the midst of it, and converting it into pleasure-gardens for the people? It closely adjoins the very site already pointed out as the most eligible for the Gallery,—namely, the vicinity of Kensington palace. I have a lingering hope that something or other of this sort may yet be done ere it be too late.—J. E. D.

"BELGIUM AND THE RHINE."—As the Queen's visit to Antwerp will probably help to lead our travel-loving population Belgium-wise, Mr. Murray has issued, under this title, part of his well-proved "Handbook for Travellers on the Continent," now too well known to need commendation.

* It is well known to chemists that nothing more completely neutralizes the magnetism of iron than antimony, so that there is something profoundly significant and scientific in the ancient association of two such elements, as constituting a distinguished combination. The very name of "the magnetias" given to such substances as antimony, arsenic, and bismuth (or marcasite, as they called the last of these), when taken in connection with Faraday's discovery of their diamagnetic pre-eminence, is of itself remarkable.

CAPITALS FROM BOLOGNA.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

CAPITALS FROM BOLOGNA.

Bologna, with its numerous colonnades, ords many beautiful examples of carved ne capitals in the Cinque-cento style, of lless variety. Fig. 1 is from a portico in Strada San Donato; figs. 2, 3, and 4 are m the Palazzo Pisardi, formerly the Palazzo gnano. E. H. M.

ON THE PRINCIPLES OF GLASS PAINTING.

That I may not appear to have attempted a naway hit in the dark, I must beg your ulgence for a few words in justification of letter you did me the favour to publish in E Builder of the 31st July, which has ted forth the remarks of Mr. Winston in r last number.

My object in that letter was to state some of ese fundamental principles and conditions of nted windows which were not affected by y peculiar period of design, nor ever could overlooked without injury to the art itself d detriment to the architecture in which it s embraced.

It is not every one who has it in his power run away to Belgium, Germany, Italy, or nce upon every occasion, and it is not by but by repeated investigations that the principles of an art can be elicited, especially if its development be varied in character and extended over centuries of time.

> "Study
> Is like heaven's glorious sun, which will not be
> Deep-searched by haughty looks."

Neither can any one be supposed to have seen every single specimen that exists; nor can much good be hoped for by quoting any particular window as a standard. The prevailing practice is the only ground that can be built upon, and if a *principle* sufficiently broad and simple, true in itself and universal in its application, can be found at the bottom, as the secret of the excellence we seek after, a rule of practice is obtained which may enable us to produce *original works* as true and as admirable as any that have been accomplished in time past.

Such a principle or principles I sought to establish, and in doing so felt called upon to make the remarks objected to by Mr. Winston.

One concession I have gained from Mr. Winston, in the present letter—*i. e.* that he is willing to allow that the "flat effect" which I have insisted on, prevailed until the end of the first quarter of the sixteenth century. He says, "Indeed the powerful contrasts of light and shade (to which I alluded in the paper referred to by your correspondent) are not commonly found before the end of the first quarter of the sixteenth century. I know of none so early as the fifteenth century, as your correspondent states. The glass at King's College Chapel, whose date is about 1525, is, *on this account*, and also from some of the brown enamel having perished, as flat as your correspondent could wish, and the window of St. George's, Hanover-square, which he erroneously calls a 'very late' specimen, may be placed in the same category." I can hardly complain that Mr. Winston objects to call St. George's a "very late" window, since the style he advocates, and which I would most strongly deprecate, owes its origin to a date still more recent. But place by the side of this a few words from the paper referred to in the first instance—"By the end of the fourteenth century, the new style was established * * * but though rotund and pictorial in principle, it was not rotund and pictorial in effect." Again,—"The adoption of the rotund or pictorial style, which it took *two* centuries to *perfect* in the cinque-cento." Now, I never denied the *existence* of the style lauded by Mr. Winston, but I do deny it to have been the effect of a gradual development of the art of glass-painting,

properly understood as such; and would maintain, on the contrary, that it arose from the admission of a *foreign principle*, at variance with the material, and destructive of the art in its relation to architecture.

Take one more extract from Mr. Winston's essay:—"Here complicated *foreground* groups, as well as important architectural accessories, are introduced: the relative distances of the various objects are preserved by means of light and shade, and the landscape background recedes and disengages itself from the figures and architecture, imparting to the picture the effect of atmosphere." This is a description of Mr. Winston's glass of the middle of the sixteenth century: this is the style which Mr. Winston tells us we have "made to our hand" for Palladian churches, and which, in his letter, he recommends for *St. Paul's*. Now it is quite evident that where, as in glass, each piece has its outline of lead, besides being outlined by its own colour, the appearance of rotundity or atmospheric effect can never be satisfactorily rendered, even with the sacrifice of the transparency. But glass painters may console themselves with this, that such effects are to the full as undesirable as they are unattainable; and the leads interfere with nothing, except this most objectionable "rotundity." An attempt at illusion is out of the sphere of painted windows, and can be very well left in the hands of our oil and water-colour painters. How much can be made of a flat surface, the sculptor of the Parthenon frieze has shown. What can be made of a flat surface in glass, the inventor of the east and lesser transept windows in York Cathedral, the Abbey Church, Malvern, and many other later windows, can testify. I say nothing of the earlier artists, as their practice seems admitted, though they did it in "ignorance!" Admirable works of ignorance, which our knowledge and our science find so much difficulty in equalling!

F. W. O.

PHOTOGRAPHY ON PAPER.

A WORD OF ADVICE.

IN reply to a communication from Lord Rosse, as president of the Royal Society, and Sir C. Eastlake, as president of the Academy, to Mr. Fox Talbot, setting forth that the progress of this, which is a purely British invention, was likely to be hindered by the exercise as at present of his patent rights, Mr. Talbot has made a free present of his patents to the public, with the single exception of the application of the invention to taking photographic portraits for sale to the public, which he desires still to keep in the hands of his own licensees. Those who know the large sums of money which Mr. Talbot has spent, not merely in the pursuit of the art but in securing the right to himself, under advice which he now, perhaps, regrets, will appreciate more highly than the general public the value of the gift. That it will be advantageous to the progress of the art there can be no doubt.

We may save the money and time of some of our readers who contemplate a trial of this art if we say, that unless they are determined to apply themselves vigorously to it, and to work out success through many failures, they may as well abandon at once their intention. Those who, being interested in the sale of the materials and apparatus used, would persuade them it is a very easy affair to obtain satisfactory results and brilliant pictures, only deceive. The instructions for amateurs are still so far from definite, that months will scarcely make a decent photographer out of one unused to such matters. Notwithstanding the books published on the subject, there is still a want of clear and precise explanations of how to make a picture; and the French writers are as far from giving this as our own countrymen. The object at present appears to be simply how to lead the greatest number of persons who want a royal road to art to purchase a quantity of costly apparatus and ticklish chemicals, a new paper, a fresh acid; and we therefore feel it our duty to put the public on their guard, and to urge those who can do so to make the matter a little clearer than it is at present. We look for less humbug and more knowledge.

AMERICAN WORKS.

New York Iron Foundries.—In a sketch of the works in progress at the principal iron foundries of that city, the *New York Courier and Inquirer* asserts that there are no foundries in England that cast such massive pieces of machinery as those executed in New York; and, in proof of this, describes the operations of several of the principal firms. It states that twelve iron columns, cast by Messrs. Mott and Ayres, of the Chelsea Ironworks, for the Manhattan Gas Company, are the largest ever cast by 10 feet 8 inches, measuring 50 feet 8 inches in length, 3 feet in diameter at the base moulding, 2 feet at the cap moulding, and weighing 27,360 pounds each;—that they have been erected about the gasometer, and are surrounded by girders 45 feet in length. That they were also preparing an iron steamer for a passenger boat on the Magdalene river. Her hull is of iron, rivetted together, and the deck is composed of white pine. She measures 167 feet in length on deck, 30 feet beam, and 7 feet hold, and it is calculated that she will carry 70 tons, while drawing only 2 feet 9 inches of water. When heavily loaded she will carry 330 to 350 tons. Mr. Milligan, of the Warren-street Foundry, had invented what he has entitled the "Vertical Flue Boiler," which he has patented in that country and in England. The construction of this boiler is such that double the quantity of fire and surface can be brought in the same compass over the other boilers now in use, and it is claimed to be more effectual. All other boilers have horizontal flues and vertical tubes. One advantage is a boiler of half the ordinary size, taking less room, and requiring but half the quantity of water. The strength of the fire acting on the surface of the water has the effect of making steam with less fuel. In making the steam at the top of the flue it escapes more rapidly into the chamber. He was completing a boiler of this description to be used in moulding and planing mills, in 37th-street, with an engine 100-horse power. The boiler is 13 feet long, 7 feet wide, and 9 feet in height. Wilson Small was casting a variety of very heavy and peculiar pieces of machinery for the Naptha Company, at Brooklyn, to be used in manufacturing oil from rosin. These castings are entirely original, and are called "stills." Mr. Rodney, of the City Foundry, had recently completed and sent to their destination four engines and stamping mills, for quartz crushing in California. Hogg and Delamater were principally engaged in constructing "Ericson's Caloric Engine." The *Courier*, moreover, gives details of many other works, such as great steam-engines, chiefly for marine use, dredging barges inclusive, which it states are now worked by their own impelling engines in place of being dragged by other steamers.

Submarine Rock Blasting.—The reef rocks at Hurl Gate, New York, are in course of being blasted, and the *New York Tribune* of 22nd ult. in describing a resumption of the process, says,—"The firing recommenced on Way's Reef. Since then thirty-eight charges have been fired on that rock, and we hope it will be reduced to fifteen feet mean low water before the close of next week. The firing on Way's Reef is from a battery of ten pairs of plates, placed on the metal float moored on that reef. As many as nine charges have been fired during a single tide. As soon as Way's Reef is broken down, 'Shell Drake Rock' will be fired upon, until it is reduced to fifteen feet below mean low water. After that, 'Frying Pan,' a very dangerous rock in mid-channel, and in rapid and deep water, will be attacked, and the firing continued on that rock until it is reduced to the same depth as Pot Rock, namely 20½ feet below mean low water. As soon as the rocks here mentioned shall have been reduced to the depths respectively stated above, operations, by Messrs. Maillefert and De Raasloff, will be commenced on Diamond Reef, situate between Governor's Island and the Battery. This is a large rock in 16 feet water. A charge containing 500 lbs. of powder will be fired on this rock. Two blasts will be made on Hallets Point, at the Gate, in which a preparation of potash will be used for blasting. The whirlpool has been entirely filled up by the *débris* of Pot Rock, and the smallest row boat may pass over what was once Pot Rock at any time of tide. This great and wonderful result M. Maillefert has accomplished by the firing on the surface of the rock under water without any drilling, 284 submarine charges containing in all 34,231 lbs. of powder, and at a cost of less than 7,000 dollars. The money now being used to pay the expense of removing these rocks, is obtained as a temporary loan, at the rate of 6 per cent. per annum, and is to be repaid from subscriptions to a loan reimbursable by the general or state government, or from other funds, hereafter to be raised. It is a work of great importance to the United States, and in fact to the whole world, and is conducted with the greatest economy. We purchase the powder, blasting canes, and ballast-bags with ready money, and pay M. Maillefert weekly a stipulated price for each charge fired on the rock; he furnishing the labourers employed, the wires, battery and floats. The expense of removing Pot Rock, Frying Pan, and Diamond Reef, to the depth of 20½ feet, and Way's Reef and Shell Drake Rock to the depth of 15 feet below mean low water, will probably not exceed 15,000 dollars. The success that has attended M. Maillefert's new mode of submarine blasting will greatly benefit the commerce of the world, will be the means of saving thousands of lives and millions of dollars in value of property; for this system of submarine blasting will be adopted in every place where dangerous rocks obstruct navigation, inasmuch as but a small sum of money is required to pay the expense, compared with what would be required under the old system. His excellency the Portuguese minister takes great interest in these operations, and he has communicated to his government the result thus far obtained at Hurl Gate. In April last the Portuguese war steamer *Porto* made dreadful shipwreck on a rock in the harbour of Oporto. The most influential families in that city have now obtained one of the Francis metallic life-boats, and are in hopes to obtain the services of Messrs. Maillefert and De Raasloff to remove this dangerous rock by submarine blasting. M. Maillefert has entirely recovered from the wounds he received by the disastrous explosion of a blasting-can above water, during the operations on Frying Pan, on 26th March last."

Boston Grave-stones.—In excavating for a common sewer in Atkinson-street, says the *Boston Journal*, at the depth of about 6 feet a gravestone was found, on which is the following inscription:—"Here lyes ye body of Mr. James Aresking, son of ye Reverend Mr. Aresking, in Scotland, aged 35 years. Died ye 1st Octor 1711." These mementoes of mortality are frequently disinterred in various parts of our city, and are evidence, not that bodies were interred in our streets, but that our ancestors were very careless of their gravestones, which were taken from the burial-ground to cover sewers.

The New York Exhibition.—The opening is definitively fixed for Monday, 2nd May, 1853. Ample funds, it is reported, have been subscribed to carry out the undertaking in a brilliant manner, and all parties join in forwarding its success. The corporation has granted a site for the building—the Legislature has incorporated the association—the Customs has constituted the building a bonded warehouse—and the company undertake to carry out and bring back if unsold, all articles intended for exhibition, free of expense to the owners.

SELF-ACTING BREAKS TO RAILWAY CARRIAGES.—A trial has been made on the South-Western Railway of a means of applying self-acting breaks, with a view to prevent accidents. On all occasions of stopping, it is said, the breaks acted satisfactorily: when the speed was great and the stoppage sudden, the self-acting breaks brought the wheels to a "dead lock;" on other occasions not applying themselves so forcibly. When the train was backed the breaks were instantaneously thrown out of action by the guard.

NOTES IN THE PROVINCES.

Northampton.—On the 3rd of August inst. the Bishop of Peterborough consecrated St. Edmund's Church. It is a cruciform Early English structure, with central tower, and consists of nave, south aisle, transepts, and chancel, and provides accommodation (on the floor only) for 800 persons, 534 of which are free sittings. The entire cost of the building, including boundary-wall, &c. is about 4,000*l.* The architect is Mr. Charles Vickers.

Chelmsford.—On the 12th inst. the foundation-stone was laid of the tower of Willingale Doe Church, which is about to be rebuilt, and of a new aisle which is about to be added. The church, dedicated to St. Christopher, stands in the same yard as that of Willingale Spain—a singularity, as remarked by the local *Journal*, of which there are but few instances in the kingdom. Some years ago the tower was struck by lightning, and though the damage was then repaired, decay has since been rapidly loosening its walls and eating into its foundations. Mr. Clarke, the diocesan architect, being called in, pronounced the tower decidedly dangerous. It was therefore resolved to take it down and rebuild it, and to add a new aisle, by which fifty additional sittings will be obtained. The estimated expense was 1,100*l.* There is still a deficiency of 200*l.* in the cost of the tower and aisle, besides which some further expenditure will be required on the roof. The tower will be eighty feet high, and is to be of flint-work, precisely in the style of the old one, and the aisle will be made to harmonize with the rest of the edifice. The builder is Mr. White, of Pimlico.

Yarmouth.—A curious mural painting has recently been discovered on the north side of the chancel of St. Nicholas Church, close to the Crowmer monument. It represents a number of armed knights entering a church: behind are two figures also in armour, but bare-headed, with mantles and hands uplifted. The countenances of the knights are perfect. They are clad in quilted mail of a very early date, with drawn swords in their hands, except one, who appears to hold his sword with the hilt uppermost.

Woolpit.—With a view to a knowledge of the probable cost of re-erecting the church tower, the vestry directed Mr. Phipson, of Ipswich, and Mr. Farrow, of Diss, to furnish them with designs, and accordingly three plans have been submitted, one by Mr. Phipson, and two by Mr. Farrow. Mr. Phipson's design exhibits a tower closely resembling the fallen one, with a lofty spire of stone rising from within the battlements. In one of Mr. Farrow's designs the spire rises directly from the tower, and, with it, is proposed to be built of squared flints with stone quoins. The other design is intended to harmonise with the ornamented porch and enriched clerestory, the belfry story having a double window on each face corresponding with the flint-work of the clerestory, and the tower being terminated by a battlement with crocketed pinnacles. Above rises a spire with crocketed angles and bands. The parishioners have agreed to raise by rate 300*l.*; and the rector and his family have offered a further sum of 250*l.* Public subscription is also looked to for aid in the re-erection. Surely the cost of a lightning conductor will be regarded as an indispensable outlay.

Faringdon.—The church is undergoing a thorough repair, and great alterations are being made in the interior appearance, and more accommodation in sittings will be provided. The organ has been removed to a new position, and a new vestry is being built, the old one being added to the accommodation. It is hoped the whole will be re-pewed.

Folkestone.—A new vestry is to be built to the parish church, with several other alterations connected with the building. Mr. Messenger is the architect. The following were the tenders, "showing how doctors differ":—

Porter	£162	0	0
Hoad	142	9	0
Foreman	125	0	0
Johnstone	105	0	0
Elgee	92	0	0
Regis	83	16	9 accepted.

Sherborne.—The new building erected on a site adjoining the Union Chapel here, for the Sunday schools connected with its congregation, was opened on Thursday week. The new building is in the second pointed style of 14th century. It is of Sherborne stone, except the ornamental portions, which are of Hamhill stone. The roof is open timbered, and constructed of red pine stained, covered with ornamental tiles and crest. An open framed bell-turret surmounts the roof, formed of oak, having a spire covered with lead. The school-room, 65 feet long by 24 feet wide, is approached from Long-street by a flight of stone steps, rising about 8 feet from the level of the pavement, and is entered by an open stone porch: another entrance is also formed on the west side from the chapel yard. A committee-room is attached to the school. The building has been erected under the superintendence of Mr. Shout, architect, by Mr. Stevens, mason; Mr. Harris, carpenter; and other artificers, all of Sherborne. The cost, including site, is said to have been about 1,000*l.*

Carmarthen. — The new Roman Catholic chapel here was opened for public worship on Wednesday week. The chapel is built in the Gothic style, and is tolerably commodious. The nave is 74 feet by 26 feet 6 inches, and the chancel is 22 feet by 20 feet.

Cardiff.—Last week a seamen's chapel was opened here with some ceremony. It is situated on the eastern side of the Bute Docks, and was erected at the cost of the Marchioness of Bute. Fifty feet by twenty feet are its dimensions; and it is wholly composed of corrugated iron, with porch and small bell turret, three side lights, circular-headed (of wretched proportions), and quarries. It is devoid of any architectural pretensions, the interior being as plain as the exterior. Why did they not consult a professional man (asks a correspondent), and have some little style introduced? to show its purpose, and enable passers-by to discriminate it from the sheds for carpenters and blacksmiths, which abound on this spot for Messrs. Herringway and Pierson's works.

Tunstall.—A building occupied by a joiner and builder as workshops, but erected with the design of ultimately converting them into two dwelling-houses, fell in on Thursday week. The front and back walls giving way from the first floor, brought down the entire roof, and forced out one of the gable ends. Fortunately no lives were lost.

Bilston.—The contractor for the erection of the new court room and police station, Mr. Hemberrow, of Wolverhampton, has handed it over to the county magistrates. On the second floor, besides the court room, there is a retiring room for the justices, and a waiting room for the witnesses; below is an office for the resident clerk to the magistrates, a police room, waiting room, and two apartments for the police; and on the sunk floor are six cells for prisoners, with a cooking kitchen and other conveniences. Over the court room are the sleeping apartments of the officers. The building is plain in appearance. The architect was Mr. Trubshaw, of Stafford.

Upton.—Plans, by Mr. James Harrison, of Chester, architect, for a church at Upton, have been approved by the committee of architects appointed by the Church Building Society, who have promised 100*l.* towards the erection.

Nottingham.—The foundation-stone of the proposed institution for the blind of the counties of Notts, Derby, Leicester, Lincoln, and Rutland was laid by Earl Manvers on Tuesday in last week. The site, says a local paper, is at the top of High Holborn, in New Nottingham, and was presented as a free gift to the institution by Mr. Samuel Fox. It overlooks the Cemetery and the Arboretum, and from its commanding position on the summit of a considerable eminence the view from it is varied, extensive, and beautiful,—a circumstance of little importance to the destined inmates, by the way. The building itself will be in the Elizabethan style of architecture. It will have two fronts—one facing the Cemetery-road, and the other Chaucer-street, the former of which will be 96 feet by 104. The basement will be composed of Horsley-castle stone, and the rest of the best red bricks, with facings of white stone. It is to accommodate forty inmates, and will admit of being enlarged without affecting the character of the design. The erection will cost about 3,000*l.* but an additional 1,000*l.* will be required to complete it for the reception of inmates, including the purchase of a piece of land. It is expected to be finished and opened by this time next year. The architects of the design, which wa competed for last year, are Messrs. Aicken and Capes, of London. A large sum for the erection has been realised, but there is still a balance to be subscribed.

New Wortley (Leeds).—On Tuesday, says last week's *Leeds Intelligencer*, the first stone of a new church to be built at New Wortley was laid in "Chancery," in the heart of the village. It is to be dedicated to John the Baptist.

Dundee.—The new Royal Infirmary, lately founded, is to be in the Tudor style, chosen, it would appear, in order that the irregularity of the style may readily admit of any future alteration or enlargement. The general plan of the hospital is the corridor or single ward system. The principal wards are 103 feet long, 22 feet wide, and 17 feet high, affording 1,720 cubic feet to each patient, being about four times the space allowed in the old infirmary. Attached to every principal ward is a convalescent ward, bath-room, lavatory, scullery, &c. The principal corridor is 346 feet long, 11 feet wide, and 17 feet high, having four fire-places, and at either end a commodious lounge. The corridors serve as a means of communication between the wards, assist the ventilation of the building, and serve as a place of recreation and exercise in bad weather. The hospital forms three sides of a square. The centre of the front is to be used exclusively for domestic purposes. The rest of the building is devoted entirely to the accommodation of the sick. A lift is provided sufficiently large to accommodate a bed or cot to take the patients from the basement to the upper wards. The internal arrangements, according to the *Northern Warder*, have met with the approbation of the leading physicians of Edinburgh, London, and Dundee, and are pronounced by them to be such as may serve as a model for any future buildings that may be devoted to a similar purpose in Scotland. The hospital is to be constructed to accommodate in ordinary times 220 patients, but the corridors will be so arranged that in times of emergency they may be converted into wards, affording additional accommodation for 140 patients. Messrs. Coe and Goodwin, of London, are the architects.

Nairn.—A new Secession church is being erected here. The town is to be improved by the formation of a new street along the banks of the river Nairn, entering at the bridge at the east end of the town.

Miscellaneous.—The Kilmarnock Gas Company have reduced the price of their gas from 6s. 8d. to 6s. a thousand cubic feet.——The Arbroath Gas Company have announced a further reduction in the price of theirs to 5s. 10d.

LEEDS TOWN HALL COMPETITION.

IT may not be amiss to conjure up before the eyes of your professional readers some of the dark deeds that have been done in this "owl-watched" town, to let them see the fruits the tree has borne, and judge then of the harvest they may expect to reap as the reward for their hard art-labours in this competition. A few years back a gaol was wanted—plans were advertised for—designs sent in—and one, acknowledged as the best, selected; the committee then, as now, not "binding" themselves to employ the man who had shown himself the most competent.

The author of the chosen plan was not a novice in the art, but one who had gained a just meed of fame; yet, forsooth, because he was not a townsman, and honestly demanded his legitimate remuneration, others were found who, "for a consideration" of about one-fourth the due percentage, consented to assume the credit and to carve their names upon the entrance portal, the rightful owner of the

praise and pay being thus defrauded of his name and fee. Such were the first fruits of Leeds gaol—a foreshadowing of the acts of its inmates.

Again, the worthy guardians of the place and people wishing "to train up their children in the way they should go," desired architects to aid them, and in the hopes that the march of improvement had brought with it honour and good faith to Leeds, many contributed the fruits of their industry to the industrial schools. Once more the most meritorious plan was selected, but only to be carried out by those who had great interest and little principle.

These are the lessons they teach their children, and if the past gives such tuition, the present "will not depart from it."

Let then those who are content to receive 200*l.* 100*l.* or 50*l.* contribute their three month's brain-wear for the chance of it; but mark! tis but the *chance*, for with whom do they compete?—with architects united by blood and interest to the committee, and with a borough surveyor, who will in all probability unite in his one person the triune functions of a competitor, an umpire, and a clerk of works. With these chances, and with these prototypes, how little justice may be expected in the selection for these judicial buildings! Such is the patronage extended to our art in the town that bears on its insignia Minerva's bird, and such the justice of the borough that for its motto bears—

PRO REGE ET LEGE.

We have received several other communications on the same subject, to exactly the same effect. One of the writers says, "Let the town council name a competent tribunal to decide upon the merit of the designs, and let them, as in all fairness they are bound, give to the successful artist the honour and advantage of executing his design, and they will, without doubt, have an edifice worthy of the great community for whose use it is to be built, and will deserve well of all who love the fine arts, and desire to see them advance and keep pace with that mechanical skill in the development of which England at this time holds so high a place amongst the nations." The time for sending in designs has been extended to October 31st.

BUILDING FOR THE GREAT INDUSTRIAL EXHIBITION TO BE HELD IN DUBLIN, 1853.

THE first prize for the design of a building for the exhibition of 1853 has been awarded to Mr. John Benson, county surveyor, of Cork; the second prize to Messrs. Deane and Woodward, of Cork; and the third prize to Mr. Turner, of Hammersmith Works, Dublin. Our readers will remember that Mr. Benson, in conjunction with Sir Thomas Deane, was the architect for the building of the Cork Exhibition.

The following are particulars of Mr. Benson's adopted design. It presents a front to Merrion-square of 300 feet: the centre feature of the elevation consists of a semi-circular projection, which forms the eastern termination of the central hall. This will be an apartment of 425 feet in length and 100 feet in height, covered by a semi-circular roof upon trellis ribs, in one span of 100 feet. On each side of the centre hall, and running parallel to it for the same length, are two halls 50 feet wide, with vaulted roofs, similar to that which covers the main nave or hall of the building. The height from the floor to the roof of each of these halls will be 65 feet. They are approached through passages from the centre hall. In addition to these three halls are four compartments of 25 feet wide, running the whole length of the building; two are placed between the centre hall and the side halls, and two on each side of the latter; divided into sections of 25 feet square, forming convenient divisions for the purposes of classification. Over these compartments are spacious galleries, also running the length of the building, which will not only afford increased space for exhibition, but be a promenade from whence the effect of the three halls will be seen to great advantage. The ceiling of the halls being divided into panels formed by the trellis ribs, and the other constructive parts of the building, will provide opportunity for decoration. Light is admitted from the top. The construction of the building is marked on the elevation, and forms, in fact, the ornamental character of the design. There are also external galleries, which will be features in the exterior, and will be useful in providing access to the roof for repairs. The termination of each of the principal roofs to the east and west is semi-spherical. There will be three entrances in the front facing Merrion-square, under a range of verandahs, through which access will be had for the holders of season tickets and the general public. The materials of the building will be iron, timber, and glass. The latter will only be used for light, as before described. The parts of the roof at each side of the lights will be timber, covered with the waterproof cloth manufactured by Messrs. Malcomson, of Portlaw, co. Waterford. The trellis girders which support the galleries will be of wrought iron, supported on cast-iron pillars. The available area of ground floor will be 147,704 feet. Of wall space there will be 87,000 feet.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

THE British Archæological Association have held a most successful congress in Newark and its neighbourhood, under the active presidency of the Duke of Newcastle. At the opening meeting on the 16th, the mayor presented an address from the corporation, wherein they said, after referring to the men of note who had proceeded from the district—

"Arrogating no share in the just eulogy of our ancestors, be it permitted us only to show you the extant evidences of their loyalty and devotion, and in singular and happy contrast to exhibit the marvels of modern device with which engineering skill has adorned this vicinity; while the British Archæological Association, under the auspices of your grace, pass in careful review the particulars of the scene, and with the lights of the time illustrate and identify them and assign each relic of antiquity to its appropriate age, effectually serving the cause of science, enhancing your own world-wide celebrity, and engaging for ever our grateful acknowledgments for distinction so conferred upon ourselves."

The President made an able address, remarking in the course of it with reference to the desire of the Association to spread abroad a correct taste for archæology, and a just appreciation of monuments of ancient art, so as ultimately to secure a general interest in their preservation,—"So well aware were the ancient Greeks of the value of such investigations as those undertaken by this society, that in Athens three men were paid by the State, whose duty it was to afford information to those who sought instruction respecting the interesting monuments of their country. With regard to our own country, however, so entirely deficient were the records of history from the third century to the beginning of the eighth, that, but for the researches of the antiquarian, that long period would be almost a blank in the annals of this island. Another most important subject, and one intimately connected with the science of government, had of late years received the attention of the society. He alluded to the bearing of ancient laws, and the influence of apparently anomalous customs, upon the habits and even the dispositions of a people. In France there was, or at all events there was till recently, a Government office, whose duty consisted in watching over monuments, and in securing the restoration of such ancient buildings and monuments as would otherwise fall into dilapidation or be destroyed by private persons. That important duty was, however, performed in this country to a great extent by voluntary associations, such as that which was now holding its meeting, and it had been most successfully performed in numerous instances, not by any actual power with which such societies were invested, but by the wholesome action of public opinion, induced by their representations."

Papers on Robin Hood and his era, by Mr. Gutch and Mr. Halliwell, were afterwards read; also a paper by Sir F. Dwarris, on the forest laws, courts, and customs, and the Chief Justices in Eyre, north and south of the Trent.

On Tuesday they breakfasted at Thurgarton Priory, and then proceeded to Nottingham, where they were received by the mayor, Mr. Felkin, and a meeting was held, the Duke in the chair, in the Exchange-rooms.

Mr. Planché read a paper on "The Family of the Peverels of Nottingham," and the members afterwards proceeded to inspect St. Mary's Church, the Castle, and other antiquities. The railway afterwards conveyed them to Newstead Abbey, where Col. Wildman entertained them, and a paper was read by Mr. Pettigrew on "The Abbey," and Lord Byron's connection with it. Lord Byron and Col. Wildman, the present possessor, it may be remarked, were together at Harrow School, and on becoming the purchaser of Newstead the gallant colonel received a letter from the noble lord expressing his satisfaction that the mansion had fallen into the hands of his old schoolfellow and monitor. Mr. Pettigrew concluded by observing, that all lovers of archæology must rejoice that a place so romantic in its character, associated with so many interesting circumstances, and so closely connected with the history of the greatest of the modern poets of England, should have fallen into the possession of a gentleman who had exhibited so true a sense of its value, and who had religiously preserved every memorial in his power connected with Lord Byron.

Worksop, Humber, Lincoln, Southwell were to follow, with more breakfasts, dinners, and papers than they can well get through; but these we will speak of hereafter.

ROYAL ITALIAN OPERA, COVENT GARDEN.

THE genuine success of M. Jullien's lyric play, "Pietro il Grande" gives us much pleasure. M. Jullien has done much to popularise good music in England: he has elevated the standard with the multitude, and deserves well of us all in consequence. In "Pietro il Grande," although the music may not be uniformly equal to that of Meyerbeer or Beethoven, who seem to have been his models on the occasion, he has surprised his best wishers by the invention and science displayed throughout. Without pretending to discriminate all the superior parts, we would mention the charming madrigal, *In sen dell' amistà;* the Muscovite soldiers' hymn, *Di Muscovia eletti figli*, the closing fugue in the first act, of the same air; Rossomak's war song, *Dell' armi*, in the second act; the quartett, the septett, and a charming passage between Peter and his generals at the close of the same act. Signor Tamberlik has raised himself, both as actor and singer, by his performance of *Peter;* and the same may be said of Madlle. Anna Zerr, who plays *Catherine*, the only female character in the opera. The part of *Rossomak* is a difficult and not pleasant one, but enables Herr Formes to show his peculiar power.

Messrs. Grieve and Telbin have, as usual, provided some excellent scenery: the sky and distance in the first scene,—the dockyard at Sardam,—and a snow scene of Moscow, seen through an arcade, in the third act, are very cleverly painted. The last scene—the throne-room in the palace, where we have columns of green and gold, a domed ceiling, chandeliers, and a flight of steps at the back, down which the whole glittering pageant passes—leaves nothing to be desired in the way of magnificence. The tent scene in the second act wants lights, the mass of dark costumes, in some cases more truthful than elegant, swallows up what there is.

M. Jullien and Mr. Gye have long worked together, and the costly and complete manner in which the latter has put his old colleague's work upon the stage is as creditable to him as a man as it is as an artist.

THE COMMERCIAL TRAVELLERS' SCHOOLS COMPETITION.—We understand that fifty sets of designs have been sent in, and that the committee propose calling in professional assistance to make the selection.

INTERIOR OF THE WALHALLA, RATISBON.

HERR VON KLENZE, Architect.



INTERIOR OF THE WALHALLA, RATISBON.

Of the exterior of this noted edifice our readers have already had descriptions. The building was twelve years (from 1830 to 1842) in course of construction. It stands, with its rising flights of steps and terraces, on the top of an eminence on the north bank of the Danube, and is familiar to all who have passed through the pleasant country in which it is situated.

We now give an engraving of the interior of the temple from a view by M. von Klenze, the architect. It is a single hall, 150 feet in length and 57 in breadth, besides a space of 25 feet in length at its north or farthest extremity, like the opisthodomos of ancient temples, separated by a screen of Ionic columns, of which order, too, are the antæ at the angles of massive piers, dividing the hall into three great compartments. The roof has no ceiling, but displays, by its inclined sides, in connection with horizontal beams crossing from pier to pier, a succession of internal pediments with faces divided into panels filled in with arabesques and figures in white and gold, relieved in part with colours. The roof-interior is lined almost entirely with gilt bronze plates, gold stars, and other decorations on an azure ground in its coffers. There is an opening over each compartment filled in with sheets of plate glass framed in bronze, through which an abundance of light is admitted.

The floor is inlaid with coloured marbles from Tegernsee, laid out in three grand divisions. The shafts of the antæ and columns are of marble of a brownish red colour, and their capitals and bases of white marble picked out with gilding and colours: the walls are somewhat like the columns. The frieze represents on a broad white marble ground the progress of civilisation in Germany.

The principal Ionic order is about 28 feet in height, besides which there is a second order of caryatides, 17½ feet in height, representative of female Scandinavian genii, the welcomers of souls to the halls of Odin and the Walhalla, or the regions of bliss. The figures stand upon the piers, detached from the wall, and thus avoid heaviness in the upper portion of the interior: there are six on each side, and two over the penetralia or inner hall. These caryatides are of marble, slightly polychromed in natural colours. They bear voluted capitals on their heads.

The interior is devoted to the reception of rows of busts of illustrious persons with other sculptures, marble candelabra, and seats.

GREEK ART IN ATHENS.

MR. C. NEWTON, in a letter lately read at the Royal Society of Literature, gives an account of the objects which he saw still preserved in Athens, and chiefly of the numerous fragments of the ancient Greek art contemporary with, and posterior to, the time of Phidias, with lists of these fragments, and notice of the places in which they are at present preserved. He says,—"It seems of great importance that good casts should before long be made of all the remains still existing at Athens—and this for several reasons. The sculptors in question are for the most part not at present accessible. No archæologist or artist can see them without a journey to Athens, and when on the spot would not know of their existence unless from his previous study. Even then he can only see them by making a special appointment with the curator, and his visit must therefore be a hurried one. They are not only difficult of access, but they are also in great danger from mutilation and depredation. Already has the beautiful group of the six seated deities, lately discovered, sustained irreparable injury, the hand and foot of one of the male figures having been broken off. In the present unsettled state of Greece the sculptures are necessarily insecure; and in the event of another revolution, what is there to prevent the Acropolis from being again a fortress, and again a mark for the cannon of the besieging party? The shells which in 1833 destroyed the roof of the Erectheum, would not be wanting to complete the destruction of the sculptures of Phidias.

A letter from Athens, of the 4th ult. states that the King of Greece had visited the Acropolis to examine the antiquities recently discovered there by M. Beulé, a Frenchman. Some of the excavations made under his directions are said to have brought to light the last steps of the staircase which led to the principal entrance, and the surrounding wall of the citadel. The steps are in Pentilic marble, and not a joint of them has been displaced. The door is 12 feet high, and of the Doric order. The lintel and the casing of the door are in a single block of marble. The wall is 21 feet in height. It is composed of different kinds of marble. At its base are pedestals and fragments of the Roman epoch. The upper part comprises the entablature of several Doric temples anterior to Pericles. Above the architrave is placed the frieze with its triglyphs in stone, and its metopes in marble in the same style as the first Parthenon. The cornice does not crown the wall, but is in its turn surmounted by an attic formed of fresh architraves and cornices which belonged to the interior of the temple. M. Beulé had commenced another excavation in the southwest angle of the great bastion to discover the construction of the western wall. He has found two other arches in perfect preservation, but they do not date further back than the Middle Ages. Several fragments of architecture and sculpture and twenty-three inscriptions had been discovered. A bas-relief, well executed, represents eight young Athenians dancing. M. Beulé had been presented by the King with the order of the Saviour, and was about to return to France.

DESTRUCTION OF ANCIENT BUILDINGS.—An Edinburgh paper says, in the ancient parish of Auldcambus, now part of the parish of Cockburnspath, Berwickshire, stands on a lofty position by the sea-shore the venerable ruins of St. Helen's church, hitherto much admired as presenting an interesting specimen of simple Saxon (?) architecture. The church is said to have been built so early as the seventh century, and to have been dedicated to Helena, the mother of Constantine the Great. What will the antiquarian, what will every educated man say, when he hears that very lately a large portion of this edifice, and that the most valuable in an architectural point of view, has been pulled down to repair a neighbouring stone dyke! Some modern Goth has smashed with relentless hammer the fine old arch that was so much admired.

RAILWAY JOTTINGS.

AN extensive fire, involving a loss of upwards of 16,000*l.* occurred on Saturday week at the store warehouses of the South-Eastern Railway, adjoining the station at Ashford. No portion of the building or its contents was saved.——On Monday in last week the masons on the Pensher Branch Railway struck work, and demanded that their wages be advanced to 4*s.* per day. This being acceded to by the contractors, the masons resumed their work on Tuesday morning.——A letter from Belgrade of 8th ult. says,—"It is seriously in contemplation to construct a railway between Belgrade and Constantinople. It is an English company which has an idea of this undertaking. Two engineers have been charged to survey the country, and to visit the spots by which it will be most desirable to carry it. They were recently at this place, and have by this time returned to Constantinople. They have expressed their astonishment at finding that the difficulties of the ground are trifling in comparison to the importance of the undertaking. They would only have from sixteen to eighteen tunnels, and those very short, to cut, six of which are under the Balkans. This same company had an idea of continuing the same railway into Asia, so that when the line was completed, the journey from London to Bombay might be made in fifteen days." The formation of a railway through the northern European provinces excites much attention, it is said, at Vienna, and is pronounced by the Vienna *Wanderer* to be a matter even more important than the Egyptian railway.—— The following is from *Herapath's Journal* on the effect of the earth's rotation on locomotion. "Mr. Uriah Clarke, of Leicester, has called our attention to an article in the *Mechanics' Magazine* by himself on the influence of the earth's rotation on locomotion. It is well known that as the earth revolves on its axis once in twenty-four hours, from west to east, the velocity of any point on its surface is greater nearer the equator, and less farther from it, in the ratio of the cosine of the latitude. Mr. Clarke says:—'Some rather important conclusions in relation to railway travelling arise out of the view now taken. The difference between the rotative velocity of the earth in surface motion at London and at Liverpool is about twenty-eight miles per hour; and this amount of lateral movement is to be gained or lost, as respects the locomotive in each journey, according to the direction we are travelling in from the one place to the other; and in proportion to the speed will be the pressure against the side of the rails, which, at a high velocity, will give the engine a tendency to climb the right hand rail in each direction. Could the journey be performed in two hours between London and Liverpool, this lateral movement or rotative velocity of the locomotive would have to be increased or diminished at the rate of nearly one-quarter of a mile per minute, and that entirely by side pressure on the rail, which if not sufficient to cause the engine to leave the line, would be quite sufficient to produce violent and dangerous oscillation. It may be observed, in conclusion, that as the cause above alluded to will be inoperative while we travel along the parallels of latitude, it clearly follows that a higher degree of speed may be attained with safety on a railway running east and west than on one which runs north and south.' There is no doubt of the tendency Mr. Clarke speaks of on the right-hand rail, but we do not think it will be found to be so dangerous as he says. It will be greatest on the Great Northern and Berwick lines, and least on the Great Western."

HAARLEM LAKE.—It is said that the great work of draining this lake has been accomplished.

STATUES TO ST. PIERRE AND DELAVIGNE AT HAVRE.—The inauguration of statues in bronze of Bernardin de St. Pierre and Casimir Delavigne took place on Sunday week at Havre. The statues, executed by David (d'Angers), are set up in the Place François I. in front of the principal entrance to the Museum.

WORKS IN IRELAND.

THE Cathedral of St. Brendon, at Ardfert, in the county of Kerry, is to be restored, it is to be hoped, by competent hands.

It is stated that the Lord Archbishop of Tuam is about having eight new churches erected in his diocese, the designs for which are to be furnished by Mr. Welland, architect to the Ecclesiastical Commissioners.

The new bank erected by the Northern Banking Company at Belfast, from the designs of Mr. Lanyon, recently mentioned in the Editor's account of Belfast, has been opened. The style of architecture is Doric. Two projecting wings form the principal features of the front, and the central space is subdivided into three spaces by engaged Doric columns, recessed about two feet. A flight of steps outside approaches the interior, through a deeply recessed porch, with semi-circular panelled ceiling, executed in cut stone. In the vestibule is a second flight, which reaches the cash office, an apartment about 65 feet by 45 feet. This room is decorated with principal and inferior columns, is lighted by twelve semi-circular windows over each bay, groined into the cove above the cornice, and provided with doors leading into directors' rooms, &c. The basement consists of a vaulted space, devoted to safes for papers, bullion, &c. and heating apparatus room. The fittings of the office are of oak.

The drainage and navigation works undertaken by the Board of Works to connect Lough Corrib with Galway Bay, are progressing. A tidal or floating basin, two acres in extent, is being constructed. The length of quayage is 1,230 feet long by 20½ wide, with a lift of 14 feet, generally supposed to be the greatest in the United Kingdom. A canal, 1,322 yards in length, excavated through limestone, and enclosed by a coped wall, with five iron swivel bridges at intervals, is being formed. The shoals at Newcastle and Menlo have been removed, and the Friar's Cut deepened. The works on the improvement of the Lough Corrib Mill power will be finished this year. The canal connecting Lough Corrib with Lough Mask is 4½ miles long, cut through solid limestone rock, and the entire length has been opened, with the exception of 700 yards. By those works 20,972 statute acres will be reclaimed, and an increase of 1,400 horse power obtained. The number of men employed in this district is as follows:—Masons, stonecutters, carpenters, smiths, and other tradesmen, 183; labourers, 1,462. The result of these works will be to open a direct line of navigation 35 miles in length from Galway, through Loughs Corrib and Mask, and afford to Ballinrobe, Cong, Maam, Oughterard, Headford, and the surrounding country, the benefit of water communication with Galway.

A new Roman Catholic Church is to be built at Limerick, in the parish of St. John. Accommodation is to be provided for upwards of 5,000 persons, and the committee will expend a sum of 5,000*l.* on the building, exclusive of the cost of erecting a tower to contain a peal of bells.

The directors of the Clonmel Mechanics' Institute have selected the plans submitted in competition for their intended new buildings by Mr. J. J. Lyons, architect.

The first stone of St. John's Episcopal Chapel, May's Field, has been laid by the Lord Bishop of Down and Connor in the absence of Mr. Fenton, the Mayor, at Belfast. A silver trowel was presented to the bishop by Mr. Gladstone. The late Mr. Hamilton bequeathed 3,500*l.* towards the erection of this building, which is designed to accommodate 500 persons, and will be in the early Gothic style.

STATISTICS OF THE IRISH EXHIBITION AT CORK.—In a lecture at Cork on the Irish National Exhibition, the lecturer, Mr. Maguire, took occasion to mention that the attendance at the Exhibition had been as follows:—Season tickets, 36,006; two-shilling tickets, 5,661; shilling tickets, 12,253; sixpenny, 17,728, making a total, up to that day, of 72,458 persons who had visited the Exhibition.

ORNAMENTAL CEMETERIES.

THE ancient custom of planting cemeteries and decorating monuments with garlands of flowers, strongly prevailing at different periods in foreign countries, was carried to some extent in various parts of England. In the "Flora Domestica," it will be observed that the Romans alluded to the practice in their wills, and were strongly reprobated by the primitive Christians, but in the time of Prudentius the latter had adopted it, which is expressly mentioned both by St. Ambrose and Jerome.

At the present time, in Germany and Switzerland, it is very usual to observe the tombs cultivated with shrubs and flowers, and the monuments adorned with festoons of roses and jessamine. In the beautiful little churchyard at Schwytz almost the whole of the ground is covered with pinks; but amongst the numerous spots appropriated to the purposes of cemeteries, there is none equal to the churchyard of Wirfin, in the valley of the Salza. The tombs are ornamented with arabesque forms, with pendant vases, in which are placed flowers, and on either side perennial shrubs are planted, and, in addition, some graves are daily strewed over with fresh-gathered flowers, by friends or relatives of the inhabitants.

In some parts of this country, about the middle of the last century, the practice was very prevalent of strewing sprigs of rosemary upon tombs, particularly in the north, and likewise to place a basin of sprigs of boxwood at the door of any house at which a funeral was to take place, as alluded to in the following by Wordsworth:—

"The basin of boxwood just six months before,
Had stood on the table at Timothy's door;
A coffin over Timothy's threshold had passed,
One child did it bear, and that child was his last."

While in allusion to the practice, we may exclaim with Shenstone, "Oh customs meet and well!" We cannot allow ourselves to be dissatisfied with the age in which we live, because these and similar pleasing observances are not directly encouraged by some of its tendencies. For the future we have the best hopes; and if we take this view, that while the advance of civilization destroys much that is noble, and throws over society an atmosphere somewhat dull, it is only by its peculiar trials, no less than by its positive advantages, that the utmost virtue can be matured. And those who vainly lament that progress of earthly things, whether for good or evil, is certainly inevitable, may be consoled by the thought, that its sure tendency is to confirm and purify the virtue of the good. G. J. RHODES.

Notices of Books.

Historical Sketch of the Electric Telegraph, including its Rise and Progress in the United States. By ALEXANDER JONES. Imported by JOHN CHAPMAN, Strand, London.

Electricity and the Electric Telegraph; together with the Chemistry of the Stars. By GEORGE WILSON, M.D. F.R.S.E. Longman and Co. London. 1852.

THE first of these books forms a far more complete record of the establishment and improvement of the electric telegraph in the United States than we yet have of its origin and rise in this country. In saying so, we do not mean to homologate all its statements in reference to the national question as between the two countries. There is much less inclination, however, shown in this work, to deify the chief American telegraphist, Morse, than some of his fellow countrymen appear to have.

It is rather salutary sometimes to see ourselves reflected in the eyes of a rival nation, even though the mirror should be one of those which ludicrously exaggerate our most unamiable features; and on this account, and as we remember more than once noting some of the stock-jobbing abuses of the telegraph in America, we shall quote just a few lines in which our own present, or rather past, or at least passing, national system is sketched, with what truth or error we do not here pretend to say:—

"In England the electric telegraph has become a monstrous monopoly, being chiefly owned and worked by railway stock-jobbers. The people at large are, in a measure, shut out from its benefits. Their monopoly was created by purchasing up patents from successive inventors, such as Davy, Bain, &c. and fighting weaker claimants in lawsuits."

The author, however, is rather impartial, for he adds that—

"In the United States it looks as though a similar monopoly had been attempted; not by the purchase of others' rights, but by the multiplication of patents and re-issues made, to claim everything pretty much in the *lightning way*, and on these expanded claims to fight off all competition in constant lawsuits. In this, however, success has been only partially realised."

The second of the treatises last named constitutes one of the little shilling volumes of the traveller's library, and makes no pretension to contain a historical record of the progress of the telegraph in this country. It gives, in popular and often figurative and rather free language, an account of the process rather than of the progress, though beginning with a rapid review of the advancement of electrical and electro-magnetic science in general. On page 58, however, the author thus alludes to the originators of the telegraph:—

"We have said nothing regarding the history of the electric telegraph, which cannot yet be written otherwise than in the faintest outline. Its earliest scientific originators were Oersted, Ampere, and Wheatstone. It chief practical constructors have been Wheatstone and Cooke in England, to whose merits we need not again refer; in Scotland, Bain, a man of great inventive skill and ingenuity; in America, Morse, another distinguished mechanical genius; and on the Continent, Siemens, of Berlin, the deviser of the Prussian subterranean telegraph. Lastly, we make special mention of Brett and Crampton, who have achieved the construction of the first transmarine telegraph. It must be left to the survivors of these ingenious men, and of the many others who by discoveries in science or practical trials have made the telegraph what it is, to adjust their great but various merits."

The various details and varieties of the telegraph are described in an easy and entertaining way; and, much in the same off-hand style, with a dash of Carlyleism in it, the volume finishes with a somewhat original and suggestive chapter on the chemistry of the stars, in which the possible differences of worlds are shadowed out by the actual differences, proportions, and numbers of the elements combined in our own, every markedly different proportion in the relative quantities and numbers of the same elements necessarily constituting a markedly different sphere of existence or life, even with one and the same absolute range of "elements."

Miscellanea.

ARCHITECTURAL CONDITION OF THEATRES.—The Spanish Government has ordered an investigation to be made into the architectural state of all the theatres in Spain, and that those which may not be in a good condition shall be closed. A similar inquiry into the condition of the London theatres would not be useless, especially in respect of the safety of approaches, the ventilation, and means of egress in the event of fire.

ELECTRO-TELEGRAPHIC PROGRESS.—Our East-Indian dominions are within three years to be traversed by 3,000 miles of electric telegraph. Preliminary investigations as to the best modifications of the telegraph have already been made by order of the Governor-General. ——It is proposed to protect submarine telegraphs by placing the copper wires, gutta percha, and chemical covering, in a metallic casing, to be secured in the angular recesses of a link-iron-chain, one angle being capable of protecting five to ten insulated wires, and one chain from thirty to forty. It is also proposed to fix a testing apparatus in water-tight boxes attached to buoys at every one or two miles, the wires in the testing-box being connected with the submarine wires below, so as to indicate the line of telegraph, and to detect and repair defects by raising the cable to the surface.

BURNING LIME.—One ton of good limestone, says a writer in the *Agricultural Gazette*, will produce, when burned, between five and six barrels of lime. With a good draw-kiln, containing from fifty to sixty barrels, and the stones properly broken, which may be something larger than road metal, or to pass through a ring four inches in diameter, one barrel of good culm will burn five or six barrels of lime when the kiln is in good working order. The rates we have paid, when the wages were about 8d. to 1s. per day for men, were one penny per barrel for breaking the stone, and one penny per barrel for burning the lime, exclusive of quarrying, carriage to kiln, and culm. The process is, in lighting the kiln, to put in a large quantity of the roots of trees, waste timber, or all together, in the bottom of the kiln: this must be made level on top, and then a layer of broken stones, say four inches thick, then a layer of culm, then a layer of broken stones, then culm, and so on till the kiln is filled. A greater quantity of fuel will be required with the first few layers than the succeeding ones. The kiln is then set fire to from the eye, and as the great mass of fuel first put in wastes away, the limestone, &c. settles down: the kiln must be kept filled by adding fresh layers of broken limestone and culm. When the kiln is in full operation, the stone may be broken to a larger size, and the fuel economised. When full, the kiln is drawn till the limestone appears at the eye red hot, when you must stop. In the first three or four drawings, the stone, most probably, will not be burned enough, but after that an experienced lime-burner will always produce well-burned lime if the stone be good.

IMPROVED MACHINERY FOR PLASTIC AND METALLIC PRODUCTS.—Mr. Charles D. Archibald, of Portland-place, has recently taken out a pateut for improvements in the manufacture of bricks and other productions of plastic materials, in cutting, dressing, and shaping the same, as well as articles in stone, wood, and metals, and in the machinery and apparatus employed therein. The brick machinery claims are for a method of screening the clay or other materials before delivery into face by steam, hot air, or water, the arrangement of the moulds in reciprocating carriages between pressure rollers, discharging the bricks by means of carriages on inclined planes, and giving concave or other shapes to their faces by projections on the pressing cylinder. For cutting and shaping machinery a rocking or tumbling motion is produced by the direct action of steam power: there is a peculiar combination of headstock and mode of adjusting and securing the cutters, several sets of which may be used in the same jaws at various angles; and for dressing or polishing, the apparatus may be lowered or raised at pleasure, thus causing an equal and uniform motion on the surfaces to which they are applied.——Messrs. Woodworth and Mower, of the United States, have taken out an English patent for some new brick-making apparatus, in which percussion is used to consolidate the plastic materials in the moulds. A sliding mould-charger is in connection with the ram, or piston, in such manner as to render it a part of the mould some time after a percussion of the ram. The moulds have inclined sides, and are connected with machinery, which lifts the moulded article previous to a second percussion, so that it does not adhere to the mould, and allows the compressed air to escape. There is also an arrangement for giving the necessary depression in the face of the brick; and the entire mass is turned out of the mould in an equal state of condensation.

ISLINGTON CATTLE MARKET.—On Monday in last week the cattle market, in the Lower-road, Islington, was offered for sale by public auction at Garraway's, by Messrs. Farebrother, by direction of the mortgagees. The property comprises the market, which stands on about sixteen acres of freehold land, building land, public-houses, private dwelling-houses, shops, and leasehold property, &c. and the whole was offered to public competition in one lot. The first offer for the whole property was 45,000*l.* and it was bought in at 52,000*l.*

REAPING MACHINES.—The American inventions (or modification, it seems rather), by Hussey and McCormick, have been in more or less successful operation during the harvest in many parts of England, but on going into Scotland, to exhibit before the Highland Agricultural Society at Perth, Hussey's machine appears to have met with an unexpected and a formidable opponent in the father of all reaping machines, which has been in constant use for the last fifteen years, in that not very remote part of the country, and was invented twenty-five years since by the Rev. Patrick Bell, now minister of Carmyllie in Forfarshire. So far from this comparatively ancient instrument being in its dotage, it is decided to have fairly beaten Hussey's in formal competition, and was awarded the prize which it was probably thought, not long since, that Hussey's would carry off by merely "walking over the ground." But if Bell's machine be really entitled to the prize awarded it, what have the Highland Society been about for the last fifteen years? True, they did award Mr. Bell 50*l.* many years since for this very invention, but surely the purpose of such a society is something more than merely to pay prizes, and then to lay the chosen instrument on the shelf for so many years. The Royal Agricultural Improvement Society of Ireland have resolved to invite a trial of Bell's machine along with Hussey's at their forthcoming show, although, till a deputation saw Bell's at work, they intended only to have Hussey's. Bell's machine cut straight into the crop by a series of shears, 12 inches long, the horses working and following behind the clippers. We regret to observe that agricultural labourers in some parts of England are not only refusing to work with the reaping machines, and throwing other obstacles in the way, but are even breaking them to pieces.

A BRITISH INDUSTRIAL UNIVERSITY.—In course of last month it was announced in our columns that there was reason to believe His Royal Highness the Prince Consort "contemplated the foundation of a great building and establishment in which theory would be combined with practice, in the advancement of science and art, by a concentration of talent and skill." We believe we may now state without any impropriety that in all probability the surplus of 150,000*l.* and upwards, in the hands of the Royal Commission of the Great Industrial Exhibition of 1851, will be devoted to the foundation of an Industrial University in London, such as was long since mooted in THE BUILDER. This central concentration of science and industry will ultimately be organized, with radii or branch institutions, throughout the whole country; but we scarcely think that the Royal Commissioners, as has been stated, have as yet formed any definite scheme for the establishment of such a university, although it is their known design to carry out the idea.

THE ELECTRIC CLOCK.—Among all the wonders of that wonder-working principle, electricity, whether we view its power in the instantaneous conveyance of information between distant places, its agency in blasting rocks in safety, the deposition of metals from their solutions, or others of its numerous appliances, there is not one of them which strikes the mind as more extraordinary or interesting than its application as a prime mover for the measurement of time. "We believe," says a contemporary, in speaking of this subject, "that the first idea of working clocks by electricity is due to Mr. Alexander Bain, who commenced putting it in practice in 1837. His first attempt was to make a common clock transmit its time to other clocks at a distance, by the action of electro-magnets, in which he was perfectly successful. The next step was the application of the electric power to work single clocks, so that no winding might be required, and the common clock be dispensed with altogether. The ordinary galvanic apparatus was found, however, neither uniform nor lasting, giving more trouble and expense than the common clocks; and, in prosecuting his experiments, Mr. Bain, in 1842, discovered that a plate of zinc and one of copper, buried in the earth, gave a uniform and continuous force of sufficient power to work clocks of any size, from the smallest mantel time-piece to large church clocks. In situations where it is inconvenient to obtain the electric current from the earth, the voltaic battery is resorted to; but in almost every case the first mode has proved the easiest, as well as the most effective. The cost of its plates is a trifle, and it has been ascertained that they will retain their efficacy for years. It is now shown to be possible that all the principal clocks in the kingdom might be united to keep time with one governing one, which, again, derives its moving power from the earth, without winding up or need of attendance of any kind from one year's end to the other." Mr. Bain's warehouse for these clocks is 43, Old Bond-street.

A FINE OPPORTUNITY.—It appears that Mr. B. Bond Cabbell has bought the whole of the town of Cromer with the exception of two houses, and about 12,000 acres of land. The purchase-money amounts to upwards of 60,000*l.* The property was lately possessed by the Misses Wyndham, two old ladies, who were much averse to improvements and alterations. Mr. Cabbell has now an opportunity to create a model town, and may, if he please, settle the sanitary question. What a thing it would be to add to the list of his good deeds, that he raised the character of a whole community, and lengthened the average of life in Cromer, say five years; and this he might do without much difficulty.

THE IRON TRADE.—The demand is not so brisk as it was a fortnight since. For home consumption especially there is but limited inquiry, the staple hardware manufactures of the district having made very little progress; while for export there is less inclination to buy, unless for immediate shipment, though large orders are in course of execution. Scotch pig iron also seems to have met with a considerable check, and is now quoted 2*s.* per ton lower. Staffordshire bar and rod iron may now be fairly quoted at 6*l.* per ton; hoops, sheets, and plates from 6*l.* 10*s.* to 8*l.* per ton; and pigs from 50*s.* to 65*s.* per ton.—*Birmingham Gazette.*

THE TRAMWAY IN MAIDEN-LANE, COVENT GARDEN.—An "Old Inhabitant" complains that in repaving this lane, the granite tramway, which saved much noise in this thoroughfare, is not being replaced. The traffic, especially in cabs, and above all, through the night, from the vicinity of the Adelphi Theatre and the Cyder Cellars, is constant, and the tramway was laid down expressly to obviate this nuisance. On inquiry, we cannot learn any reason for the removal of the tramway, or for the belief that sufficient supervision has been exercised in the repaving. The inhabitants themselves should look to it in time.

A FLOATING CITY.—The city of Bangkok, the capital of Siam, consists of a long, double, and in some parts treble, row of neatly and tastefully-painted wooden cabins, floating on thick bamboo rafts, and linked to each other, in parcels of six or seven houses, by chains, which chains were fastened to huge poles driven into the bed of the river. The whole city rose at once like a magic picture to our admiring gaze. . . . If the air of the "Fleet-street" of Siam does not agree with Mrs. Yowchowfow and her children, or they wish to obtain a more aristocratic footing by being domiciled higher up and nearer to the king's palace, all they have to do is to wait till the tide serves, and loosing from their moorings, float gently up towards the spot they wish to occupy. Bangkok, the modern capital of Siam, and the seat of the Siamese government, was computed, at the period of my residence there, to consist of seventy thousand floating houses or shops; and each shop, taking one with another, to contain five individuals, including men, women, and children; making the population amount to 350,000 souls, of which number 70,000 are Chinese, 20,000 Burmese, 20,000 Arabs and Indians; the remainder, or about 240,000, being Siamese. This was the best census we could take, and I believe it to be nearly accurate. The situation is exceedingly picturesque. I was told that, when the Siamese relinquished the ancient capital of Yuthia, and first established the throne at Bangkok, the houses were built upon the banks of the river itself; but the frequent recurrence of the cholera induced one of the kings to insist upon the inhabitants living upon the water, on the supposition that their dwellings would be more cleanly, and, consequently, the inmates less subjected to the baneful effects of that scourge of the East.—*Neale's Residence in Siam.*

PREVENTION OF ACCIDENTS IN IRON FOUNDRIES.—A Staffordshire correspondent of the *Times* says, with reference to a recent upsetting of a crane ladle, with melted iron,—"I would place a vessel in the floor: the one I am in the habit of using is much in the shape of a boat, made of wrought-iron thin boiler plate. It is coated inside with loam, 'daubed,' as it is called in the trade, put on to a waggon, and run into the stove, and made thoroughly dry. This vessel is then placed at a proper height to allow the iron to run out of it into the mould, through a sluice prepared for the purpose. The melted iron can be taken from the furnaces with crane ladles and put into this vessel; and here you gain a double object. By this method you mix your iron before it goes into the mould, as it frequently happens you get dull or thick iron from the air furnaces when you get it very hot or fluid from the cupola; and, further, you have no fear of chains, or cranes, or leverage breaking, and running a great risk of destroying life and property. By this arrangement you see the iron before it goes into your mould; you entirely do away with all the confusion and bustle; your principal stands by the letting out place of the vessel, and lets it run out fast or slow, just as the article requires it. Heavy beams, large turn-tables, cylinders, and girders may be cast with the greatest safety by this means: you may empty as many cupolas and air furnaces, and even blast furnaces, into vessels thus fixed. I should urge upon manufacturers at once to abandon the system of suspending 10 or 12 tons of fluid iron in the air from a crane frequently as high as the workmen's heads."

THE IRISH DRAINAGE COMMISSION.—The commission issued by Government to inquire into the Irish drainage works is about to commence its inquiries. It appears that the investigation will be one of a comprehensive character, extending to works involving an expenditure of about two millions sterling.

AN ESSEX ARCHÆOLOGICAL ASSOCIATION is about to be formed.

FISH PADDLES FOR STEAMERS.—A working shipwright at Liverpool, according to the local *Journal*, has patented (or secured for six months, at least, that capitalists may see) an invention for the propulsion of vessels by paddles shaped and working like fish fins, by means of which the inventor, Mr. Hampson, offers to beat both screw and wheel paddle.

ORIGIN OF AGRICULTURAL INVENTIONS.—From some remarks in the *Edinburgh Review*, it would appear that our American relatives are indebted to us not only for their stamina, their mother wit, and their ingenuity, but for some of their approved "original" inventions too. "A Scottish Presbyterian minister," says the *Review*, "puts together, in 1825, an adjustment of wheels and scissor-blades so working that when pushed along a corn field, it cuts down the grain as if done by hand, and far more cheaply and expeditiously. His brother, a farmer, improves upon and adopts this machine, and for a dozen successive years employs it in reaping his crops. The National Society gives the inventor a prize of 50*l.* but makes little noise about it, and although, in 1834, several were in operation in Forfarshire, few of the supposed wide-awake Scotch farmers thought of adopting it. But four of the machines were sent to New York from Dundee. Thoughtful, pushing emigrants, settlers in the North American prairies, saw, or heard, or read of these machines. The reaper was re-constructed, modified in different ways, by ingenious mechanics, was made by thousands for the farmers beyond the American lakes, and obtained a deservedly high reputation. Brought to London in 1851, the American reaping machine proved the main attraction of the United States' department of the Great

Exhibition. Hundreds of machines were bespoken by English cultivators, and all the while no one knew that the original model machine was at the very time quietly cutting its yearly harvest on the farm of Inch Michael, in the Carse of Gowrie." France and Norway, too, as well as America, are trading on British ingenuity. "A Devonshire farmer invents a modification of the rotatory churn. The French minister sees this at the Society of Arts, and incloses a description of it to Paris. A model is made, somewhat altered, and exhibited at the 'Exposition.' A Scottish director of the Highland Society has a copy made of it, carries it over to Edinburgh, and for the next six months all the Ayrshire amateurs are treating their friends to butter made in ten minutes, and amusing them with the wonders of the French churn. A Yorkshire smith fixes harrow-teeth into a long cylindrical axle at uniform distances, and fitting two of these axles together, so that the teeth of the one shall play between those of the other when it is dragged along the land, forms a machine admirably adapted for the tearing of heavy brittle clods asunder. It is known to few, and attracts little notice at home; but it gets to Norway. Seen there by an Englishman, it is pronounced, as it is, a thing of first-rate excellence, and under the name of the Norwegian harrow, it obtains a distinguished place at our future agricultural shows."

THE CAPITAL OF ICELAND.—The dwellings of the rich are of wood, and built entirely on the ground floor, with the exception of a single edifice, to which the high school now kept at Bassestadt is to be removed next year: this has an upper story. The Stiftsamtmann occupies a stone house, which was originally intended for a prison, but crimes are of such rare occurrence in Iceland, that it was converted many years ago into a residence for this officer of the crown. Another stone house can be seen from Reikjavick: it is the seat of the bishop, which lies surrounded by meadows near the sea, at Laugarnes, about half a mile from the town. The church is barely large enough to hold a hundred or a hundred and fifty persons. It is of stone, with a wooden roof, under which is kept a library, containing several thousand volumes. This church possesses a treasure which might well be envied by others of greater size and pretensions—a font by Thorwalsden, whose parents were natives of Iceland; and, although born himself in Denmark, he seems to have been desirous to honour the land of his forefathers. —*Pfeiffer's Iceland.*

TENDERS

For a clerk's house, at Messrs. Charrington's, Mile-end-road. Mr. A. R. Mason, architect.

Holmes	£1,060 0 0
Munday	995 0 0
Wilson	893 0 0
Hedges	885 0 0
Ashley and Horner	856 0 0
Lemon	855 0 0
Wood and Son	843 0 0
Hill (accepted)	838 0 0

For a malting-house, at Bromley, Middlesex, for Mr. Walmsley. Mr. Humphreys, architect.

Wilson	£3,985 0 0
Furmoul	3,900 0 0
Jay	3,598 0 0
Laurence	3,581 0 0
Haynes and Eyre	3,527 0 0
Thomas and Co.	3,462 0 0
Holmes	3,304 0 0
Hill (accepted)	3,294 0 0

For a dwelling-house, complete for occupation, in Clifford-street, Bond-street. Messrs. Banks and Barry, architects.

W. Cubitt and Co.	£3,845 0 0
Messrs. Piper	3,845 0 0
Lucas, Brothers (accepted)	3,750 0 0

For the new market-house, at Camborne. Mr. Bond, architect.

Jenkins and Williams, Gwinear	£1,195 15 0
T. and W. Eva, Helston	1,123 7 0
Carah and Co. Crowan	1,061 10 0
Tuck, Camborne	1,056 10 0
W. and T. May, Poole	1,034 10 0
Harris, Camborne	1,011 10 0
Vivian and Co. Illogan	985 10 0
Prior, Truro	952 0 0

For alterations and repairs, at 21, Lamb's-conduit-street. Mr. Herbert Williams, architect.

Sanders and Woolcott	£1,362 0 0
Field and Sons	1,075 0 0
Elston	1,073 0 0
Thompson and Crossnell	1,054 0 0
Day	994 10 0
Parkin (accepted)	797 0 0

TO CORRESPONDENTS.

LETTERS TO SCHILLAH.—The 13th letter on "History in Brick and Stone," will appear in our next. The 14th will probably conclude the series. We have been urged to republish them in a connected, cheap form, perhaps enlarged, and have the suggestion under consideration.

"*Lime Measure.*"—In lime measure, what is called a "Hundred," is 100 pecks, or 25 strûked bushels, old measure. By the Act of 1824, the standard measure for corn and other dry goods is declared to be the imperial gallon. Its multiples are the *peck*, 2 gallons; the *bushel*, 4 pecks; and the *quarter*, which is 8 bushels.

"J. G.," "Automath," "W. M. C." (we must decline giving our correspondent the name of the writer of the paragraph referred to. We are not aware that he has the slightest right to ask for it), "C. M. W.," "F. W. O.," "G. W.," "M. G. H.," "B. and S.," "Q. E. D." (we prefer allowing our contemporaries to manage their own business their own way), "G. J." (it shall be looked for), "G. F. E." (the quotations are perfectly sound, but do not support the expression objected to), "G. T. R.," "E. B.," "Leny," (shall appear), "G. R." (ditto), "W. H." (ditto), "S. S. T." (we shall be glad to see the paper), "Messrs. W. and Son" (shall appear), "No Peelite," "G. S.," "Roberto Angelo," "H. C. L."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

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Office, 140, Strand, London.
Manufactory, Gateshead-on-Tyne.

THE RECENT THUNDER STORMS.—SMITH'S PATENT WIRE-ROPE LIGHTNING CONDUCTORS, for the protection of Churches and other high buildings, Ships, &c. Am next many hundred instances of their perfect efficiency, as applied and fitted by the original inventor and patentee, A. SMITH, 68, Prince's-street, Leicester-square, London, that of St. Martin's Church, Leicester, is the most recent which has come to his knowledge (vide the *Times* of August 16).

SIR W. S. HARRIS'S LIGHTNING CONDUCTORS.—The public attention, as well as that of Church-Building Committees, and those interested in the preservation of churches and all description of buildings, is called to the very numerous recent disastrous effects of the heavy thunder-storms which have prevailed. THOS. W. GRAY, 79, King William-street, City, London, respectfully announces that he is the only person authorised by Sir W. Harris to apply his Lightning Conductors, and who will not be responsible for their application by any other persons. The peculiar form and adaptation of these Conductors is such as to safely carry off any amount of electric fluid, as evinced in many authenticated instances at sea, both in the navy and merchant service as well as in buildings; and to show the importance of these Conductors, it may be stated that the Prize Council Medal of the Great Exhibition was awarded for them.

Mr. T. W. GRAY will be happy to supply any information that may be desired, and to furnish estimates of the cost for fitting the Conductors.

SOUTH WALES RAILWAY.—NOTICE is hereby given that the next HALF-YEARLY GENERAL or ORDINARY MEETING of the Proprietors of this Company will be HELD, pursuant to the Act of Parliament, at the PADDINGTON STATION of the Great Western Railway, on FRIDAY, the 27th day of August, instant, at One o'clock precisely for the general purposes of business.—Signed,
C. R. M. TALBOT, Chairman.
WILLIAM MATTHEWS, Deputy Chairman.

The Transfer Books will be closed on the 13th inst. and will not be re-opened until after the said Half-yearly General Meeting, on the 27th instant. By order,
FRED. G. SAUNDERS, Secretary.
South Wales Railway Office, 10, Eastbourne-terrace, Paddington, London, August 4, 1852.

TOURS in IRELAND.—IRISH TOURIST TICKETS (available for a month) are issued at the following stations:—

	1st Class. £ s. d.	2nd Class. £ s. d.
London (Euston Station)	6 10 0	5 5 0
Edinburgh, Glasgow, Hull, Bristol, Carlisle, Oxford	6 6 0	5 5 0
Worcester, Cheltenham, Gloucester	5 15 0	4 15 0
Birmingham, Rugby, Leamington, Coventry, Lincoln	5 5 0	4 5 0
Wolverhampton, Huddersfield, Leeds, Sheffield, Derby	5 0 0	4 5 0
Manchester, Warrington, Stoke, Macclesfield	4 4 0	3 10 0
Liverpool, Chester	4 0 0	3 5 0

They enable the holders to proceed to Chester, Bangor, Dublin, Cork, the Lakes of Killarney, and by the new and romantic route of Kenmare and Glengariff, and back to the station at which the ticket was issued.

The holder of each Irish Tourist Ticket is entitled to have issued to him, at very reduced rates, tickets for a Tour in the County of Wicklow, for the journey from Dublin to Belfast, for the Excursion to the Giant's Causeway, and round Lough Neagh for the Tour through Connemara.

Every purchaser of a ticket is presented, gratis, with a copy of the "Illustrated Irish Tourists' Hand-book," compiled solely for these tours.

The fullest and most accurate information afforded at the Chester and Holyhead Company's Office, 33, Westland-row, Dublin. See also "Bradshaw's Guide," page 133.

THE PERMANENT WAY COMPANY beg to inform Boards of Directors, Engineers, and others, interested in railways, that in order to facilitate negotiations for the use of their patented improvements, now so extensively adopted, they have arranged with Mr. CHARLES MAY, Civil Engineer, 3, Great George-street, Westminster (lately of the firm of Mansomes and May, Ipswich), to manage their transactions. Communications made either to him, or to the undersigned, will meet with prompt attention. WILLIAM HOWDEN, Secretary.
Offices, 36, Great George-street, Westminster.

AUSTRALIA.—TO YOUNG MEN.—It has now become a well-established fact that a combination of labour and efficient machinery will prove to every individual interested therein three or four times more beneficial results at the gold diggings than individuals or small parties can by any possibility obtain without such assistance. An expedition is now preparing, and will be ready to leave England in about three weeks, consisting of practical men, and furnished with the most improved machinery for washing and crushing gold ore by horse power; also well provided with every other requisite, as waggons, carts, tents, bedding, mining tools of all kinds, cooking utensils, camp furniture, &c. The profits of all labour and machinery will be given to those joining the party, which is to consist of sixteen men, on the understanding that one fourth of the profits shall be the share of the capitalist, who has gone to the great expense of fitting it out. Two or three more are required to make up the number, and a preference will be given to mechanics or miners not afraid of work, and who can give a good reference as to character, with sufficient money for an outfit of clothes, payment of passage, and a few pounds to commence with.—Apply by letter only, in the first instance, stating age, occupation, if sober, at command, and giving a respectable reference, to C. K. 20, Sebbon-street, Islington.

AN Architect, who has some works in hand in Italy, and is about to proceed there early in September, is desirous of taking with him one or two Young Gentlemen as PUPILS, who would have an opportunity of acquiring some practical knowledge, with the advantage of visiting Rome and the principal cities in Italy for the purposes of study.—For further particulars address, A. Z. care of Mr. Norchi, King William-street, Strand.

WANTED, a person accustomed to the general routine of a BUILDER'S BUSINESS.—Apply, personally, to J. M. MACEY, Milford Wharf, Strand (near the Temple Pier).

WANTED, Three strong Youths, as Improvers to the CARPENTERING BUSINESS.—Apply to Mr. J. DAVIES, 122, Tachbrook-street, Belgrave-road, Pimlico.

WANTED, at Angmering Church, Sussex (about mid-way between Worthing and Arundel), a few good JOINERS. Also, at Brettingham Church, Norfolk, a few good STONEMASONS.—Apply personally.

WANTED, a BUILDER'S CLERK, fully conversant with the duties of the office.—Apply by letter, stating salary required, full particulars of last engagement, &c. to C. S. at Mr. Calder's Library, 1, Bathurst-street, Hyde-park.

TO CLERKS OF WORKS.

WANTED, immediately, a CLERK of the WORKS.—Applications, with references, stating amount of salary required, to be addressed to A. Z. Office of "The Builder," 1, York-street, Covent-garden.

TO FOREMEN OF PLASTERERS.

WANTED, a Man who thoroughly understands his business, and is competent to undertake the management of large Works. Good references required.—Address, E. F. Office of "The Builder," 1, York-street, Covent Garden.

WANTED, immediately, TOWN TRAVELLERS on COMMISSION, to Sell Articles of extensive consumption.—Apply personally, or by letter, to L. H. 63, John-street, Tottenham-court-road.

TO PAINTERS.

WANTED, immediately, a thoroughly good working FOREMAN of PAINTERS.—Address, with full particulars, A. X. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, immediately, in a BUILDER'S OFFICE, a CLERK well-acquainted with the general routine of the business.—Apply, by letter, to Mr. H. D. AUSTIN, 3, Cleveland-square, Paddington.

TO ARCHITECTS' ASSISTANTS.

WANTED, immediately, in the country, for two or three months, one who is efficient at Gothic, and in getting up finished drawings and perspectives, in a superior style.—Address, stating terms, G. M. ATCHLEY and Co. Architect Library, 106, Great Russell-street, Bedford-square, London.

TO BUILDERS' FOREMEN.

WANTED, immediately, a thorough practical MAN, to act in the above capacity in superintending the taking down and rebuilding of some premises in the City, and perfectly capable of conducting the job under a clerk of the works. A liberal salary will be given.—Address, R. A. D. Office of "The Builder," 1, York-street, Covent-garden, stating full particulars and where last employed.

TO BUILDERS' FOREMEN.

WANTED, for a permanency, in a Country Town, about fifty miles from London, an active, experienced WORKING FOREMAN. Testimonials as to character and ability will be required.—Address K. K. stating salary, Office of "The Builder," 1, York-street, Covent Garden.

TO BUILDERS' CLERKS.

WANTED, a highly respectable middle-aged person, to keep a set of books; he must be a first-rate accountant, and well versed in all matters appertaining to builders' accounts.—Address, R. A. D. Office of "The Builder," 1, York-street, Covent-garden, stating full particulars, where last employed, with references, &c.

WANTED, a Young Man practically acquainted with Building, as COLLECTOR of RENTS and SUPERINTENDENT of a few Workmen, chiefly employed in repairs.—Apply, by letter only, prepaid, addressed G. B. at Reynolds's Library, Church-row, Islington, stating age, qualifications, and amount of salary expected.

TO BRICKMAKERS.

WANTED, at Michaelmas, a FOREMAN, to look after SIX or EIGHT STOCKS. He must thoroughly understand his business, and be able to give unexceptionable references as to character and capability.—Address, with every particular and salary required, in applicant's own writing, to W. B. Blenheim Hotel, New Bond-street, London.

TO BUILDERS' AND TIMBER MERCHANTS' CLERKS.

WILL be WANTED, in September or October, to fill a permanent Situation, in an established business, twelve miles from London, where all descriptions of building materials are sold, and some branches of work are carried on, a PERSON who can be well recommended for capacity, industry, sobriety, and integrity. He must write a good hand, be quick and accurate at accounts, and accustomed to squaring up dimensions, &c. As the Advertiser is in immediate want of assistance, the fullest inquiry will be made, and any required explanation given to applicants.—Address Z. Post-office, Richmond, Surrey, stating salary required, &c.

MERTHYR TYDFIL UNION.—TO SURVEYORS, VALUERS, &c.—The Guardians of this Union are desirous of APPOINTING a VALUER, to value the parish of Aberdare, in the Merthyr Union, for the purposes of the poor's rate. The parish contains about 10 miles of railway, including two chief stations, and about four miles of canal, three ironworks (containing 30 blast furnaces), about 12 collieries, about 2,600 cottages, and about 800 other dwelling-houses. The total number of separate assessments is 3,030. The acreage is 16,585 acres, of which 700 arable, 8,500 meadow, 1,300 wood, and the rest mountain, &c. and the population (census 1851) 14,936. Further information may be had of Mr. HOWELL WILLIAMS, Assistant Overseer, Aberdare, or of the undersigned.—Apply by letter, pre-paid, stating terms and qualifications on or before the 3rd day of September, 1852, to FRANK JAMES, Clerk, Merthyr Tydfil.

SALISBURY LOCAL BOARD of HEALTH.—Notice is hereby given, that the Local Board of Health for Salisbury will, at a Special Meeting of the Board, to be held on the 20th day of August, instant, proceed to the ELECTION of a SURVEYOR, INSPECTOR of NUISANCES, and COLLECTOR of RATES for the District of Salisbury, under the Public Health Act, 1848.

The appointment of Surveyor will be combined with that of Inspector of Nuisances, and the person appointed must have a competent knowledge of the practice of engineering, be qualified to superintend works, test materials, and see to the fulfilment of the conditions of contracts by the contractors of works, and be able to discharge the several duties of surveyor and inspector of nuisances, under the provisions of the said Act.

The appointment of Surveyor will be required to produce satisfactory testimonials of their qualifications, and to state the salary at which they are willing to undertake the duties of the office.

The candidates for Collector of Rates will be required to state the per-centage at which they will be willing to undertake the making out and collection of the Rates, and the person appointed will be required to give security for the due performance of his duties.

Applications with testimonials to be respectively endorsed, "Application for the Appointment of Surveyor," or "Collector of Rates," as the case may be, and sent in to me on or before the 25th instant. By order,
MATT. TITO. BODDING, Clerk to the said Board.
Salisbury, August 15, 1852.

TO CARPENTERS AND CABINETMAKERS

WANTED, to APPRENTICE a respectable Youth, aged 14, to the above trade.—Apply to Mr. DAVEY, Blue Posts Grosvenor mews Bond-street.

WANTED, a SITUATION as FOREMAN, in a STONE POTTERY. The advertiser is well acquainted with all kinds of clays and glazes, including the white enamel and yellow ton.—Direct A. W. 35, Neville-street, Vauxhall, Lambeth.—No objection to go abroad.

TO ARCHITECTS, BUILDERS, &c. IN TOWN OR COUNTRY.

WANTED, a SITUATION, by a steady young MAN, aged 20, in an ARCHITECT'S or BUILDER'S OFFICE, who has been five years in the business. Has been chiefly engaged in preparing finished and working drawings. Can keep accounts, and writes a good hand.—Address, A. Z. M. Post-office, Brightlingsea, Essex.

TO DRAUGHTSMEN, &c.

WANTED, by a Professional Man, in the neighbourhood of London, the occasional services of a good and expeditious DRAUGHTSMAN, who must be thoroughly conversant with the details and practical part of house-building, taking out quantities, estimating, and superintending works, if required. None need apply who se character and ability will not bear the severest scrutiny. Apply by letter, pre-paid, to E. B. Mr. Sumpter's, Post-office, Stamford Hill, Middlesex.

TO BUILDERS AND OTHERS.

THE friends of a Youth, aged 15, wish to place him for a short term where he will have an opportunity of gaining a general and practical KNOWLEDGE of BUILDING. Address, S. J. W. No. 13 , Strand.

TO BUILDERS.

A RESPECTABLE YOUNG MAN, a son of a Builder, wishes to ENGAGE himself with a person for IMPROVEMENT. Respectable references given if required.—Address, C. B. No. 8, Wenlock-street, New North-road, Hoxton.

A RESPECTABLE YOUTH is desirous of obtaining a SITUATION in a Builder's Office; he is a good scholar, and has been principally engaged in the building line.—Address, J. GOLDING, Banelagh-wharf, Commercial-road, Pimlico.

TO CARPENTERS AND BUILDERS.

A YOUNG MAN, who has worked at the trade five years, wishes to ALTER his employ, or to know where he would have an opportunity of perfecting himself in the business.—Direct F. GREEN, 46, Rawstorne-street, Goswell-road

TO BUILDERS AND BRICKLAYERS.

A YOUNG MAN, age Twenty-one, wishes to ARTICLE himself to a BRICKLAYER or CARPENTER, to learn either business; has been used to the plumbing and glazing. A moderate premium would be given. Country no objection. Address to A. L. No 14, Chiswell-street, Finsbury-square.

TO BUILDERS, MASONS, STONE MERCHANTS, AND OTHERS.

A YOUNG MAN, aged 30, possessing good abilities and practical skill in masonry, measuring, and general accounts, wishes for a SITUATION as YARD FOREMAN of Masons, or MANAGER and SALESMAN at a Stone Wharf.—Address, A. B. care of Mr. Geo. Whight, Builder, Ipswich. N.B. Re'erence if required.

TO ARCHITECTS AND SURVEYORS.

A YOUNG GENTLEMAN, who has been two years and a half in an Architect's Office, wishes for a SITUATION, where he will have plenty to do, either in making out drawings of any kind, or as clerk of works. Has a knowledge of perspective and mensuration. A moderate salary required.—Address H. J. Post-office, Uxbridge, Middlesex.

TO BREWERS' WRITERS, PAINTERS, RAILWAY COMPANIES, &c.

AN EXPERIENCED SIGN WRITER is in want of CONSTANT EMPLOYMENT. If in a Builder's large firm, no objection to fill up time in keeping accounts or men's time.—Address B. B. 268, Upper Thames-street, City.

TO ARCHITECTS, BUILDERS, ENGINEERS, &c.

A GOOD ARCHITECTURAL DRAUGHTSMAN would be glad to employ several hours every evening in any work which might be required to be done. Terms moderate. —Address by letter to A. A. A. Thomas's Advertising Office, Catherine-street, Strand.

TO DRAIN-PIPE MANUFACTURERS AND OTHERS.

THE Advertiser, who is about leaving his present engagement, has had great experience in the making of drain pipes, &c. is desirous of obtaining a SITUATION as MANAGER to superintend the manufacturing of such. The country preferred. — Address, J. B. 7, Bermondsey-square, Bermondsey.

WORKSHOPS with STEAM-POWER, with GAS laid on.—TO BE LET, ROOMS of 300 square feet to 2,500 square feet, at, and apply to E. F. ARCHER, 481, Oxford-street.

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TO BE DISPOSED OF, several hundred loads of RUBBISH, lying in Newcastle-street, Whitechapel.—Proposals to be sent to Mr. PALMER, Surveyor, 3, Furnival's-inn.

TO BRICKLAYERS AND CARPENTERS.

TO BE DISPOSED OF, an Old-Established BUSINESS, with good profits, situate in the City.—For particulars apply to Mr. MATTHEWS, House and Business Agent, 48, Liverpool-street, City.

TO PAINTERS, PLUMBERS, AND PAPERHANGERS.

TO BE DISPOSED OF, in a small town in the county of Norfolk, an old-established BUSINESS, making a good return in the above branches, and would prove a desirable investment to a man of energy and small capital.—For further particulars, apply to Messrs CHATER and SON, St. Dunstan's-hill; or to Mr. J. BLOYD, 11, Duke-street, London-bridge, London.

TO CARPENTERS, BUILDERS, AND UNDERTAKERS.

TO BE DISPOSED OF, a bargain, the GOODWILL of a profitable and long-established BUSINESS in the above line, near the Bank, with double dwelling-house, well let off; also may be had coach-house, stabling, and large yard, spring cart, harness, &c. Reasons for quitting and further particulars obtained of Mr. H. H. RUSSELL, 39, York-buildings, Adelphi.

TO IRONMONGERS, BELLHANGERS, GAS-FITTERS, &c.

TO BE DISPOSED OF, an Old-established FURNISHING and BLACK IRONMONGERY BUSINESS, doing a good trade in the country. There is a double fronted Shop of commanding appearance, situated in the best part of the Town, and it is a most desirable opportunity. Very satisfactory reasons will be given for parting with it. Stock and Fixtures at a valuation. From 600l. to 700l. required.—For further particulars apply to Mr. ROBERT FOOTTIT, Chemist, Great Marlow, Bucks.

TO BRICKLAYERS AND BUILDERS.

TO BE DISPOSED OF, the GOODWILL of an old-established BUSINESS of a BRICKLAYER, PLASTERER, &c.; the present proprietor has carried on successfully the trade for near thirty years, and is now wishful to retire from business. The premises comprise a dwelling-house, with shop and large shed, with back entrance; are desirably situate in the neighbour of Bedford and Russell-squares, and are held on lease direct from the Duke of Bedford, at a very low rent. For particulars, apply to Mr. FINNIS, Auctioneer and Valuer, 26, Great Russell street, Bedford-square.

PEWING for SALE.—The PEWING, panelled, and in good condition, of a CHAPEL, capable of accommodating 450 persons, TO BE DISPOSED OF by TENDER.—Particulars to be obtained of Mr. F. ROGERS, 91, Grey Eagle-street, Spitalfields.

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The instruction given in this class consists in the practice of Drawing on Wood, Engraving on Wood, and Preparations for Printing Wood Blocks.

The productions of the students, when required, and found suitable, are used by the Department in its publications.

Students are not admissible to this Class until they have acquired the power of drawing from the Round.

The Class meets at Marlborough House every morning (except Saturday) from ten to one o'clock. The vacations are—six weeks at Midsummer, from 16th July to 31st of August; two weeks at Christmas, from 24th December; and Easter Week.

FEES.

Students who have attended the Metropolitan Female School, or any Local School of Ornamental Art, and produce a certificate of having passed satisfactorily through the first six, the tenth, and fourteenth stages of the course of instruction, are admitted on payment of a fee of 30s. per quarter, or 8l. a year, paid in advance.

All other students are admitted on payment of 50s. a Quarter, or 18l. a Year, paid in advance.

Applicants for admission are required to submit specimens of their ability to Miss WATERHOUSE, any morning except Saturday.—By order of the Board of Trade.

WALTER RUDING DEVEREL, Secretary.

ARCHITECTURAL DETAILS and PRACTICAL CONSTRUCTION.—A SPECIAL CLASS at the DEPARTMENT of PRACTICAL ART, Marlborough House, Pall Mall, London, is conducted by C. J. RICHARDSON, Esq. M.I.B.A.

In this class Instruction is given in Linear Drawing and the use of Geometric Instruments, in connection with the following Studies:—

1. Practical Geometry and Geometric construction, applied to Carpentry Joiners' Work, Masonry Work, Shoring, and the various branches of Constructive Architecture; Upholstery, and Interior Decoration.
2. Architectural Details, as, Architraves, Doors, Mouldings, Panels, Pilasters, Sofits, &c., and the preparation of Working Drawings of the various members of Architectural Construction.
3. Ichnography, or the Science of Planning; Skiagraphy, or the Projection of Shadows; and Plain and Isometrical Perspective applied to the purposes.

This Class meets at Marlborough House on every evening in the week, except Saturday, from half-past six to nine o'clock.

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All other Students are admitted on the payment of a fee of 5s. per Month for the Evening, and 10s. per Month for the Morning.

Applicants for admission to these Classes are required to submit specimens of their ability to Mr. Richardson, and can do so on any evening, except Saturday, from half-past six until nine o'clock.

Morning Classes will be formed to attend on two days in the week, as soon as a sufficient number of applicants have signified their desire to enter such Classes. All persons wishing to join them must apply, personally, to Mr. RICHARDSON, at the hours above named, or by letter to the Secretary, at Marlborough House.

By order of the Board of Trade

WALTER RUDING DEVEREL, Secretary.

EVENING ARCHITECTURAL, ORNAMENTAL, and PERSPECTIVE DRAWING CLASSES, conducted by THOMAS J. HILL. Offices, 12, Helmet-row, Old-street. Hours Seven till Ten, every evening, Saturdays excepted. The whole of the valuable and rare collection of models and drawings of the late C. Davy, esq. of Furnival's-inn, are at the use of the students. Terms moderate.

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ROYAL COLOSSEUM (every MONDAY at HALF PRICE.—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. Open daily from half-past Ten till Five o'clock. In the Evening, from Seven till Ten, "Paris by Night," and the whole establishment brilliantly illuminated.—Admission, Day or Evening, 2s. Children and Schools half-price.

CRYSTAL PALACE (Admission 1s.). At the CYCLORAMA, Albany-street, daily at 3, 7, and 9, Evening at Eight o'clock. Seven stupendous Tableaux of the Great Exhibition and its contents painted by Mr. Mac Nevin, from original studies, and on a scale nearly equal to the original. Reserved seats, 2s.

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THE GREAT INDUSTRIAL EXHIBITION to be held in Dublin in 1853.—The general committee beg to inform intending exhibitors that the design of Mr. JOHN BENSON has been adopted for the building, and that its construction has been commenced. The wall and counter space will amount to about 235,000 superficial feet, with power to increase it if required. THURSDAY, the 5th of May next, is fixed for the opening of the Exhibition.—By order, C. P. RONEY, Secretary.

Offices, 2, Upper Merrion-street, Dublin, Aug. 17, 1852.

CRYSTAL PALACE, 1853.—To EXHIBITORS. Exhibitors desirous of obtaining space for the Exhibition of objects included in the Four Classes of Raw Materials, Manufactures, Machinery, and the Fine Arts, are informed that the Directors have reserved a limited amount of space available for that purpose, and that they will be ready to allot the same on the first of November, 1852. Applications for such space for the amount required, will be received by Mr. BELSHAW, at the Office, 3, Adelaide place, London Bridge.—By order,

3, Adelaide-place, London-bridge, 10th August, 1852. GEORGE GROVE, Secretary.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons, and Architect, in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishments of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 38, Pall-mall, London.

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By order, EDWARD S. STEPHENSON,
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NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

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March, 1852.

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PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel. Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

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MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 200 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the want of the Roman Cement are superseded by the use of this improved manufacture.

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GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

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MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established, in London, the most extensive Depôt of Statuary, Italian, Sienna, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge. Office, 8, Crescent-terrace, Millbank. Mr. THOS. THOMPSON, Agent.

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VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and can be kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABY'S Belvedere-road, where terms may be obtained.

THE PIMLICO SLATE WORKS, Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted), continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

TERRA COTTA and SCAGLIOLA manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs, and sold at No. 1 Wharf, Praed-street, Paddington.

Vases, tazzas, friezes, capitals, costs of arms, chimney shafts, trusses, flower pots, and all ornamental work required to stand heat and frost without cracking or changing colour, may be had at nearly the same cost as casting in cement.

Terra Cotta is more durable than iron, granite, marble, or stone, and may be made of black, red, and light cream colours of every shade. It can be more uniformly and delicately wrought than either stone or marble, and architects can have their own designs modelled and fired in this material without moulding and the chance of copying) fresh from the hands of the artist.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Flooring laid with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

The Builder.

No. CCCCXCIX.

SATURDAY, AUGUST 28, 1852.

WE went out the other day to taste some water, and when we had found it, it had *no* taste, and that was exactly the reason we went for it. "Why, I thought that water-question was settled," a friend said when we told him where we had been; and perhaps inadvertently some of our readers may say the same thing, but they will not repeat it on reflection. The question of the proper supply of proper water to London *is not settled*, and none but the wilfully blind, or the naturally stupid will say it is,—none but ignoramuses or shareholders, the latter of whom, by the way, merely act as others would do in the same position. We do not usually employ coarse language; but this is too important a matter to mince words upon. The water-supply question IS NOT SETTLED, any more than the drainage of London is settled because one set of hand-tied commissioners after another,—dummies in spite of themselves, according to their own account,—have been appointed, and have met, and have killed their officers and themselves, have spent money without reference to a plan, and have got miserably into debt, without advancing the purpose of their existence a single step. The water-supply question is NOT settled any more than the burial in towns' question is settled because an Act of Parliament has been passed which permits amelioration but does not enforce it. The water-supply question will not be settled, and must not be considered settled so long as we have any but the *best* water, both in a sanitary and an economical point of view, and the most efficient supply possible. It is really a very important question for the metropolis, involving health and money to a large amount; a question which should be settled—but is not. Well-informed, honest, and able men may express themselves contented with the present arrangement as a sacrifice to expediency; but they must feel that this cannot last, and ought not to last. It is not the course they would take in their own arrangements: it is still less the course which should be pursued by a wealthy and powerful community.

The place we went to was Farnham, where the hill-top water, as recommended by the Board of Health, in preference to the valley-bottom water pumped up for the supply of London, is used for the town, where about 800 houses, as we understand, with a population of 7,000 persons, are supplied with it.* We were informed that "the whole supply of the town is derived from the drainage of only two acres of the hill side; including two small hollows, formerly moist and boggy, but since the drainage perfectly dry. This little tract is traversed by one main pipe, of ordinary burnt clay, about 6 inches in diameter, into which run twenty or thirty ramifying feeders, of about 3 inches capacity. The water with which the sandy hill is saturated (supplied by the rainfall on its surface) oozes through these subterranean feeders in an unfailing flow, sufficient for the constant replenishment of the reservoir that supplies the town!" The pipes themselves are of course buried out of sight, but the tracks of the trenches made for their reception are visible, and serve to illustrate the plan of the capillary system by which the sun-distilled rain-water and some constant springs are collected, immediately after natural filtrations through a layer of silicious sand. It is bright, pellucid, and tasteless; and by the application of various tests its freedom from lime, &c. was shown, and that it averages about 2½ degrees of hardness. Let us say here, that in calculating these degrees of hardness, distilled water is taken as 0, and that each *degree* of hardness means as much as would be imparted to a gallon of distilled water by the lime contained in one grain of chalk. To destroy a degree of hardness requires about 2 oz. of soap, which is *destroyed* without other effect; thus a water of 2½ degrees of hardness, for example, will destroy about 5 oz. of soap, and a water of 12 degrees, 24 oz. of soap, to put them into the same condition for cleansing as distilled water. The degree of hardness of Thames water may safely be taken as the latter of these figures, 12,—some chemists say 16; and the loss which this causes in the items of soap and soda may at once be made obvious. So, too, with tea, and in brewing and other domestic operations. In the item of washing alone it is shown that a saving of probably 250,000*l.* per annum might be effected to the metropolis by the introduction of soft water.

We have again and again, before now, given the facts from which these inferences are made, but it is necessary to say a thing often before it is heard, and we will therefore once more produce two or three witnesses.

"In Farnham, I find, that at one of the largest washing establishments it is stated, in one case, by Mrs. Corps, 'we now do with the soft spring water the same amount of washing with 4 lbs. of soap that formerly took 6½ lbs. of soap and 6½ lbs. of soda with the hard well-water or the river water.' Putting soap at 6d. and soda at 1½d. per lb. this gives the respective expense of soft and hard water as 2s. to 4s. 0¾d. or as 1 to 2.

Again, in the second case, Mrs. Hayes, of Farnham, says, 'with soft water, 6 lbs. of soap does now the same washing that was done by 9 lbs. of soap and 9 lbs. of soda formerly.' Here the expense of soft water is to hard water as 1 to 1·9.

Take a third case: Mr. Edwards, plumber, of Farnham, says, 'for upwards of thirty-five years I have employed a brazier and assistants, for whom I find soap to wash when leaving their work. As long as the hard water was in the house, the expense of soap per week was 3d.; having now soft water, the same washing is done for 1d.' Soft water is here as 1 to 3. This is an outside case, from the dirty nature of brazier's work, but affords valuable proof of the comparative solvent powers of the two waters with soap."*

Some who have objected to the views of the Board of Health have urged, that as for the greater part of the clothes washed hot water is used, and in heating the water the lime is deposited in the kettles and boilers, a great part of the hardness disappears. But here, and in the evidence of other witnesses, are given practical results without reference to theory.

As to the waste in tea, at Bolton, the report of the Board of Health says, a change from water of about 5½ degrees of hardness, not half the hardness of Thames water, to a water of about 2 degrees, saved about 1*l.* a week out of 2*l.* 10*l.* in the union workhouse.

Many medical men have given evidence against the use of hard water. Dr. Leech, of Glasgow, says, various diseases have become less frequent where soft water has been substituted. Dr. Sutherland has arrived at the conclusion, from practice in Liverpool, that the use of hard water in certain constitutions materially deranges the health. When we say that every gallon of water supplied to London contains sixteen grains of chalk (if it does contain quite so much as this), its importance does not strike so forcibly as when it is remembered that these give in the day's supply to the metropolis no less than twenty-six tons of lime!

This is a new sort of *Insolvency*, wherein all are *whitewashed*, whether they will or not.

Lime, however, is not the only adventitious and deleterious matter in the water of the Thames, our common sewer! And what the use of impure water will do during the prevalence of an epidemic, the records of the last visit of cholera to our shores prove by fearful facts.

Opinions differ as to the certainty of finding sufficient water on the high grounds to supply the quantity required, and as to the cost of effecting it. Mr. F. O. Ward, who has warmly taken up the advocacy of this mode of supply, and was the leader of the expedition on the occasion to which we have referred, argues that the Farnham artificial springs were found cheaply available for the supply of 300 houses, and that these little works a thousand times repeated would obviously suffice for the supply of the 300,000 houses composing the metropolis; the cost being relatively less in the second case than in the first, owing to the reduction of establishment charges by the larger scale of operation.

The Board of Health estimate the quantity of water required to meet the present necessities of the metropolis at forty millions of gallons per day: Mr. Warren, one of their opponents, puts it at fifty-five millions. He says, in explaining one of his items, "In designing a system of water supply which is to be permanent for London, is the possibility of some day acquiring the benefits of public fountains to be precluded? Is the Londoner never to see even in prospect his city ornamented, its atmosphere refreshed, and its health improved by such pleasant means? Is the country-born artisan, deep buried in the miasmata and sloughs of the metropolitan working districts, never to find in this huge city some fancied realisation of the weak memories of those running streams and bubbling fountains that his childish eyes loved to watch? Oh! ye ruling magnates, for the love of heaven, and that glorious nature which is dear to the poor man as to yourselves, and which you can enjoy in peace and leisure, remember the toiling artisan, give him bright light, give him fresh air, give him clear running water, and you give him health and cheerfulness for his lot, and will unfailingly draw down unnumbered blessings on yourselves."* Loudly we echo this: give him pure air, good water; health and cheerfulness.

Mr. Napier states that the gathering grounds

* The whole number of houses there is 2,300; population, 11,700.

* Report "On the Proposed Gathering Grounds for the Supply of the Metropolis from the Soft-water Springs of the Surrey Sands." Addressed to the General Board of Health. By the Hon. William Napier. 1851.

* "The Report of the Board of Health on the Supply of Water to the Metropolis weighed in its own balance and found wanting." By J. Neville Warren, C.E. 1850.

would furnish forty millions of gallons, which might be brought to London, at a hardness not exceeding one degree, and that he would answer for at least ten millions more under two degrees of hardness.

At Sandgate, we may take the opportunity to say, this mode of supply has been resorted to under the Public Health Act. Tile drains have been spread beneath a sufficient extent of surface of the nearest hill top, to collect the water falling upon the hill, after it has fallen through a few feet of the upper stratum, instead of taking it in the valley or from the river, after it has washed a considerable extent of surface, and brought with it the collected impurities. At Sandgate there was no surface or stratum of sand or rock of primitive formation for the collecting ground, and the best available hill surface, therefore, has been used; and the water yielded by the new works is described as a soft water of only seven degrees of hardness, undoubtedly a great improvement on the water in the stream, and a most important relief from the necessity of having recourse to the water in the wells. The water is now collected immediately beneath the surface, as it were in artificial shallow springs; is led, not to open reservoirs, but to covered tanks in the hill side, and thence, not by an intermittent supply to open butts or cisterns, amidst the houses, but carried in a constant supply into every house.

We repeat our first statement: the question of water-supply for London is not settled; but it should be, forthwith, before the various water companies spend more money under their increased powers. London ought not to be satisfied with anything short of the most copious and economical constant supply of the best and most saving water that modern knowledge and science can supply.

ST. PAUL'S. No. III.

MECHANISM OF THE DECORATION.

SUPPOSING it, then, intelligibly used, and rightly lighted, we proceed to the ornament; and let us first distinctly understand what we mean by a scheme or design for this work. Does it mean a pattern for the whole, such as we give for those ordinary works where the architect is or stands for the sole designer, the supplier of all the thought, leaving nothing to be done but what machinery can do? Not only would such a *puttern* (for it might still leave the real work of *design* untouched after all)—not only would it, to be really worthy the building and purpose, require a lifetime to develop, but it would, if developed, destroy, as I conceive, the whole charm and distinctive character of a Christian temple. By a *temple*, observe, I do not mean simply a church or oratory, but something more;—not merely a house of prayer and preaching, but also of praise;—and first let me point out this difference.

For praying and preaching in then, I imagine that four brick walls and a weathertight roof, with no more thought for appearance or "*appearances*" than we give to a pigsty, or the unseen parts of a palace,—nothing either for beauty or for *gentility*,—no work either for love of the thing, or for *fear of looking as poor as we are*,—nothing to express either our delight in and respect for the work, or the *respectability* of our purse,—nothing either graced with unnecessary finish, or disguised with counterfeit wealth-marks;—I think that such a praying and preaching house would be just as proper, and answer these ends as well as any cathedral; and infinitely better than the most genteel Quaker chapel, smothered in its full compliment of bead and flush dados, render float and set, &c. &c.; or the most "correct" and incomprehensible of our present toy churches, smothered in its full compliment of mimic buttresses, mimic mullions, and mimic gables. I see not a pin to choose between the two latter, between the joiners' and plasterers' sham proprieties, or the architects'. The buildings without *either*, the real cathedral and the real barn, appear to me (if praying and preaching were their only ends) both exactly equal,—equally fit and right;—the modern Gothicism and the Wesleyan "barn," equally and beyond all other conceivable buildings, unfit, indecent, and wrong. But then, prayer and preaching are not the whole of the service; and supposing we could get this real barn, how should we stand up and sing, "Lord, I have loved the habitation of thy house, and the place where thine honour dwelleth," when everything around shows it has not even the marks of love and honour I bestow on my walking-stick or snuff-box? How could honest people be expected to say to Him, "How amiable are thy dwellings," when there was no appearance of anything about them being half so amiable as the meanest things about our own? or to sing, "Glory and honour are in His sanctuary," when His sanctuary is precisely the only thing among all our works receiving no glory or honour whatever.

I assume, then, that the end and scope of all church ornament is simply to enable these passages to be sung without hypocrisy; otherwise we had better strike them out of the psalter or the psalter out of the Prayer-book, like that most respectable people the Quakers, whose consistency is a pattern for us; for, having abandoned all things about their oratory not needed for material comfort, or genteel appearances, they have seen the necessity of abandoning psalm-singing too; their worship being far too spiritual for such outward manifestations and material sacrifices, though not for the full customary sacrifices to fashion; and far above giving its externals any marks of thought or care, though by no means above recommending them to the worshipper of Mammon and Mammon's image, *respectability*, by every the most respectable and unreasonable mark thereof that chance association ever created, or tradesmen's modistry and modemongering ever turned to profitable account.

These polemics are not wide of the subject; but to return, it seems to me that if these psalms are to be sung in a church, it must, to avoid mockery, have beauty, splendour, and refinement at least as great, at least as costly, and at least as studied and cared for as that of the people's home. It seems that if, besides an oratory and preaching-room, it is also to be a house of praise, it must be *itself* a psalm,—a standing hymn, a perpetuated chorus of thanksgiving, in which all instruments, all talents, all abilities, all grades of art, all varieties of honest skill, may, without display and without discord or superfluity or waste, be called forth, each from that hand which God has blessed with it, from young men and maidens, from old men and children, from philosophers and stone-cutters, from poets and plasterers, from each a thank-offering in what each can give best—in money, in diligence, in handiwork, in thought, in each a little more than is bargained for—a thank-offering from great and little, so harmonised by the composer or architect as to be *one* without uniformity; conformed without loss of individuality; each one's thank-offering of each one's gift, yet a people's *one* offering of a people's manifold gifts. Such a temple was the Parthenon. It combined in one work every man's best work, that of Phidias and of the pavior.

But a Christian temple was yet more, yet a fuller chorus than this, inasmuch as it gathered up (though never with such perfect harmony) the voices not only of all conditions of men in one place at one time, but of a long series of ages. In this was the superiority of the new religion typefied, that time divided not the harpers in one such great chorus, nor hindered those of widely distant ages from bearing common part in one of those marvellous embodied hymns. An I such would we have this temple, yet more harmoniously tuned, more nearly approaching this idea of the mediæval temple than any of those minsters did—this temple, so unique, so seamless in its structure, "that this, of all the cathedrals in the world (as Alfred Bartholomew says), "by a special divine favour, was permitted to be the only one which, like the vesture of Christ, was ever wrought in one texture throughout." Would have its adornment like theirs, a still progressing work, a never-ending song, a joi of many generations, a thing that infant hands and the same heads grown gray may work upo and care for and love; a work on which artis nor nation may ever write *fecit*, but only a ancient artists wrote, *faciebat*—never incom plete, yet always admitting fuller completion never hastened and never left off. For th shorter time a temple is in building and th longer in use the better; and one of its uses its peculiar use, is to be decorated. While it is not being decorated it is not being used *i.e.* not as a temple (and of all hard places t use as an oratory, a sham temple is the hardest *Finish it that we may use it*, should be the cr while it is building; but *finish it off and han done with it* is the cry of laziness, narrowes selfishness, most odious hypocrisy, the cry c an age wrapped up and blinded in counterfeits thinking only under the base pretence of reli gion to get itself a sham monument, and us the piety of others to keep up its own paupe respectability and miserable self-glorification.

It follows, then, that in a real temple though one mind must, no less than in othe works, design or settle both the whole com struction and the whole mechanical or struc tural decoration (as Wren has here done), ye must that more independent kind of decora tion which we call *ornament*, that which ma be put on or left off, and added to any exten at pleasure, be the work of many minds though regulated by one. For there can b no real success in any work without an archi tect, and it is as true of architects as o generals, that you had better have one ba than two good ones. It must then have many we hope very many, *designers*, but only on *architect*; and thus, what you want of him i not that pattern you would make for a riban or a villa and call a design, but something fa broader and larger. You want not a *desig for the works*, but a *design for the designs*,— well-considered master-foundation, on whic every man may build his own work with hi own stuff, be it gold, silver, stone, wood, o stubble,—a bond of unity to link them all an subordinate them to Wren's mighty physica foundation, and to one ruling subject,—a cod to limit but also to suggest and call forth thei variations, not a pattern to save the trouble c inventing any. Patterns of their chief varieties indeed, he must provide—types to exemplif the rest—to fix their style, to fortify them wit a barrier against fashion (for fashion and truth are utterly incompatible in these matters always have been, and always must be, as will prove elsewhere); and hence, that they ma never be out of fashion, they must owe nothin of their acceptance to fashion, but be totall independent of it; they must be reasoned ou and *seen to be right*, as well as agreed to; the must command not only a *willing* but an *aetiv* obedience,—must be adopted and followed no for the sake of uniformity, but of truth.

I say, then, first, they must be subordinate to the whole and the chief subject, in every thing, in spirit and meaning, in artistic treat ment, in style, in physical material and mani pulation, in every quality down to the lowest the merest mechanism; and however needless such truisms might be to assert anywher else under the sun, they are far from needless here, as we shall at once see on turning to th ghastly ulcers called monuments (which thought it needless to say must disappear be fore *anything* be done). I do not speak o their spirit and character, because every on who does, now happily sees its deadly venom The days that produced them, thank God can never return. No one who thinks of th matter at all supposes the building can begi to be used or decorated till these basilisks ar gone. Nothing can be done in their poisone atmosphere that shall not have to be undone so that it is needless to reason on anythin done while they are tolerated; but what I her allude to is their exact contrariety to true or nament in every minor matter, even down t

the least. They are subordinate to nothing in nothing,—in no single respect, from choice of subject down to choice of stone,—in all things totally lawless, pieces of pure selfishness, pure isolation; designed hoodwinked, with one eye shut and a microscope to the other,—invaluable perhaps as the only perfect exemplars of everything that must not be done. Could we but exactly reverse everything in them, we should have what we want.

But what qualities of the ornamentation must be settled first?—the artistic or the mechanical? First, I think the mechanical, because these, in all true ornament, partly govern the artistic, but are nowise governed by them. They governed anciently in many cases, even, I believe, the choice of subject; but, certainly, always its artistic treatment. In true decorative art, glass does not attempt the same kinds of resemblances to nature as oil-painting, nor painting the same as carving, nor carving the same as inlaying; but each material and manipulation does what it can do well, and nothing more.

Now, with regard to material, there are certain parts of the interior of every large church or speaking-room, that require to be lined with matters incapable of reflecting sound, as cloth, canvas, or tapestry. Before the laws of reflection and sound were known, men had of course no remedy against the prolonged confusing reverberations from bare walls and vaults, but by lining them entirely, or as much as they could afford, with these materials; but since these laws are part of our knowledge, every architect who chooses to take the trouble can ascertain what parts of the surfaces of any building require this treatment, and on which parts it would be thrown away. Some few reverberating surfaces (as the sounding-board of a pulpit) are thus seen to be rather advantageous than not, because if the sound-waves are brought to a hearer by suffering reflexion at a point near the speaker or himself, say within 30 or 40 feet of either, their route is not so much longer than that of the direct waves as to make a perceptible difference of time in the arrival of the direct and the reflected sound, which thus strengthens it. But if the reflection or reflections bring it to us by such a circuitous route as to be 60 or 80 feet longer than the direct path, every articulation will come $\frac{1}{20}$ or $\frac{1}{15}$ of a second later by reflexion than by the direct waves, which is delay enough to confuse one letter with the next; and with double or treble this distance, one syllable with the next. But where, as in this case, only part of the building is occupied by the hearers, there are some surfaces (in this case very many) which only reflect waves from the speaker away into the unoccupied parts, from whence, however many times reflected, and bandied to and fro, they cannot return to the auditory without having struck some one or other of certain few surfaces; so that if *these few* be rendered non-reflecting by a soft covering, all the reverberation heard in the auditory will cease, however much may be heard by persons elsewhere; for we need not care how far these echoes travel, and are repeated, in the empty parts, provided they do not again enter the auditory, which they cannot do without rebounding from one of these critical surfaces, which are therefore the places at which to stop and absorb it by yielding hangings.

Now, when the auditory shall be in its permanent place, under the dome, I find the surfaces needing this treatment will not be at all more extensive than at present, though the congregation be at least six times as great. A careful investigation will show that no sound coming from the central octagon can return thither in any number of reflections, without having bounded from one of these following, which I enumerate in the order of their importance:—

1. The concavity of the dome, from its eye down to the cornice.

2. The four end walls of the building's arms, from floor to ceiling.

3. The east side of each pier in the nave, a few feet upward from the floor, and the soffit of the arch above, a few feet upward from its springing.

4. The four cants behind the statues of Johnson, Reynolds, &c. a few feet up from the floor.

5. The inward faces of the eight great piers, up to half the height of the highest occupied gallery.

6. The four lower half domes, *if they have no galleries below them;* for if the sound they reverberate (mostly downward) has to descend to the people on the floor, it will be delayed enough to interfere with the direct sound, but if intercepted (like that from the *upper* half-domes) by a gallery only 20 or 30 feet below the reflecting surface, it will, instead of confusing, aid the hearing for people in that gallery; so that the half-domes must in that case be left hard and smooth, as also the flatter half-domes inserted to support such galleries, which will similarly reflect down to the people on the floor beneath them.

We have then to cover with textile material, *at least* the dome and four end walls. Let us first consider the dome. Whatever the clothing be (and nothing but experiment can determine how thick or thin it may be, whether mere felt or some kind of matting, and whether admitting for cleanliness a smooth covering of India-rubber or not), whatever it be, there must be numerous ribs, fillets, bands or plates of stiff material, to hold it to the concavity by slender bolts of brass, passing through the shell. Now these *flatteners* (as I will call them, whatever shape they take) are the natural ornaments of the surface, and (unless it be embroidered) the only ones that will not be superfluous and false. All that their mechanical use calls for is a pretty equal distribution, never leaving more than a certain maximum breadth of cloth between them. Shall they then form ribs or bands, dividing the whole into panels? I think not, because I think the glory of a dome is its entirety, and therefore quite agree with Ruskin in regarding either the mimicry of Grecian flat-ceiling-structure, distorted into the dome of the Pantheon, or the mimicry of gardeners' parterres in that of St. Peter's, or any other *cutting up* of a dome, as barbarisms. If a ceiling have organism in its structure, as the Greek lacunaria or Gothic vaults, by all means show the organs and decorate them (instead of smothering all up with an inverted plaster floor, and then wondering at its unmanageableness); but if the work have *no* organism, then you have got what you spend so much elsewhere to obtain, an unbroken surface. So, instead of forthwith looking for sham organs to stick on, because some one else has beautified them for you, beautify the whole as a whole, not with forms of *architecture* but of *nature*.

I would say, then, keep the surface entire; let not the figures divide *it*, but it *them*. Put as many and as large as you like, but let them be separate and distinct, shining, floating, flying, as orbs, clouds, birds, angels, on one unbroken firmament of blue or purple. Moreover, distinctness of meaning absolutely requires, at such a distance, that the figures, human or not, be each cut out entire, and not overlapping. Here, as in ancient vases, and Early English glass-painting, the artist's means of expression are confined to outline. Use perspective in its place,—not here. If you have no artist who will work *for the place*, you can have no real ornament; for all true ornament is *made for its place*, and none is worth having that is not so. Artists who think the place made *for them*, to display their particular talents or tricks in, cannot decorate the church at all.

Now, as for the material and mechanism of these figures, to be understood they will at least require strong lines on their surface, as on those of ancient vases and mediæval brasses. Therefore, whether they have shadowing or not, and whether positive and varied colouring or not, they will need a surface durable, retaining its colour, and that frees itself of dust. No material answers these wants one quarter so well as glass; and this may be opaque, or transparent, or partly both. I think it should be transparent, because then the lines or shadows, instead of being on the face (where they would require for permanence to be enamelled and burnt in), may be on the back, safely protected, though merely drawn in paint. Moreover, by using flashed, or coated glass, and abrading or etching away the coloured layer, white lights may be left; and if the back were then silvered, the silvering might be removed in lines of coarse hatching from the shadows, and thus a scale of the utmost compass obtained, from silver white to jet black, which would give the figures extraordinary force at a distance, and more than either the brilliancy or permanence of the Italian mosaics, at an expense not to be compared with them; and any number of pieces might be united into one figure, by making the junctions follow dark lines or shadows, and interposing fillets of lead or copper similar to those enclosing its outline, which need not exceed half an inch wide (quite invisible from the floor), and be held to the vault by thin bolts passing through it.

The same treatment will apply to the half-domes, and, with coloured plaster in place of the cloth, to the vaulting in general, which, however, seems to me to have (with the single exception of those half-domes) its full share of decoration at present; nor would I add any more till, not only every window, but every blank panel, whether of the aisles or of the attic story, had been filled.

Now, of the hangings to the end walls or other vertical surfaces, as they will be readily accessible for cleaning, and exposed to near as well as distant view, I would make themselves instead of their attachments the chief field of ornament; *i. e.* embroider them, and let the attachments confine themselves to a mere perforated border or frame round each panel, and be either of brass or of some other metal coated with nickel, which combines the durability of gold with the colour and cheapness of silver, and will, I am convinced, be of great future use in protecting the metallic parts of architecture.

These tapestries will in general call for more skilful design than any other decorations; for they must have something for view at 100 feet distance, something at 30, something at 10, something at 3 feet. If the work of looms, it had far better be of dead than of live ones: but I doubt if the mind and the mechanical power *can* in this work be *totally* separated with any tolerable result. All I insist on, however, is, that if they be so, the machine-work should be done by machines: for hands to do it, is returning to worse than the days of pyramid-building.

Three kinds of surface remain to be considered,—stone wall, plastered wall, and window glass (for the doors are such a minor affair as need influence nothing else, and the floor, with deference to Mr. Papworth, I do not think could be made much nobler or fitter than at present). Now, the stone-work, with two exceptions, is all either decorated already or in panels. The two exceptions are the pendentives between the dome arches, and the ugly-shaped pieces (Ruskin would call them "carving-knives") flanking each of the diagonal tribunes, and which are to me the greatest eyesore in the whole building. Both these parts are subject to enormous pressure, and it is plain that Wren feared to reduce them by carving or even the shallowest panelling. We have the alternative of attaching metal figures, either engraved like mediæval brasses or in relief, or glass figures like those in the dome; and the subjects (the choice of which I find I must leave to another letter) will decide between these manipulations.

Panels, you will next observe, are everywhere either very shallow, or having tablets left nearly filling them. I cannot believe, therefore, that Wren intended any other treatment than *carving*, and that out of the substance of the walls. It need not exceed 3 inches deep in the lowest panels, and 9 inches or a foot in those of the clerestory; and if confined to the simplest of the classes of subjects I shall propose, would be quite as cheap as the worst pictorial painting that could possibly be tolerated. I would not fritter away means on any such temporary makeshifts, nor touch one of these panels except with the chisel.

Plaster (except that of the vaults already

considered) is confined to the spandrils of aisle arches, and the dead wall over the whispering gallery, neither of which places seem to me to *require* any ornament; nor do I believe they would look inconsistently bare until everything else (including the vaults) had been covered. If wanted, however, to suit a particular scheme (as a small portion of this surface will be, for that I am about to submit) we have the option of inlaying with coloured cement, attaching metal figures (flat or in relief), or repeating the dome manipulation. The subject represented will decide.

The glass, I have already shown, needs entire change, and is next in importance to the dome and other echoing surfaces. It will also call for more deeply studied design than anything except the embroidery; though not so difficult as that, because not to be seen at such a variety of distances. I said that if the present iron mullions were retained, the colouring would have to be deep and almost total, but further attention to the physical requirements has shown me a way by which the requisite darkening may be had with *any* kind or degree of colour we please, pale or deep, and much or little. For the exclusion of external noise will call (at least in the lower windows) for double glazing, with a space of several inches between. If it be said this has not hitherto been found necessary, or hangings for stopping echo have not been found necessary, you must remember that neither has it been thought necessary to make the lessons and sermon audible to even as many persons as in the smallest parish church. These are precisely the little things that show any foreigner or any native not quite blind, what an edifice *is built for*. Do people spend a million of money on the carcase of a building to teach and preach in, and then use only one corner of it, and leave *that* all but unavailable to these ends, for the worth of half an acre of felt, half a mile of wood paving, or half a score of extra windows and doors? Oh, no!—tell it to the marines. Just as much as you build a house to live in, and leave it unweatherproof for a yard of milled lead; make fifty miles of railway and leave it impassable for want of one bridge; or elaborately carve yonder marble in the nave to serve as a font, and leave it without a hollow in the top. Your font and your cathedral, as now existing, are of a piece, made precisely for the same purpose, Mr. Bull.

Well, as the glazing will have to be double, the outer (which I would have of thick rough plate the full width from mullion to mullion) may have a coat of blank paint or enamel, scraped off in any proportion by crossed lines, so as to intercept any portion of the light as by a wire screen; and the inner window may (provided it is everywhere roughened) be then treated just as we please, with much or little or no colour; and the effect will be simply as if the same window were exposed to twilight instead of daylight, the colours (whether of pot-metal or painting) being nowise altered in richness or in brilliancy relatively to each other and the interior light.

This seeming to me about as much as mechanism can decide, I shall next enter the province of taste. E. L. G.

ORNAMENTAL METAL.—Mr. R. F. Sturges, of Birmingham, has taken out a patent for improved methods of ornamenting metallic surfaces. Mr. Sturges's improvements consist in producing ornamental designs on metal surfaces by interposing a pattern or design formed of wire, paper, lace, or other fabric, between two plates of metal, and then applying pressure so as to impress the design upon the metal. This method ornaments both plates at same time, but a single plate may have a design transferred to it by a similar process.

FREE EXHIBITION.—Some of our readers, who are not subscribers to the Art-Union of London, may thank us for pointing their attention to the circumstance that the Exhibition in the Suffolk-street Gallery of the works of art selected by the prizeholders, will be open to the public all next week.



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

You really believe, then, that you have gained a general knowledge of some of the peculiarities which distinguish the various periods of mediæval architecture, and, remembering broadly that the Norman or Round-arched style in our country belongs more particularly to the twelfth century, the Early English, or Lancet, to the thirteenth, the Decorated to the fourteenth, and the Perpendicular to the fifteenth, that on seeing one of our old cathedrals or churches you will be able to discriminate the period to which each of the parts belongs. You will find few of them wholly of one age. Founded, perhaps, when the Lancet was the style of the day, the nave displays the approach of the succeeding style, and the tower, which fell, we will say, when first erected, and this did occasionally occur, was rebuilt in the completely developed Perpendicular style. The external cornice of the nave aisle is ornamented with the ball flower, you may say, showing with other evidences that it is in the Decorated style, and yet some of the windows in the wall beneath have their mullions running from top to bottom, and exhibit, perhaps, a horizontal division, or transom, which proves to you that they are of the Perpendicular period, and belong to the next century. But do not let this shake your faith in the teaching, for if you were to examine farther, you would find that the windows were the insertions of after-builders or repairers.

Suppose now that we walk into one of our Minsters together, simply that we may identify its various divisions and parts. Which shall it be? Here is a plan of *Salisbury Cathedral* (Fig. 31), and that building will well answer the purpose. It consists, as you know, of a nave with aisles (the western arm of the cross that the whole forms); a choir (with its aisles) at the eastern end, and a Lady Chapel, at the back of that still farther east; transept, extending north and south (in this case double, but not usually so); a north porch to nave; Cloisters adjacent; and a Chapter House. In the plan before you (and a plan, I need not remind you, shows the position of the walls, columns, &c. as they would appear if looked down upon without a roof) A is the nave with its aisles, B, separated by columns and arches. These columns and arches, you will remember, carry a wall with windows in it, forming the enclosure of the upper part of the church, and called the *clearstory*, perhaps from *clair*, light, or from its being unobstructed: and the clearstory carries the roof. Between the tops of the arches in the nave, and the clearstory occurs what is called the *triforium* or gallery. In the early churches this was of considerable size, as wide as the aisles below, in fact; but in the later buildings it was much reduced, becoming a mere passage-way, and in many was not introduced at all. D D show the western and eastern transept, with a single aisle, B, to each; E is the choir; and at C, the junction of the four arms of the cross, the central tower, with its beautiful spire, one of the marvels of mediæval art, rises. F is the Lady Chapel; G the muniment-room or vestry; H the Cloister, usually on the south side, as it is here; and I is the Chapter House. The cloister was intended, as you know, for the exercise and recreation of the inmates of the collegiate or monastic establishment to which it was attached.

"Monument of ancient taste,
Now scorned, but worthy of a better fate.
Our fathers knew the value of a screen
From sultry suns; and in their shaded walks
And long-protracted bowers enjoyed at noon,
The gloom and coolness of declining day."

It contained stone benches along the wall in parts, and a stone lavatory or washing-place, such as you see in those of Worcester, Gloucester, and other cathedrals. The area inclosed by the cloister was called the Cloister Garth, and in France *Preau*, a little meadow. The term Paradise was in places applied to this area: it is so still at Chichester. This term, however, reduced to parvise, was not confined to this particular area, but was applied generally to open spaces for walking, in adjoining churches.

In the cathedral round which we have been walking, or I should rather say running (if we walked we should find so many interesting things to attract us we should be kept there all day), there is an ancient lavatory in the easternmost transept, and near it are a Piscina and an Aumbry. The piscina, I need scarcely tell you, is the shallow basin or sink usually found in a small recess on the south side of the altar-place in ancient churches, to carry away the water used by the priest, when "the church was Rome's," for washing the chalice or his hands. Sometimes these are double, and occasionally have a shelf above the sink for the vessels used in the services. An aumbry, or almery, is a closet, either formed in the wall near an altar, or constructed of wood, for the chalices, basins, and other matters pertaining to the church. Examples are numerous, but the doors have mostly disappeared.

Scattered about this cathedral, as in many others, are several Chantry Chapels, erected with the funds left by individuals for the chanting of masses in a chapel built for the purpose near where they were buried, and which became also their monuments.

Here, too, you may find monuments of many

* No. XIII. See also pp. 100, 133, 164, 196, 228, 260, 292, 324, 356, 389, 436, and 499.

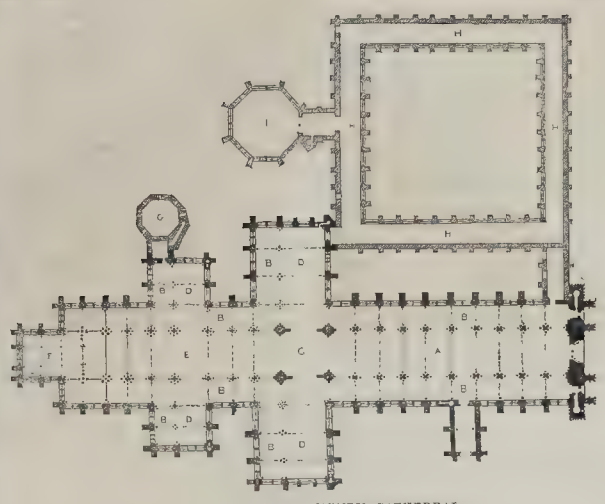


Fig. 31.—PLAN OF SALISBURY CATHEDRAL.

kinds, effigies of ecclesiastics, brasses, and cross-legged knights, this position showing that if they were not Templars they had joined a crusade to the Holy Land, were about to do so, or had otherwise assisted in it. The more modern monuments there contrast miserably with these supplicatory memorials, which are full of propriety, humility, and beauty.

How exquisite are all the details of the structure; how effective as a whole! Observe the elegance of the proportions,—the thought in the carvings, the variety produced by the plan, the play of light and shade, the effect of infinitude: "frozen music" is not an incorrect term for it. And yet for a long time men could gaze on this and other beautiful works of the middle ages, and regard them only as "heavy monkish piles." Our eyes are in our hearts. We see only as we feel.

I might dilate on what Milton calls—

—— "The high embowed roof,
With antic pillars massy proof,"—

those roofs where, as Wordsworth says, "Music dwells lingeringly, as loath to die," and point out to you their progress from the simple "barrel vault" in the early buildings of the round-arched style, to the wonderfully elaborate vaultings produced when Gothic architecture was about to expire, such as those of Henry VII.'s Chapel at Westminster, where—

—— "From the arched roof,
Pendent by subtle magic,"—

hang tons of stone most curiously fashioned.

It was long supposed, even by acute and able men, that caprice wholly regulated the design of Gothic structures; but it is now universally seen that they must have worked by a settled scheme of proportions. The equilateral triangle appears to have regulated these to a great extent. In this very cathedral it is particularly demonstrable. Cæsar Cesarianus pointed to this system three centuries ago; and several investigators, both English and foreign, have pursued the subject in our own times. Mr. Griffith has carried it forward considerably, and shows some very interesting results.

Apart from their æsthetic beauty, how full of story are all our old churches, exhibiting the thoughts and feelings of the time in which they were erected! they are awakeners of emotion, monuments of piety, storehouses of ancient art. It is scarcely possible to find one, however humble and unpretending, however disfigured by the fanatic or the "beautifier," that does not contain something to repay for the examination of it. Truly, "there is a sense of hearing that the vulgar know not."

The Fortresses and Castles of Great Britain afford of themselves an interesting and distinct object for study. There are numerous examples left scattered over the country; the constructions of various periods, from the earth fortresses ascribed to the aborigines,—such as the Herefordshire Beacon on the Malvern Hills, in Worcestershire, and the remnants of Roman constructions, as Richborough Castle, in Kent, and Porchester Castle (infamously misused of late years)—down to the stately structures of the fifteenth and sixteenth centuries, wherein security was less studied than magnificence, and the fortress merged into the palace.

An Anglo-Norman castle may be described as consisting of banks and ditches, with a wall occupying the top of the former, and flanked by towers enclosing a large area, called the outer ballium or court: entrance-gate towers, with a bridge across the ditch, and guarded by a portcullis, an inner ballium, separated from the outer by a strong wall, and a keep or donjon within that, complete the arrangement. Rochester Castle will afford you an example if you wish one. The keeps were ill-lighted and comfortless, security being the primary consideration. You will often find a well in the keep to supply water at the last extremity, as you sometimes do, by the way, in some churches in Normandy and elsewhere, which were connected with fortresses. The number of castles built in England a century after the Conquest was enormous.

As the times became settled, comfort was more attended to, and the rude keep, with a few subsidiary buildings, expanded into the magnificence of Kenilworth and Warwick. The stronghold of the chieftain often became the nucleus of a town. His dependants, gathered round the castle, gradually obtained intelligence, wealth, power, privileges; and, increasing in importance as the power of their lords grew less, ultimately gained the mastery, and saw the fortress destroyed, or placed under municipal control for municipal purposes.

It is interesting to see the Robber-castle striking its flag to the Town-hall and the people-calling Belfry. If you want examples, recall those you saw on the banks of the Rhine. As to discriminating the date of these structures, you will find what I have said, with reference to ecclesiastical buildings, to apply mainly to castles also.

It is unnecessary for me to repeople one of our ancient castles for you, although it would be a pleasant task to peep into the lady's "bower," the tilt-yard, the buttery, or the gate-house; to see the rude style in which the better classes lived, the coarseness of their enjoyments, the fewness of their resources, as compared with those of the masses of our own period. The garnered intellect of past ages has been brought to bear on their actual advancement and welfare, and will be more so: machinery is doing their drudgery; every clime yields its produce for their use and gratification; locomotion is easy; life (the power of seeing, knowing, doing) is doubled with many, and may be with all.

The days of chivalry afford pleasant matter to read of: the institution itself did much towards softening men's manners, and preparing the way for a better state of society; but those were, nevertheless, miserable times, and we may congratulate ourselves on living later than our forefathers.

Yesterday it happened that I was in Carisbrooke Castle, in the Isle of Wight, where there is a fine gateway left, part of the, perhaps, Norman keep, the well, the *place d'armes* adjoining, and all the adjuncts of a large and important fortress. It is unnecessary, however, to trouble you on this. Its day is gone, its work is done,—

"The palace of the feudal victor
Now serves for nought but for a picture."

Where grim men of war assembled, peaceful parties pic-nic, and the only reason for keeping the gate locked now is, that none may come in without paying a proper fee to the custodians.

When the nobility built residences instead of castles (and it is interesting to trace the steps by which this was done), rivalry amongst them led to the erection of some noble structures, which still adorn the land, and show the taste as well as opulence of their owners; nor were the merchants and traders of the kingdom long behind-hand in the race, and a vast number of important residences arose on all sides.

In the reign of King Henry VIII. and even previously, the pointed style of architecture had declined in England: its simplicity and beauty had given way before a redundancy of ornament heaped upon it, through a craving for novelty, and loss of knowledge of the just principles on which it had been produced and advanced. When, therefore, through foreign artificers who were employed in England, the



Fig. 32. GATEWAY OF THE PUBLIC SCHOOLS, OXFORD.

revival of classic literature, and the exertions of travellers, examples of Italian mouldings and ornaments were imported, these, being easily imitated, were eagerly adopted, and were used for some time indiscriminately with the forms of the last period of Gothic architecture. In 1566, we find at Caius College, Cambridge,

small Roman Doric or Tuscan columns; and at the commencement of the seventeenth century, we see the "five orders," as they are termed, piled one above another on the face of the Schools' tower at Oxford, as represented in fig. 32. Nevertheless, previously to the time of Inigo Jones, there were no buildings designed entirely in accordance with the revived principles of Italian architecture. Of this revival, *renaissance*,—rebirth,—I will say a little in my next, which will bring us down to the present time, and terminate our outline.—Believe me always sincerely yours,

Reggeo.

THE ARRANGEMENT OF PICTURE GALLERIES.

As many of your professional readers are probably turning their thoughts to the above subject, I feel desirous of calling attention, through the medium of your valuable columns, to a point of great importance. I mean the *scrupulous adaptation of the building to its object*, the display of pictures.

This may seem, to say the least, a very superfluous undertaking. I shall not waste time about contingencies, but will both explain what I mean, and prove the need of what I desiderate by reference to an actual, recent, and very eminent case of failure, premising only, first, that I am no utilitarian; next, that I am no architect, nor the partisan of any architect; and, lastly, that I will yield to no man living in a cordial sense of the professional merits of the individual whose work I take for illustration.

The case I refer to is that very splendid shrine of a very splendid collection, the Bridgewater Gallery—a palace worthy the elegant munificence (for the public may use that term) of its noble owner, and, with this one exception, worthy the fame of the able architect that conceived it. But what an exception! I speak not of want of light: I have no fear of failure now in that respect. What I am concerned about is, if possible, more important, certainly far less likely to be foreseen and obviated.

The evil is soon described. Time was when those masterly compositions of Poussin, "The Seven Sacraments," occupied a single room. Their subjects, their style, their peculiar excellencies, their very defects, all united to demand this comparative isolation. A whole apartment was consecrated to them. As Forsyth says beautifully of the famous buildings at Pisa, they were "happy alike in their society and their solitude." Where are they now? Sir, I shall never forget my feelings when, having remembered them in the Stafford Gallery, and *affectionately* kept in my portfolio the scarcely less classic engravings of them by Pyne and others, I went first to look once more upon them in the Bridgewater collection. It was really some time ere I could find them—somewhere, here or there, along a wall of pictures of every size, subject, and complexion. When at length I discovered them, I could hardly believe my eyes. *These*, "The Seven Sacraments!" So dark; so dingy; so degraded from their high estate! I could only say, "It once *was* Lara that thou look'st upon." But I will not moralise. I bethought me, naturally, of the Raffaelles. Could it be possible? Those bewitching emanations that should be ever shrined in a special sanctuary—approached only by a respectful progress, like the tribune at Florence, the Raffaelle Stanzas in the Vatican, and the Cartoon Room at Hampton Court—*swamped*—positively swamped—no "pride of place"—no symptom of peculiar reverence—but promiscuously ranged with others of heterogeneous and discordant character, and only cognizant of their own relationship by what we used at Cambridge to call "huddling."

I will say no more by way of warning. We shall hear plentifully about such commonplaces as light—classification—historical or artistic arrangements. I aim at something higher. Painting, such as I speak of—painting that should pre-eminently characterise a National Gallery—paintings such as we possess in the Sebastian del Piombo, and the Altieri Claude, are no more to be treated as mere items in a catalogue, than stones in a building. They are not jewels, even, in a crown. Every one of these is itself a crown. They are degraded; and we lose the value of them—not the ignorant, but the most enlightened, when we find them jostled and jammed together, as if "two paces of the vilest earth were room enough."

It is not easy, on such a subject, to be brief enough for railroad thinkers; nor is it otherwise than painful to speak truth, however briefly, amidst the artistic effort of this boasted age. We need "line upon line;" but *Punch* and politics will not have it. I, for one, despair. We *are* the "nation of shopkeepers." Everything—even a *House of Parliament*—assumes the form of calculation. If it be not actual arithmetic, it is at least what the negro calls "head work." Art, properly so called, was not made, I fear, for us. Art is essentially *æsthetic*; she speaks only through the senses: she does not ask us to speculate, classify, criticise; she bids us *feel*. We choke her voice with learned argument; quench her fire with reasons logical or illogical; prison her spirit in a dark, cold, damp dungeon we choose to call *common sense*. Poetry comes better off, perhaps because she deals more with objects of pure intellect; so we allow now and then to the "poet's eye" its "fine phrenzy;" for the rest, not to go the round of the muses, we call *your* eloquent architecture "*bricks and mortar*."

One word more. I said it was painful to deal with modern instances. Were the one I have referred to irremediable, I might have hesitated ere I adduced it. I am happy, however, not to have done with it. Let any man who asks what I would have, look only at the large Guido, and he will see my meaning at a glance. Those who have learned to *feel* painting can there indulge their feeling without distraction. Those who have not—and it is for these pre-eminently that we want national galleries—can see at once that a painting *so* architecturally framed and emblazoned, is had in honour, has something in it, must not be irreverently passed without an attempt to appreciate it.

But I stop. You will see that, architecturally, all condenses itself into two words—*apartments* and *compartments*, one or both. I need not show that both are compatible with the finest architectural effect; but this I will say, that if "effect" be first thought of, as in the otherwise noble halls I have referred to, we shall murder our pictures, and have to answer a second time to the rest of Europe for our National Gallery.

Thus much, Sir, as regards the interior. Should you give a place to these remarks I may feel moved to say a word further on the exterior part of the subject. LENY.

NOTES IN THE PROVINCES.

Ipswich.—The grounds of the Arboretum were, for the first time since their formation, thrown open to the public on Sunday before last. An immense multitude availed themselves of the privilege. The cost of laying out and planting the Arboretum, it appears, has burdened the undertaking with a debt of 1,200*l*. The total cost was 2,600*l*. whilst the amount raised by shares and donations did not exceed 1,400*l*. The introduction of a lake at "The Wilderness" corner, the erection of an iron boundary fence alongside the park, and additional expense in forming the entrance from Fonnereau-street, were not included in the original estimates.

Newark.—The local gas company seems to have been induced, by the prospect of a new company being established, to reduce the price of their gas. The lighting, however, is still much complained of.

Lincoln.—The central National School has undergone considerable alterations. The stone floor of the boys' school has been removed, and a wooden one laid down, at a cost of 45*l*.; the expenses of preparing the ground, the brickwork, &c. being cleared by the sale of the old slabs. A gallery, capable of seating 120 children, has been erected. The ventilation has been looked to. The boys' school is 72 feet by 26 feet within the walls. A subscription is now going on to defray the expenses of the new floor in the boys' school, and to lay down a wooden floor in the girls' school also. The sum already subscribed amounts to about 45*l*.

North Elkington.—On Tuesday in last week, the parish church of North Elkington, which has been just rebuilt, principally at the expense of the Rev. W. Smyth, the patron, assisted by the Vicar, and others, was consecrated by the Bishop of Lincoln. The work has been carried out under the superintendence of Mr. Teulon, by Messrs. Ryall. The ground plan of the church is a parallelogram of four bays, the easternmost forming the chancel; a porch on the south, and a vestry on the north side, and a small shingle spire at the west end. The style adopted is the early English, and a general resemblance may be traced to the little chapel at Kirkstead, though, of course, with details considerably modified. The eastern window is a triplet of lancets, with shafts on the inside of black Derbyshire marble, supporting the architraves, which are ornamented with trails of dog-tooth and other mouldings. These windows have been filled with some stained glass by Wailes, of Newcastle. The chancel, which contains the prayer-desk, is raised two steps above the nave, and parted from it by a low stone wall. The tables of the commandments are illuminated by a lady, the wife of the vicar of a poor and populous parish, who is endeavouring, by the exercise of her talents in this department of art, to provide funds for the restoration of the dilapidated edifice of which her husband is minister.

Brighton.—A new church was consecrated at Brighton on Friday week. It has been erected from plans by Mr. Carpenter, and is dedicated to All Saints. The building comprises a nave and side aisles, and has a chancel at the eastern extremity. It is to afford accommodation to 1,200 persons, about half the seats being free. There are no galleries, and the view is not obstructed by pews. The seats are of dark oak.

Milford.—The construction of the proposed new wet and floating docks at Milford Haven, Pembroke, will cost the sum of 100,000*l*. A movement is being made in favour of the re-establishment of the mail steam-packet communication with Waterford and the extension of the South Wales Railway to Carmarthen, and ultimately to Pembroke, pointing out this route as by far the shortest between London and the south of Ireland. In conjunction with Milford, dock accommodation is rapidly extending in South Wales, as, along the whole line of coast, large and extensive docks are being constructed.

Pembrey.—A large chimney has been erected at the copper works of Messrs. Elkington and Mason, at Pembrey, in Wales. It is 270 feet in height, 32 feet square at the basement, and 11 feet 4 inches at the summit, the tapering being at the rate of an inch and a quarter per yard on each face of the square. Nearly a million of fire-bricks were used in the erection. The contractor was Mr. Fido.

Hanley.—It is proposed to take down the church at Bucknall, and build a new one on an adjacent site, admitting also of the enlargement of the grave-yard.

Liverpool.—The half-yearly ordinary meeting of the Liverpool United Gaslight Company, was held on Tuesday week, at Newington. The accounts showed that the net profits for the year are 46,118*l*. 16s. 11d. being an increase over the net profits of the year ending on 30th June, 1850, of 1,084*l*. 3s. 1d. The proprietors, at their meeting in February last, directed a dividend to be paid for the half-year ending on 31st December, 1851, at the rate of 5*l*. per 100*l*. share. This absorbed the sum of 22,521*l*. 5s. They recommended that a dividend for the half-year ending 30th June last be declared of 5*l*. per 100*l*., 1*l*. 5s. per 25*l*. share on all shares paid up on 30th June, 1851, and 2s. 6d. per 25*l*. share in respect of which an instalment of 2*l*. 10s. has been paid. Had the Liverpool, like the Manchester, corporation taken the lighting of their own streets into their own hands, the regular yearly profit of forty-six thousand pounds conjured

out of the pockets of the Liverpool people would have constituted a very handsome instalment for yearly expenditure in public improvements.

Stockport.—The plans and specifications of the projected new bridges over the Goit and Mersey, according to the local *Advertiser*, have been fixed in the committee-room of the court, for inspection prior to a final selection by the Manorial Tolls Committee. The names of those who have forwarded plans, &c. (sixteen in number), are as follow:—Messrs. Edward and Bryan Jones, Chester; Stevens and Park, Macclesfield; Henry and S. Bann, Stockport; Dredge and Stephenson, London; M. T. Crupley, Leeds; Cameron and Co. Leeds; Nicholson and Tone, Newcastle; Williamson and Roberts, Stockport; Walter Mahon, Manchester; J. B. and E. Birch, London; James Heywood, Derby; James Brumlees, Manchester; Charles V. Cawley, Manchester; Fox, Henderson, and Co. Birmingham; Henry Law, London; and Joseph Butler and Co. Stanningley, near Leeds. All the plans are for iron bridges except the two sent by the Stockport architects.

Rotherham.—The first stone of the Rotherham and Masborough Literary and Mechanics' Institution and Public Rooms was laid on Thursday in last week. The building will be of stone, in the Italian style of architecture. The site is at the corner of Howard-street and Effingham-street, and immediately adjoining the new Savings Bank, and near the Court-house. On the ground-floor it will contain a lecture-room, in the amphitheatrical style, 42 feet by 26 feet; a reading-room, 21 feet diameter; library, 14 feet by 12 feet; two class-rooms, two laboratories, kitchen, and housekeeper's room. On the second-floor there will be a concert and assembly room, 61 feet by 42 feet; retiring-rooms, news-room, 21 feet diameter, &c. There is a gallery to the concert-room, ascended by a geometrical staircase from the street. The funds for the erection of the building, which it is estimated will cost 1,700*l.* are raised by 17 shares, the whole of which are guaranteed.

Derby.—On Wednesday in last week, a new organ, built by Messrs. Foster and Andrews, of Hull, for the church of St. Peter's, Derby, was publicly opened. The instrument has been erected in the chancel near to the choir, and, it is said, does not interfere with the general appearance of this part of the edifice. It is on what is called the German scale, having a compass from C C to G in alto, fifty-six notes, running through two sets of keys, and a pedal-board of two octaves and a half. The swell is on a new principle for reflecting sound, introduced by the makers about two years ago.

Buxton.—New streets are being formed, and a spirit of general improvement appears to be awakening at Buxton.

Blackburn.—The front part of the roof of a house in Darwen-street has fallen in, fortunately without loss of life or limb. The building, like many in the same locality, is of old date.

Ross.—At a recent vestry meeting it was intimated that Mr. Bucklee, of Oxford, architect, had minutely examined the spire, and had reported—1st, that the upper portion was in a highly dangerous condition, and must be taken down and rebuilt; 2nd, that the remaining part of the spire much needed repair, together with the pinnacles, two of which are dangerous; and, 3rd, that the whole of the tower was in want of certain repairs, not of immediate importance. It had been resolved at a previous meeting that the first part should be at once proceeded with, and tenders were consequently advertised for. The second part was decided on by the meeting then present. The chairman opened the several tenders, which were as follows:—

Messrs.	1st Part.	2nd Part.	Total.
Cartwright and Nash, Leicester	£407	£193	£895
Charles Walker, Lydney	365	260	625
Hos. Sier and Brothers, Littledean	...	...	600
Coleman and Co. Chaxhill, Westbury, Gloucestershire	417	176	594
Pearson and Son, Ross	295	180	475

Messrs. Pearson's tender was accepted for the first part of the work. A sixpenny rate, to defray the cost of the restoration and repair, was then agreed to.

Chesterton.—The consecration of the new church of Holy Trinity at Chesterton, near Newcastle-under-Lyne, according to the *Staffordshire Advertiser*, took place on Thursday week, the Bishop of Lichfield officiating. The church is Early English in style, and has been erected from the designs of Messrs. Ward and Son, of Hanley, architects, by Messrs. A. and G. Holme, of Liverpool, contractors. The accommodation is for 485, including children (there are no galleries). Cost, about 2,000*l.* The site was the gift of Mr. Ralph Sneyd, and comprises a churchyard and land for a parsonage-house. The structure consists of a nave, 62½ feet long by 21 feet wide; north aisle, the same length and 10½ feet wide; south aisle, or children's chapel, 26½ feet long by 14½ feet wide; and a steeple adjoining it, which serves as the porch and principal entrance; a chancel, 28½ feet long by 15½ feet wide; and a chancel aisle, comprising a small side-chapel and a vestry. The steeple, which is surmounted by a spire, rises to a height of 110 feet, to the top of the stonework, above which are a metal cross and a weather-cock. Internally, it is open to the nave and children's chapel by stone arches. The church has buttresses all round. The gables have stone crosses on them. The various portions of the church internally are divided from each other by arches, with cylindrical and octangular pillars to support them wrought in stone. The windows are mostly lancets. The eastern window is of three lights, with a triangular one over them filled with tracery. A similar arrangement, with two windows and a triangular one over, is adopted at the west end. The end of the children's chapel has a large three-light window enclosed under one arch. All the windows have large splays internally. The walls, as well as the pillars, and arches, windows, and doorways, &c. inside, are of red sandstone, from a quarry in the village. The roofs are covered with blue tiles from Mr. Moss's works. The aisles, steeple, and chancel are laid with tiles given by Mr. Minton, except those in the north aisle, which are the gift of Mr. Sale. The floor within the communion rail is laid with parquetry of oak and walnut of a star pattern laid crossways; it was supplied by Messrs. Steinitz and Co. of London. The roofs are of open timber (chancel roof boarded), stained and varnished; as are also the seats throughout, which are low and open. One of the eastern windows of the chancel is of stained glass, by Wailes, the gift of the late incumbent of the district, the Rev. S. S. Smith. The architects were Messrs. Ward.

THE BRITISH ARCHÆOLOGICAL ASSOCIATION.

On Wednesday, the 18th inst. an excursion was made to Worksop and Clumber: to the first to see the fine Norman Church there, and Abbey Gateway; and to the second, to visit the president, the Duke of Newcastle. In the evening a meeting was held at Newark, where papers were read on "Early Burial Places in Notts," by Mr. Bateman; on "Sepulchral Urns at Newark," by Rev. Geo. Milner; on the "Ancient Customs and Sports of the Shire," by Mr. Jewitt; and on the "Church of St. John, at Winchester," by Mr. Baigent.

On Thursday, Lincoln received the Association with honour, and Mr. E. J. Willson, the well-known architectural antiquary, being mayor, they had the advantage of his knowledge. The death of the Duke of Hamilton, father-in-law of the president, having compelled the Duke of Newcastle to absent himself, Mr. Heywood, M.P. took his place, and a general examination of the city was made. In the cathedral Mr. Ashpitel gave some particulars of the structure, and Mr. O'Connor read a paper on the stained-glass windows there. Archdeacon Bonney entertained part of the members, and the corporation the remainder. At the meeting held in Newark afterwards, papers "on the Siege Pieces struck at Newark," and "on the Churches of Nottinghamshire and Lincolnshire," were read by Mr. W. D. Haggard, and by Mr. C. Wickes. The latter paper was illustrated by some beautifully-executed drawings of the principal churches in the two counties. Mr. Heywood also read a paper prepared by the Rev. J. F. Dimock, giving a history of the collegiate church of Southwell.

The buildings of Newark came in for their share of examination on Friday, and at twelve o'clock a large body went off to Southwell Minster, of which very interesting structure particulars have been given in The Builder. The public dinner took place on their return to Newark, when Mr. Heywood, M.P.; Mr. Vernon, M.P.; Mr. Barrow, M.P.; Sir Henry Dillon, Archdeacon Wilkins, and others, addressed the meeting. Mr. Planché made a particularly happy and effective address, wherein he said that they might be accused of going about seeking for what they could devour, and they had been sneered at as persons who were anxious for lunch and by no means forgetful of dinner. Now liberality and openhandedness were, no doubt, characteristics of the English gentry; but if the members of that association were mere loiterers, or inquisitive tourists at best, the doors of their mansions, they might rest assured, would not be thrown open to them as if the Sovereign knocked at them, and the members would not be feasted as if the Sovereign were at their head. It was as humble ministers of science and labourers in the cause of knowledge, that they were received as they had been; and whilst they continued earnestly and seriously to work out their objects, he was convinced they would have the same honours paid to them by the noblemen and gentlemen of England. Like the Romans, that great people whose footsteps it was one of their duties to trace, and who made war not by the sword only, but by the pencil and the chisel, their association, too, made war upon barbarism.

A public breakfast on Saturday, with various votes of thanks, closed a very successful and interesting week.

COMPETITION AMONG BUILDERS.

Scarcely a week passes by without the columns of The Builder containing some reference to the practice of competition amongst architects, a practice which all your correspondents agree in deprecating. I wish to call your attention to the fact, that all the arguments used against that practice as extended to architects, apply with equal force to the one of competition amongst builders, and that all the arguments in favour of the latter apply with equal force in favour of the former. I must be understood as confining my proposition to this, without in any way entering into the broader questions of the superiority of competition over the new theory of association, or the still more novel principles involved in Mr. F. O. Ward's admirable treatises on distribution.

Firstly, then, it is urged as *infra dig.* and an offence against the general body, to enter into a pounds, shillings, and pence competition with other architects. Time was when it would have been an offence punishable by expulsion for one of the members of the guild and fraternity of builders, or masons as they then were, to have undersold his fellow-member. Now this "professional etiquette" and dignity is nothing more than a moral guild, and so surely as increasing population and the also increasing morbid desire for cheapness in the community have swept away guild and introduced competition amongst the builders, so surely will the same causes produce, with even greater swiftness, the same effects amongst architects who encourage and extend a system towards those whom *they* employ, which they dread to see introduced by those who employ *them*.

If I were to urge that, by seeking to obtain a low estimate for the works they propose to execute, they rob themselves of their just profits by a diminished per centage, I should probably be told, firstly, that that was a consideration beneath an architect's notice; and that, secondly, to get work executed at a cheap rate was a good way of getting increased business. With regard to the first, I will, to

save time, admit it. With regard to the second, I must say it is an argument which tells both ways. If it leads to increased business that an architect should get his work done cheaply, it surely follows that it would increase it that he should also *do* his own at a lesser rate. Away then go all barriers against the competitive principle, and the man who is willing to sacrifice time, talent, and education for 2½ per cent. may carry the day. This you will not admit, but for time, talent, and education, read attention, capital, and experience, and the case is the builders. The evil is that superiority of work goes for nothing in this merely monetary calculation. If an architect should be well paid for a costly education which he may have received, for a genius which adorns that which he designs, or an intelligence which develops the greatest possible amount of accommodation, a builder should be well paid for the fortune he risks in the enterprise, for the experience which enables him to choose the best materials, and for the ability which he displays in gathering around him the most skilled workmen. It is a mistake to imagine that there is not an equal difference between different builders as between different architects. And yet architects think they have acted quite fairly when they only admit of competition amongst builders of equal standing. But what does this amount to? Why, that supposing they are all on equal terms, their work is as well done, their business of equal extent, their facilities the same. You have one of three things,—either the one who makes the greatest mistake gets the work, or the one who proposes most largely to evade the specification; or, lastly, the one who agrees to take a less profit. But all these are unfair. Given the same powers, and the same results should ensue. The first would be founded on an injustice; the second would be unfair to the employer; the third unfair to the builder.

Architects should surely know what is a fair price for a work. It will not do to say that this is not their business. Unfortunately, in practice the Pegasus of art is inevitably yoked with the ox of trade; and as the architect must be able to value the variations in his work, he might, with little further trouble, be able to value the whole; and, having decided upon the *quality* of his work, let him go where he has confidence, and pay a fair price for it. He does not send to Houbigant and Piver for rival estimates for his gloves, to Schultz and May for his coats, nor Lehocq and Medwin for his boots,—why should he send to—well, I will not mention names—for tenders for his house?

I am not a builder crying for monopoly and high prices, be it understood, but one who, seeing the daily *decadence* of the quality of builders and building, would do what little I could to urge on architects the necessity, if they value present respect and future fame, to look that their works be *well* rather than *cheaply* executed, and to pay a fair price for what is fairly earned. It is true that your readers would lose a little of their amusement in the matter of the feats of the "Blind Builders," concerning whom, by the way, I have, on some other occasion, another bone to pick with the architects, should the present find a place in your columns. B. H.

THE CONDITION OF ARCHITECTURE.

No one can deny that the tone adopted by your correspondent Q. E. D. regarding the system of "free trade" in architectural criticism, is quite correct, and if it were followed out with integrity, and in the true spirit of *impartial* liberality, in giving judicious praise where undoubted and intrinsic talent was really manifested, and condemning everything that is mediocre in architectural design, that important and beneficial results would eventually be arrived at, and the time might come when the base and degrading system of copyism would be driven out of the pale of architectural practice.

That the science of architecture for the last thirty years in England has been in the very depths of its degradation I think no one who has paid much attention to the subject will deny; for we have had the most direct plagiarisms perpetrated, and corruption upon corruption, and puerility upon puerility, repeated over and over again, so that the sight is quite palled by the examination of the foul abominations, some of which really embody the very incarnation of all that is ugly and contemptible.

Allow me to illustrate two specimens as to the extent to which the system of copyism is carried. First, Leo von Klenze, of Munich, asserted a few years ago that *Greek* architecture would soon become not only the architecture of Europe, but of the world, and it was the only style worthy of being followed. In opposition to this, Augustus Welby Pugin told us that *Gothic*, or *Christian*, architecture (as he called it) was the only true manner of building, and that we must be "content to follow" (not to lead) in the footsteps of the ecclesiastic architects of the middle ages. These rhapsodies of the eminent German and our own talented countryman are in themselves so fallacious and ridiculous that I shall not waste time or paper in their refutation; but is it not lamentable to know, at the present time, that men of high standing in the art continue the perverse system of self-abasement in persisting to copy what has been so frequently repeated over and over again? It is also truly lamentable to know that since the time of Wren and Vanbrugh we have had no architect in England who can safely lay claim to anything like originality or dignity of conception in architectural art.

A glance at what has latterly been done in architecture will bring us to the humiliating conclusion that this noble and dignified art has been most wofully libelled in England during the last half-century. Is there no coming man amongst us who has the hardihood and genius to throw boldly off the degrading trammels, and, like the great Brunelleschi, and the men of the middle ages, produce buildings that would do honour to our national character, instead of pursuing the paths of mere tyros in the art, in producing servile and soulless copies of forms that have existed for hundreds and thousands of years?

ROBERTO ANGELO.

CHICHESTER CATHEDRAL.

THE restoration of this venerable cathedral is still progressing. The nave now presents, with the Purbeck marble pillars and string courses restored to their original form and colour, and the walls cleaned, a finished and beautiful appearance. The same work of renovation is now commenced in one of the side aisles. During the present summer, the roof of the south transept, which, in some former age, had been lowered, so as to be nearly flat, has been raised to its original pitch, and produces a fine effect in a distant view of the cathedral. The number of painted windows, of which there were none twelve years ago, is now twelve. There have been two erected within the last few days, viz. a small one, of Early English character, in the north aisle, the work of Mr. Wailes, of Newcastle: this was presented by Lady Georgina Bathurst, as a memorial of the late Lady Louisa Mary Lennox: the designs are an illustration of the passage, "As Moses lifted up the serpent in the wilderness;" above which is the Crucifixion, with a foliated cross; and the whole is surrounded by a border of passion-flowers. The other is a two-light window, also Early English, in the south aisle, and was given by the canon at present in residence, the Rev. C. Pilkington, and is a memorial of his father and mother. The window was painted by Hardman, of Birmingham. The designs represent four of the principal events in the life of St. Paul,—"The Conversion," "Preaching at Athens," "Bound before Agrippa," and "The Martyrdom." These are surrounded with scroll and flower-work.

PROPOSED SURREY ARCHÆOLOGICAL SOCIETY.—An Archæological Society for the county of Surrey is being formed: the committee are now receiving the names of gentlemen desirous of joining it.

DORCHESTER HOUSE, PARK-LANE.

EVERY metropolitan journeyer must have noticed, in Park-lane, a mansion of more than ordinary size and pretensions, which has been steadily growing up for a long time past to external completion. This is for the residence of R. S. Holford, esq.: it has been built from the designs of Mr. Lewis Vulliamy, architect, and we here give a perspective view of the structure from the south-west. It is faced with Portland stone, from the Waycroft and Maggot quarries. The works are being executed by Messrs. W. Cubitt and Co. with the exception of the carving, which is by Mr. C. H. Smith, to whom was entrusted the approval of the stone.

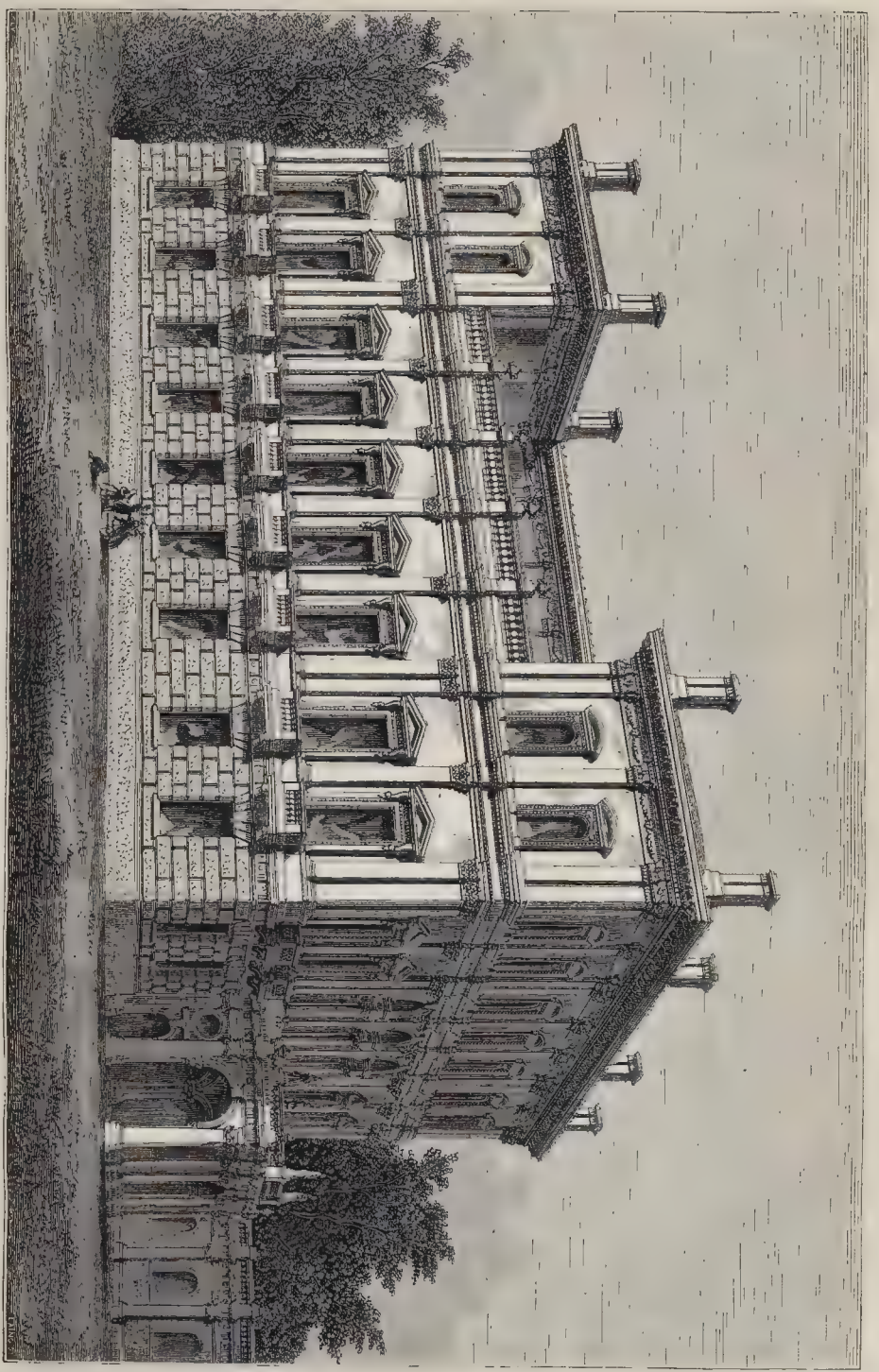
The plan of the house is a parallelogram, 104 ft. 9 in. wide (east to west), and 135 ft. 6 in. deep. The *principal story* will comprise a reception-room, 34 ft. by 31 ft.; drawing-room, 42 ft. by 27 ft.; saloon, 55 ft. by 29 ft.; boudoir, 28 ft. by 18 ft.; second drawing-room, 28 ft. by 18 ft.; and, dining-room, 44 ft. by 25 ft. On the *ground story* there will be—two libraries, one 40 ft. by 28 ft.; the other, 42 ft. by 28 ft.; a study, 26 ft. by 22 ft.; and a private room, 28 ft. by 20 ft.

If we may judge from the proposed arrangement of the grand staircase, which is to be of marble, the interior will be fitted up with a view to great completeness; but as yet nothing has been done.

The arrangement of the west front (next Park-lane), is original and effective. The mouldings and dressings generally, have been very carefully studied. The principal cornice displays a large amount of carving: its size may be judged of from the fact that the stones composing the chief projection of it are each 8ft. 6 in. square. The masks in the frieze are scarcely so effective as they might be, and should have a little mind knocked into them before the scaffold be taken down. There will be a bold stone screen wall round the house, with a lodge at the south-east corner.

We must add that this mansion is a very good specimen of masonry, and is built for long endurance. The external walls are 3 ft. 10 in. thick, with a cavity of about 5 in.: the proportion of stone is great, and the bonders numerous: the stones are all dowelled together, with slate dowels, and throughout the greatest care appears to have been taken by the architect to ensure more than usually sound construction. If the New Zealander, who is to gaze on the deserted site of fallen London in some distant time to come, see nothing else standing in this neighbourhood, he will certainly find the weather-tinted walls of Dorchester-house, erect and faithful; and will perhaps strive to discover the meaning of the monogram which appears on the shields beneath the balconies, "R. S. H." that he may communicate his speculations to some "Tasmanian Society of Antiquaries," perhaps not more pugnacious, if less erudite, than our own!

THE REAPING-MACHINE.—I am very much gratified to find by your notice that justice is at length being done to my old school-fellow Mr. Bell, in respect to his reaping-machine and his undoubted claim as the original inventor. When I visited the Exhibition last year I saw at once that the American claim was nothing but a revival of the machine I had seen at work on the farm of the Leigh nearly twenty years ago. Mr. Bell is the son of a farmer, and possesses great mechanical and inventive faculties. He produced his reaping-machine when studying divinity at St. Andrew's. He is a native of the parish of Lealing, about six miles north-west of Dundee. An engraving of his invention will be found in a Cyclopædia published by Fullerton and Co. of Glasgow, I think partly translated from the German, "Conversations Lexicon." After Mr. Bell was a preacher and teacher it was common when one asked another, "Weel, wha had you preaching yesterday at your kirk?"—that, "Oh, the shearing-machine" would be the answer, meaning Mr. Bell, for he was popularly known in the district by that name, the good people thinking a minister had no business to intermeddle in such affairs.—AN ADMIRER.



DORCHESTER HOUSE, PARK LANE.—Mr. Lewis Vulliamy, Architect.

ASSERTED EFFECT OF REMOVAL OF DUTIES ON PRICE OF FOREIGN TIMBER.

A CORRESPONDENT, violently opposed to free trade, says,—Since 1838 we have taken off duties on Baltic timber and deals from 75 to 85 per cent.; by the repeal of the navigation laws we have reduced freights from 30 to 40 per cent.; and I defy any man to prove that the gain to the consumer exceeds 30 per cent. But what have we done for the foreigner? In 1838, the price of best red deals at St. Petersburgh was 5*l.* 15s. per thousand; it is just now 9*l.* 5s.: best Memel timber was 32s. per load; it is now 44s.: Memel staves were 60*l.* per mille; and they are now 115*l.*: and as to Gottenburg, a little port in Sweden, where they used to be glad to make shipments of their goods for anything we would give for them, their merchants are now exceedingly wealthy, and their prices at least 100 per cent. higher than before the measures were carried to put money into their pockets at the expense of our national revenue. The writer asserts that the demand which used to exist for English timber is destroyed; and as to colonial timber and deals, that they could not be imported at all were it not for the low freights home, through the *outward* freight being kept up by emigration.

We shall be glad to hear anything that may be said on the other side of the question.

RAILWAY JOTTINGS.

A SECOND fall of a railway bridge crossing the Bucks line has recently occurred. The structure last on the site was erected only last year, on the ruins of the previous one. Both appear to have given way while trains were passing *under* them. The locality is Bintle-hill, near to Padbury, where the cutting is 50 or 60 feet deep, and but a short distance from the London side of Buckingham. The more immediate cause of the fall is said to have been a slip in the clay in the slope of the cutting, which took place beneath the foundation of one of the piers. The late heavy rains are blamed; and as it is said that the tumble down "could not be avoided by any engineering skill or forethought," there appears to be but a bleak prospect even of future safety; and we would recommend all and sundry to avoid this fair-weather way after "heavy rains," which have evidently the mastery over it, and may not be disposed to let off so easily as heretofore the unfortunates who may chance for the future to overthrow its bridges by merely passing under them.—— The Morayshire Railway, a single line about 6¾ miles long, has been completed, it is said, at a total cost of 30,649*l.* or less than 5,000*l.* a mile; and this includes 5,000*l.* costs of obtaining the Act. The locomotives are called tank engines, running on six wheels, and weighing 14 tons with coke and water. The engineer of the line is Mr. Samuel, of London. ——A question of a very grave and momentous nature has been started by the London and North-Western Company, in a proposal made by them to the Great Western, that these two immense corporations ought to amalgamate, of course under Parliamentary sanction. The London and North-Western is itself a vast amalgamation of separate corporations or companies, and the absorption of the Great Western into this same monopoly—for that is the real question—would constitute an *imperium in imperio*, which would not be satisfied even then with its conquests, but would inevitably tend more forcibly than ever to extend itself in every direction till the extremities of Britain were united in one enormous centralised amalgamation of scheming and naturally self-interested money-makers. Of course, the North-Western authorities are not so sanguine as to suppose or expect that they will ever be allowed to amalgamate with the Great Western except under Government control of some sort, a control which they themselves were among the first to deprecate on a late occasion. But a *complete* Government control of the only highway of the people is itself a serious question, in which the people are likely to take by no means a mere passive interest; and as for a Government control that would *not* be complete and effectual, if we mistake not that is even a still more serious question. In short, the whole principle and policy of our railway system must be brought under discussion by such a proposal; and, indeed, so far as regards the settlement of this principle and this policy, the sooner the better. It is clear that the subject of discussion, come when it may, cannot and will not be limited to the mere question—great and important as it is—of an amalgamation of the London and Western with the London and North Western. Even as it is, the North Western have an acknowledged eye to the Midland also, with which they already propose to negotiate as well as with the Great Western. As to the latter, its prospect of opening up a competing line, *viâ* Shrewsbury, to Liverpool, we suspect, is one of the main moving causes, though a concealed one, of the North-Western's present proposal, —a competing line by which the public would assuredly greatly benefit; so that the public interest and those of the proposed amalgamators, clash at once, whatever benefits the public may be likely otherwise to reap from such an arrangement.

OPENING OF THE VICTORIA DOCK AT LEITH.

THE new dock at Leith was formally opened for traffic last week. The works were designed by Mr. Rendel, F.R.S. and carried out by the contractors, Mr. John Barry and Messrs. Thomas Hutchings and Co. chiefly under the superintendence of Mr. A. T. Andrews, resident engineer.

The new dock contains exactly five imperial acres. It is entered on the north-east through a pair of massive gates, 62 feet wide, and which, though weighing 55 tons, may easily be moved by one man. The depth of the water in the dock will vary from about 26 feet in spring tides to 21 feet in neap tides. Two sheds, each 150 feet in length and 30 feet in width, are erected; between which a six-ton wrought-iron crane is to be placed, while on the east wharf, one calculated to raise 30 tons is in course of erection. The wharfage on the south amounts to 105 feet in width; on the east, 120 feet; and on the north, 75; while the west can be widened indefinitely to suit the traffic.

The arching to carry the railway commences at the west end of the dock, and is supported by piles 30 feet apart, which leave sufficient access for timber rafts, &c. to the ground lying westward between it and the old west breakwater.

The arching is 21 feet wide, and extends 1,000 feet in length, presenting a convex face to the harbour. At the northern extremity of the arching the new west breakwater and timber staying commences. The breakwater is composed of very large stone pitchers, placed on the outside of a pyramidal mass of ruble stone and clay, and rising to 6 feet below the top of the timber staging, or 20 feet above low-water mark. This staging is a continuation of the arching, but the piles are only 10 feet apart. It extends 1,600 feet in a north-western direction: at this point it is joined by the low-water pier, which is of a similar description of work as the last, but 40 feet wide and 520 feet long.

The arching, timber staging, and low-water pier are to be lighted with gas. An iron light-house is to be placed at the extremity of the low-water pier.

The total distance from the sea-wall on outside of the new dock will be seen, from the above measurements, to be 1,041 yards, or nearly three-fourths of a mile. The planking on the top is laid *transversely*.

The new extension of the east breakwater is 1,000 feet in length from the old part, and presents a concave face to the harbour: like the old part, it is 13 feet wide. The total length of the east breakwater and staging is now 1,178 yards.

To exhibit the magnitude of the works, we annex a list of what they embrace, viz.—320,000 cubic yards of soil and clay of excavation; 860,000 cubic feet of ashlar and block stone masonry; 16,000 cubic feet of ruble and mixed masonry; 165,000 tons of rubble stone; 8,000 cubic yards of mortar; 233,000 cubic feet of fir; 16,000 cubic feet of oak and elm; 180 tons of wrought iron; and 180 tons of cast iron. The old sea-walls are underpinned 12 feet high and 12 feet deep—a work of great care and difficulty.

BUILDERS' BILLS.

THE OPINIONS OF SURVEYORS.

BETTS *v.* COLLINS.—This action, brought a short time ago in the Wandsworth County Court, to recover 11*l.* 15s. for painting a house, and the other which follows, afforded an instance, the learned judge (Frazer) observed, of the necessity of builders' disputes being referred to a tribunal where gentlemen versed in surveying and building presided.

The plaintiff, a painter and builder, of Clapham, said he was employed by Mrs. Collins, to paint a house belonging to her at Clapham. No contract price was named. The work was well done, but Mrs. Collins's son complained of the charges, and would not pay more than five pounds, which he, plaintiff refused. He then called in a surveyor to take the quantities, and to report upon the way the work was done.

Mr. Clarke, a surveyor, said, at the request of the plaintiff, he carefully went over the work pointed out by Mr. Betts, and also over an adjoining house for which plaintiff was paid 50*l.* In his opinion the work was well done, and the charges were fair.

By Mr. Haynes.—Is not a builder now. Has been a surveyor for five years. After taking the quantities determined the charges from Laxton's Price Book.

Mr. Haynes said he was instructed that the charges were unreasonable, and that the sum of 6*l.* 10s. paid into court was ample. He called Mr. Mills, ornamental painter, of Cripplegate. The witness stated he found it very indifferently done altogether, and should consider 6*l.* 10s. a compensating price. Would have done it for 5*l.* or 6*l.*

Mr. Williams, painter, of Silver-street, Cheapside.—A great part of it was second-rate work. His estimate of it was 6*l.* 17s. 8d. Would have done it for that price. He took the prices from Sterling's Book of Prices.

By the Plaintiff.—Measured from his own head, and did not take the quantities from the bill sent in. It is seldom two men measure the work alike or in the same way. No two surveyors could measure the same. Tradesmen measure differently. I take the superficial feet.

The Judge.—Well, after that evidence, I should very much like to know what opinion I can have upon measurement, either by surveyors or tradesmen. One would think Euclid was unknown to surveyors. I can well understand the difference of prices, but to find no two men can measure superficies alike is extraordinary. My decision must be unsatisfactory, but as another builder's dispute follows this, I will reserve my remarks until I hear that. I shall deduct ten shillings.

Verdict for plaintiff, less ten shillings, and costs allowed.

TENNENT *v.* NICHOLLS.—The plaintiff is a builder in a small way, at Battersea: the defendant is a wax chandler. The sum sought to be recovered was 19*l.* 7s. 10d. and defendant had paid 10*l.* into court as sufficient.

Plaintiff stated that defendant employed him to do the brickwork of a new house in the York-road, at the contract price of 39s. per rod. Besides this he did other jobs, and found the materials for the latter. Had drawn 39*l.* When the bill was sent in defendant refused to pay more than 5*l.* and complained of the work, and requested him to call in a surveyor. He did so. Until the bill was sent in, no fault was found with the work, and Mr. Bowes, defendant's surveyor, gave him great credit.

Mr. D. W. Young, surveyor, of Wandsworth, said he went over the work, and in his opinion it was well done. Of course it was not to be expected that a fourth-rate house like the defendant's would have the same work in it as a first-rate. His valuation came to 50*l.* 7s. 10½d.

Mr. Gilham said they had heard a great deal about doctors disagreeing, but he would for the future substitute surveyor for doctor, for in this case he had two surveyors, who would swear that the work, instead of being as Mr. Young said, well done, was done most shamefully, and that the 10*l.* paid into Court was more than plaintiff was entitled to.

Mr. C. Bowes, surveyor, of Battersea, said he was defendant's surveyor. He measured the work, and did not find much difference in Mr. Young's, and his quantities. He differed in the prices, and his estimate, allowing 39s. per rod for the brick work, came to 48*l.* 2s. 3d. The work was very badly done.

By Mr. Smith.—Has been a builder all his life, and a surveyor seven years. The witness here made a speech.

The Judge.—Mr. Bowes, you never come here but what you make yourself an advocate. It is this advocacy of surveyors which makes their opinions appear valueless. You keep to surveying, and leave advocating to lawyers.

Mr. Davy, surveyor, of Battersea, said the work was not done well for a fourth-rate house. He took the quantities from Mr. Bowes, and he estimated the work at 47*l.* 1s. 10d.

The Judge.—The more experience I gain the less I understand of the estimates of surveyors and builders. As chairman of the Quarter Sessions, and Judge of many County Courts, I daily have to decide between surveyors. They take the part of advocates, for I invariably find that for whomsoever they are employed, so do they make their estimates tally. The most respectable surveyors act the same, and it is an impossibility to determine justly upon their evidence. Most of them are educated men, and must know the charges. Their wide estimates are to me unaccountable, and to juries most puzzling. To do justice where they or builders are concerned requires a court made up from the experienced of their ranks. It is utterly impossible for me to determine which are right, and I would be bound, if it were tried, the plaintiff could easily obtain 100 surveyors and builders to prove his work was well done, and worth the money, as defendant could get another 100 to swear to the contrary. In this case he thought the balance of testimony was in favour of defendant, and (although he could not say he was giving a right verdict), his judgment would be for the 10*l.* paid into Court, and he would not allow defendant's expenses.

IMPROVEMENT IN GAS MANUFACTURE.

WE have occasionally pointed attention to the hydrocarbons and their singular combinations and changes as a hopeful source of those improvements and that cheapening of gas manufacture which we have long anticipated. The vegetable and animal creation teem with hydrocarbonaceous products which we yet hope to see turned to public profit in this way without either waste or nuisance, and with increased convenience as well as economy. One of the most recent attempts to realise these pleasant prospects appears to consist in the composition of an artificial fluid or oil easily convertible into illuminative gas, by combining palm oil with Canada balsam and caoutchouc in distillation in such a way as to leave no residuum that is not also resolvable into the same vegetable oil in new distillation. Much cheaper and more abundant ingredients, however, will doubtless yet be found to be easily combinable into the requisite fluid or solid form that will yield pure gas with facility. It is known, for instance, that linseed oil and cotton have, in certain circumstances, such a tendency to combine that they not only do so, but burst into flame spontaneously. Might not some hopeful experiments, with abundant ingredients such as these, and say turpentine, resin, tar, bitumen, cannel, and even common coal, be gone into, and the requisite mean fluid result be most readily and cheaply got? It is probable that any *three* or more hydro-carbons distilled in common will assume a more distinct and permanent intermediate form than any two so distilled. It is quite possible, too, that some of the more insoluble, such as cannel, may thus be readily convertible into the fluid form by means of an intermediate hydro-carbon acting in association with a highly hydrogenous solvent one. Even as it is, however, so far as regards economy no less than purity, it is alleged that the triune oil got from caoutchouc, Canada balsam, and palm oil, by distillation, does not cost in consumption more than at the rate of 2s. per 1,000 cubic feet of ordinary gas. The article has been patented by a Mr. Booth, and has been adopted by a new "Vegetable Gas Company," who mean to sell it in small quantities suitable for private houses, public buildings, light-houses, ships, &c. as well as on the great scale for towns. From a paragraph in the *Times*, it appears that "For some months past the process has been in use at Eton College, the Harrow Railway Station, the town of Blackpool, and other places; and certificates are given of the satisfaction it has afforded. A letter from Sir J. Herschel, the Master of the Mint, is also published, stating that from an examination of the apparatus he has been led to the conclusion that it has accomplished the practical solution of the problem of gas-lighting on a small scale without the unpleasant accompaniments of the existing and larger method. . . . . The capital proposed is 100,000*l.* and the board of directors is respectably constituted. There are, however," adds the *Times*, "several points of detail omitted from the prospectus, which will occur to those who read it, and upon which they can properly satisfy themselves only by direct inquiry."

Notices of Books.

Investments for the Working Classes. By W. R. GREG. Longman, Brown, and Co. 1852.

ON the importance of providing and pointing out safe and profitable investments for the savings of the frugal and industrious among the humbler classes of society—to arrive at an idea of the magnitude of which, it need only be stated that the deposits in savings banks *alone* in November, 1850, amounted to 27,198,563*l.*—too much can scarcely be said; and we are glad to see a reprint in a cheap form of Mr. W. R. Greg's able paper on this subject which appeared in the *Edinburgh Review*. He says truly "Every defaulting savings bank"—Rochdale, to wit, —"every absconding treasurer to a sick club or a friendly society—every bankrupt railway—every fraudulent or clumsy building league—every chimerical or mismanaged land association, preaches a sermon on the folly of frugality and providence not soon forgotten and not easily counteracted. It is the duty of the state to see that there shall be no needless or artificial impediments to the safe keeping and the profitable employment of the first small beginnings of a stream which may swell into such a mighty flood of fertilising waters, and sedulously to take heed that no channel in which it can flow without waste or danger shall be closed to it. It is not for the Legislature to contrive that the guinea of the rich man and the penny of the poor man shall yield an equal revenue: it is for the Legislature diligently to see to it, that by no act, connivance, or negligence of theirs shall this desirable result be hindered." The benefits to be derived by the working population from the general establishment—cheaply legalised and properly guarded—of partnerships with limited liability, equivalent to the *partnership en commandite* of our continental neighbours, we have repeatedly urged in THE BUILDER, and it has been declared by competent authority that arrangements for this could be easily and effectually added to our present law, "as the Crown can now grant, through the instrumentality and on the responsibility of the Board of Trade, charters of incorporation, conferring the privilege of limited liability—each shareholder being answerable only to the extent of the full amount of his share—and enforcing publicity of accounts, shares, and transfers. But the expense of obtaining these charters has hitherto been so great as to render them virtually inaccessible to any but large undertakings and wealthy parties. It is in evidence, that a company which was formed for the purpose of improving the dwellings of the poor in the county of Gloucester was broken up in consequence of the inability to obtain a charter except at a cost which would have been fatal to their humble means; and a similar association in London, which did obtain such a charter, was almost ruined by it; the charter and the legal expenses attending its procural, exceeding 1,100*l.*" Those who are anxious for information on the subject of which this pamphlet treats may consult it with advantage.

The Betting Book. By GEORGE CRUIKSHANK. With Cuts. London: Cash and Co. 1852.

MR. CRUIKSHANK has entered the field rather late against the betting-houses, which have sprung up like foul *fungi* all over the town; but better now than not at all. This pamphlet is addressed rather to the removal of what leads to them than themselves simply, and asks with force, "How is it possible for Parliament, with any show of decency, to pass a law to shut up these offices, they being opened expressly for the purpose of betting upon the horses, kept and run, and betted upon, by the very men (or by their friends and connections) who will have to make the law?"

The pamphlet is written with the honest earnestness that distinguishes all Mr. Cruikshank's endeavours in aid of morality and the well-being of the community.

We will take this opportunity to caution the owners of houses against the betting-shop gentry as tenants. Several of them are usually in league together, and they refer to one another, and have so plausible a story that parties take them as tenants without suspicion, and then so defective are our laws that there is the greatest difficulty in getting them out and avoiding serious loss. We have a case before us to illustrate it. An owner had the misfortune to let a house some time ago to a nest of swindlers of this description. It is now shut up, has been so for months, possession of it denied him, and a scoundrel pettifogger, in league with them, coolly tells him "You can do nothing till November, and unless you give us a sum of money (besides losing all the rent due) we shall keep you out as long as possible." The rent being just above 50*l.* a year, the County Court is not available; but the owner intends to see what the laws against conspiracy may do to punish such vagabonds, and we mention the circumstance as a warning to others. Some of our legal readers may be able to give him a useful hint.

Gold Mining and Assaying: a Scientific Guide for Australian Emigrants. By JOHN ARTHUR PHILLIPS, F.C.S. Metallurgic Chemist; formerly Professor of Metallurgy at the College for Civil Engineers; Author of "A Manual of Metallurgy," &c. Griffin and Co. 53, Baker-street, London.

Notes on the Distribution of Gold throughout the World, including Australia, California, and Russia; with five Maps. Second Edition. London: James Wyld, Royal Exchange and Charing-cross.

IF this be not "the age of gold" of ancient heathen prophecy, on which we are now entering, it is something not unlike it; all the more especially, since it immediately succeeds "the age of iron," through which we have so lately been passing. That gold is a very generally diffused, though not very abundant metal has been well known; but its discovery only now, in so many different places, so simultaneously, and so widely scattered in each locality, is all the more singular on this account, and leads us to the expectation that even yet there are new discoveries to be made.

Amongst the successive publications on the subject of gold to which the recent discoveries are giving rise, we have not seen one so comprehensive and complete in itself, as a guide to the search for gold, advancing from the most simple and primitive to the most elaborate and scientific instruction, as the one first named in the present notice. What it mainly wants is the no less instructive and useful maps in Mr. Wyld's little pamphlet, which follows. There is one minor feature in this work of Mr. Phillips, too, which we think might have been most usefully extended, namely, the engraved sketches of the outward appearance of good localities in some of the gold-bearing districts. To those not much acquainted with geology these are calculated to be of special use as a guide, whether to districts already known or to new discoveries. Besides its more scientific information, which is also illustrated with engravings of all sorts of tools and apparatus requisite to the gold-digger and assayer (the latter, by the way, with the necessary reagents, provided by the publishers), Mr. Phillips's book contains a full account of the Government regulations as to the Australian diggings, and also some preliminary information as to the other known sources of gold throughout the world; but more of this last sort of information will be found in the notes which accompany Mr.

Wyld's very clear and excellent maps. These latter comprise a map of the world, showing the gold districts; one of the Australian gold districts; one specially of the district from Bathurst to Sydney and another of the Victoria gold district; and, finally, one of the gold districts of California.

A Lecture on Cotton, as an Element of Industry; delivered at the Rooms of the Society of Arts, London, in connexion with the Exhibition of 1851. By THOMAS BAZLEY, Esq. Longman, Brown, and Co. 1852.

THIS interesting lecture by the President of the Chamber of Commerce and Manufactures at Manchester, and which has been already noticed in our columns, has been printed chiefly for private distribution, but is also published by Messrs. Longman and Co. and will doubtless be thus also extensively circulated.

Miscellanea.

BUCKS AND BEDS ARCHITECTURAL SOCIETY.—A meeting of this society was held at Aylesbury last week. In the morning the society visited the ruins of Quarrendon Church, which at the present moment presents a pitiful spectacle, the roof being off, part of the walls only standing, and the ancient monuments, slabs, and tombstones, having been carried off. They visited the old church of St. Mary, Aylesbury. Mr. Slater read a long paper on the "Ground Plans of Cathedrals," remarking that they were generally all cruciform in shape. He described St. Paul's, London, York Minster, Canterbury, Lincoln, Carlisle, Bristol, Oxford, Peterborough, Ripon, &c. remarking on their peculiarities. Mr. Hurst followed with a paper on "Municipal Corporations." The Rev. W. H. Kelke read a paper on the "Sculptured Monuments of Bucks." The Rev. J. Taddy followed, with an essay on "The Moral and Intellectual Character of Mediæval Architecture." The Rev. W. J. Burgiss read a paper on "The Fortifications of the Northern Division of the County of Bucks," and the Rev. A. Baker delivered an interesting discourse on seats and other furniture in churches. The members of the two societies then proceeded to view the church restorations and other objects of interest, and met afterwards at dinner in the White Hart Hotel, where the Bucks society accepted an invitation to hold the next union meeting at Bedford.

THE TRAMWAY IN MAIDEN-LANE.—Seeing in your useful publication of last week some pertinent remarks on taking away the tramway in Maiden-lane, Covent-garden, by the parochial authorities, allow me, the late surveyor of pavements in that parish, to give you some of the *facts* connected with that paving. About thirty years ago Maiden-lane was repaved with granite, gutters on each side with gulleys, instead of as before with pebbles and a gutter in the middle (the old style of paving). After the footways had had the wear of *twenty-two years*, and required re-paving with Yorkshire, this was done; and the noise from the constant traffic having much increased, especially at night, from the entrance to the back of the Adelphi Theatre having been made there, and from the narrowness of the lane all vehicles having to go the whole length to turn; it was thought proper, after mature consideration by the committee of management at that time, to have the whole footways and carriageway repaved with new stone, when a tramway was laid of 12 × 8 curb, to *ease the traffic* and *mitigate the noise*. This certainly was a MAKE-SHIFT—12 × 8 granite, instead of 18 × 12; which dimensions would have allowed for the difference between the width of wheels on a Pickford's waggon, about 7 feet, and cabs, a little more than 4 feet. All this work was done, however paradoxical it appear, for *less than nothing*, the parish funds actually *gaining* above five pounds. This strange circumstance occurred, through the contract for paving at that time being very low. The Chartered, Equitable, and London Gas Companies, with the New River, who have mains passing along there, paying for relay over their pipes, and a very *liberal allowance* for the old stone taken from there, caused the parish to be in pocket through having the lane repaved. I believe, now, an examination will convince the most superficial observer that the taking away the 12 × 8 granite, under any pretext, to use as curb in other parts of the parish, is a *robbery* of the inhabitants of Maiden-lane, all of whom will find, from the *noise being increased* through taking away the tramway, that the fronts of their houses cannot be used for bedrooms.—Allow me to add, I am surprised it has escaped the notice of some of your correspondents, that those who are favourites can take a *slice of ground* out of the *churchyard* to add to their house, without any argus-eyed radical taking notice. This is done now at the house in King-street building by Mr. Treherne, as you will find by inquiry of the churchwarden.—P. S.

INAUGURATION OF THE LEEDS PEEL STATUE.—The bronze statue of the late Sir Robert Peel, by Behnes, was inaugurated at Leeds, on Friday in last week. The figure is 8 feet 6 inches high, and was cast in one piece at the works of Mr. F. Robinson, the Statue Foundry, in Pimlico. The basement of the pedestal on which the statue is placed is of grey Aberdeen granite, and the shaft and mouldings of red Aberdeen granite, dressed but not polished. The only inscription is the word "Peel" engraved in simple characters on the shaft. The summit of the pedestal is 11 feet 6 inches in height, and has been erected upon a foundation of 6 feet of concrete and 2 feet 6 inches of ordinary masonry. The area of the base is 12 feet by 10 feet 6 inches. The weight of the masonry is 27½ tons, and of the statue, 2 tons; the total measurement of solid masonry being 275 cubic feet. The site of the statue is near the Court House, the Coloured Cloth Hall, and the Commercial Buildings. None of the late statesman's family connections appear to have been present at the inauguration, though invited.

LIABILITY OF ARCHITECTS TO CONTRACTORS.—In the Bedford County Court, Prior, a stonemason, claimed from Mr. Usher, an architect, 15*l.* odd, balance of 32*l.* alleged to be due to the plaintiff as a sub-contractor for extras. The sum of 16*l.* had been paid to the sub-contractor by Messrs. Francis, builders, the contractors (for a farm homestead), to whom it had been paid on a decision, according to agreement, by the surveyor, as to the proper amount. The plaintiff contended that he was not bound by the conditions beyond the original contract, and as the work executed by him exceeded the bill of quantities furnished by the defendant, he considered the latter was responsible for the difference. Evidence of extras having been ordered by defendant was given; but it appeared that the sub-contract was between the plaintiff and the Messrs. Francis, who received all moneys on account of the work. It also came out that the principal contractors had submitted to deductions in their charges for extras in the brickwork. The plaintiff was nonsuited, not having proved defendant's liability.

ELECTRO-TELEGRAPHIC PROGRESS.—It has been found by experiment that a battery of two plates at Greenwich has sufficient power to liberate the ball of 186 lbs. weight now erected in the Strand, and the necessary wires for the complete working of the telegraphic time-ball system are nearly ready, but an announcement that it would be put in operation on Thursday in last week was premature. The electrical dial in the centre of the thoroughfares opposite Hungerford Market has been fixed on its ornamented bronze pillar, and at night illuminated. The dial-plates are formed of enamelled glass, with the hours and minutes marked in stained glass on the base, and the pillar is surmounted by a gilt ball. The great ball or regulator is of a bright vermilion, sashed with a gilt circle.——Messrs. FOX, Henderson, and Co. are said to have contracted for the construction of a line of telegraph between Cork and Belfast. The line from Dublin to Galway has been already laid down by the same firm. The proposed telegraph will extend from Cork to Dublin, from Dublin to Donaghadee, from which place it has now been submerged, across the North Channel, to the Scottish coast at Portpatrick, through which there will be communication throughout by Edinburgh, northward as far as Aberdeen, and from Portpatrick southwards, to the great English interweavement or plexus of wires. The contractors have entered into arrangements for procuring poles and wires for the Irish portion of the line, and it is expected the entire will be completed within the next two months.

THE ETTY PAINTINGS AT EDINBURGH.—The Scottish Academy are in possession of five large works by Etty, namely, the three pieces of the "Judith," the "Benaiah," and the "Combat," which they are said to have come into the proprietorship of at a cost not exceeding that of one of them, and on the understanding that the collection thus made would not be again dispersed. Nevertheless, it is said that an English picture-dealer having proposed to give 2,000*l.* for the "Combat," various members of the Academy are inclined to entertain the question, and according to the *Edinburgh Post* there is even a considerable chance of the picture being sold on this mere money consideration, although the Academy is not only in a flourishing condition, but has already reaped from Etty's pictures more than what was paid for them. Etty himself is said to have been influenced by the idea that the pictures by him in this Academy's hands would constitute a permanent collection.

IMPROVEMENTS IN IRON MANUFACTURE.—Mr. J. Jones, of Bilston, has taken out a patent for a method of constructing furnaces so as to preserve them as much as possible from the action of the fire. The claims are, for the use of water, or other cooling liquid, supplied, by proper troughs, to the doors, dampers, flue jamb plates, bridge plates, and back wall plates, of puddling, boiling, or heating furnaces, and for a tank under the bottom plate for cooling and preserving them; also for the employment of a flue for carrying off the heated air, sparks, and products of combustion, from a refinery furnace, and economisation of heat, by passing the heated air from same through the flues of, or around, a steam boiler.

SHEET LIGHTNING.—The frequency of this phenomenon, and the beauty of the display on several evenings of late, induces us to quote the following description of the meteor by Dr. D. P. Thomson:—"There is an electric phenomenon of peculiar character, termed sheet or summer lightning (*éclairs de chaleur*), unaccompanied by thunder, or too distant to be heard. When it appears, the whole sky, but particularly the horizon, is suddenly illuminated with a flickering flash. Matteucci supposes that it is produced either during evaporation, or evolved (according to Pouillet's theory) in the process of vegetation, or generated by chemical action in the great laboratory of nature, the earth, and accumulated in the lower strata of the air in consequence of the ground being then an imperfect conductor. Arago and Kämtz have adopted a very different view of the nature of these lightnings, considering them as reflections of distant thunder-storms; and the author has often observed thunder-storms preceded and followed by this phenomenon. We have seen the cumulo-stratus cloud in the horizon start into view during the play of summer lightning. Saussure informs us that he observed sheet-lightning in the direction of Geneva, from the Hospice du Grimsl, on the 10th-11th July, 1783, while at the same time a terrific thunder-storm raged at Geneva. Howard mentions that from Tottenham, near London, on July 31st, 1813, he saw sheet-lightnings towards the S.E. while the sky was bespangled with stars, not a cloud floating in the air; at the same time a thunder-storm raged at Hastings, and in France, from Calais to Dunkirk. Arago instances the following illustration in support of his opinion, that this phenomenon is reflected lightning:—In 1803, when observations were being made for determining longitude, M. de Zach, on the Brocken, used a few ounces of gunpowder as a signal, the flash of which was visible from the Klenlenberg, 60 leagues off, though these mountains are invisible from each other."

GLASGOW ARCHITECTURAL ASSOCIATION.—The second competition of the first session of this association has been but recently determined. The subject is, "A perspective Hand-drawing, in outline, of St. George's Church," and the premium is a gift to the association by Mr. Rochead, architect. The successful competitor is Mr. Cousland, draughtsman in the employment of Mr. Wilson. The judge's decision said much credit was due to all the competitors for "the manner in which they had got up their drawings."

TENDERS

For taking down and rebuilding the Angel Inn, at Sparkbrook. The quantities taken by Mr. Wm. Lee. Messrs. Morton and Son, architects:—

Davis	£1,430	0	0
Cresswell	1,427	0	0
Pashley	1,400	0	0
Hardwick	1,390	0	0
Barnsley	1,387	0	0
Smith	1,381	0	0
Briggs	1,365	0	0
T. and J. Nowell (accepted)	1,343	0	0

For the Oxford Industrial Schools. Mr. E. G. Bruton, architect.

Walters, Abingdon	£3,407	0	0
Jones, Oxford	3,270	0	0
Young and Co. ditto	3,200	0	0
Chesterman, Abingdon	3,183	0	0
Quartermain, Oxford	3,100	0	0
Cowley, ditto	3,074	0	0
Deacon, ditto (accepted)	2,680	0	0

For the taking down and rebuilding of the premises, 14 and 15, Leicester-square. Mr. Mathews, Reigate, architect:—

Pollock and MacLennan	£2,930	0	0
I'Anson and Son	2 704	0	0
Cooper (altered)	2,428	0	0
Brunning	2,349	0	0
Harding (altered)	2,284	0	0
Bishop and Co.	2,122	0	0
Farmer	2,090	0	0
Patrick and Son	1,968	0	0

For the "Turk's Head" Public-house and Houses adjoining, for Messrs. Trueman, Hanbury, and Co. Mr. Jas. Harrison, architect:—

Livermore	£1,449	0	0
Hedges	1,256	0	0
William Hill	1,234	0	0

For a Clearing-house, for Messrs. Martineau and Co. Mr. Humphreys, surveyor.

Jacobs	£1,328	0	0
Haynes and Eyre	1,170	0	0
Furnival	1,133	0	0
Wilson	1,130	0	0
William Hill	1,084	0	0

TO CORRESPONDENTS.

"A. H. G.," "Civis," "J. P." (we cannot refer), "C. B. S.," "A. B." (will find it very difficult to obtain a government appointment without strong interest, and will do more wisely by persevering in the profession he has adopted), "B. H.," "H." (declined, with thanks), "J. A. R.," "H. A.," "W. B.," "J. P. and Co.," "E. G. B.," "Q. E. D." (shall appear), "Trowel" (ditto), "Quondam" (ditto), "C. J. F." (it is not absolutely necessary to employ an architect; but if F. knows nothing about it himself he should do so), "An Old Subscriber" (we believe it to be a useful material), "D. and Son" (will do best by taking special advice on the spot), "A Subscriber" (copper), "J. F.," "A Subscriber," Bristol, "F. S."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

LIGHTNING CONDUCTORS.
R. S. NEWALL and Co.'s PATENT COPPER ROPE,
3-8ths diameter, 75lb. per 100 feet.
Office, 126, Strand, London.
Manufactory, Gateshead-on-Tyne.

THE RECENT THUNDER STORMS.—SMITH'S PATENT WIRE-ROPE LIGHTNING CONDUCTORS, for the protection of Churches and other high buildings, Ships, &c. Amongst many hundreds in existence of their perfect efficiency, as applied and fitted by the original inventor and patentee, A. SMITH, Manufacturer, Leicester, none, though in that of St. Martin's Church, Leicester, is the most recent which has come to his knowledge (vide the *Times* of August 16).

SIR W. S. HARRIS'S LIGHTNING CONDUCTORS.—The public attention, as well as that of Church-Building Committees, and those interested in the preservation of churches and all description of buildings, is called to the very numerous recent disastrous effects of the heavy thunder-storms which have prevailed. THOS. W. GRAY, 79, Lincoln's-inn-fields, City, London, respectfully guarantees that he is the only person authorised by Sir W. Harris to apply his Lightning Conductors, and who will not be responsible for their application by any other persons. The peculiar importance of these Conductors is such, as to safely vessels of any amount of electric fluid, as proved in many authenticated instances at sea, both in the navy and merchant service, as well as in buildings, and to show the importance of these Conductors, the Jurors of the late Great Exhibition, in Council Medal of the Great Exhibition, awarded them.

Mr. T. W. GRAY will be happy to supply any information that may be desired, and to furnish estimates of the cost for fitting the Conductors.

TO MACHINISTS AND ENGINEERS.
WANTED, TWO or THREE SINGLE GEAR SLIDE LATHES, bed 10 or 11 ft.; 8 in. centres, complete.—Full particulars, with lowest price, to be addressed to S. H. 24, Bishopsgate street Without.

OXFORD INDUSTRIAL SCHOOLS.—TO CLERKS OF WORKS.—WANTED, immediately a CLERK of WORKS, to superintend, under the direction of the architect, Mr. E. G. Bruton, the erection of the schools. Salary 2s. per week. Testimonials of ability, particularly with reference to experience in the rubble masonry, to be addressed to me on or before twelve o'clock on Thursday, 2nd September next.
By order of the Board.
H. TAYLOR, Clerk.

THE Surveyor of the Local Board of Health of Bradford, Yorkshire, is willing to receive a well educated young gentleman as an ARTICLED PUPIL.—Further particulars may be obtained on application

TO TRAVELLERS IN THE BUILDING TRADES
A RESPECTABLE AGENCY will be given to any gentleman engaged in that or collecting business with builders, &c.—Address, post-paid, to C. W. 168, Strand.

WANTED, a JUNIOR ASSISTANT, conversant with the duties of a builder's office.—Apply at 14, Osnaburg-street, New-road.

WANTED, an IN-DOOR APPRENTICE in the Locksmith, Bell-hanging, and General Smith Line, in an old-established business.—Apply at E. SCOTT'S, 26, Saint John street-road, Clerkenwell. A premium required. No agent need apply.

TO PARENTS AND GUARDIANS
WANTED, by a Builder in an extensive way, an APPRENTICE not under fifteen years of age. A party would have the benefit of personal instruction. Premium moderate. Apply, pre-paid, to A. B. Mr. Wells, Porchester Arms, Porch ster terrace, Paddington

TO PATTERN MAKERS
WANTED, a STEADY YOUNG MAN, accustomed to make Patterns for Cabinet Brasswork; a knowledge of drawing is indispensable. Address, stating where last employed, reference, and salary expected, to W. K. Office of "The Builder," 1, York-street, Covent-Garden

TO ARCHITECTS' ASSISTANTS
WANTED, immediately, in the country, for two or three months, one who is efficient at Gothic, and in getting up finished drawings and perspectives in a masterly style. Address, stating terms, G. M. ATCHLEY and Co. Architect Library, 166, Great Russell-street, Bedford-square, London

WANTED, a PERSON accustomed to Working Circular and Vertical Saw Mills. To a steady active man who understands his work, and is a teetotaler, constant employment will be given.—Address, stating age, salary required, and where last employed, to Box H. 24, Post-office, Liverpool.

WANTED, in London, a good practical CLERK. He must be thoroughly acquainted with Architectural construction, and upon making detail and working drawings, taking off quantities, measuring works &c.—letters to be addressed with unexceptionable references, and to state the amount of salary required, addressed to C. E. B. Office of "The Builder," 1, York-street, Covent-garden.

TO ARCHITECTS' CLERKS
WANTED, a good DRAUGHTSMAN and DESIGNER; he must be thoroughly well acquainted with the pure principles of the Gothic styles. He will be required principally to make drawings of ecclesiastical and secular furniture, and will have the advantage of an extensive architectural library.—Address A. B. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, as WORKING FOREMAN, a Carpenter, well acquainted with his business, who would be competent to erect cottages, farm buildings, &c., under the direction of the steward; and also to keep the necessary accounts of the timber yard, &c. No person need apply whose character in all respects will not bear the strictest investigation. Applicants should state what has been their previous employment; whether married or single and wages required, and give a satisfactory reference.—Address (post-paid) to M. A. L. Wood's Hotel, Furnival's-inn, London

TO SURVEYORS, ARCHITECTS, AND OTHERS.
WANTED immediately, in the office of an Auctioneer and Surveyor in the country for nine or twelve months, a steady respectable Young Man about eighteen or twenty years of age, who would reside as a parlour home, with board, &c. and the opportunity of improving himself in the profession and remunerate for his services. It will be necessary that he should have a fair knowledge of surveying and perspective, and if he has had an architect's office it would be desirable. Address, with full particulars of previous employment and references, to J. C. Post-office, Luton, Beds

TO BUILDERS, PLUMBERS, PAINTERS, AND GLAZIERS
WANTED, by a Young Man, PERMANENT EMPLOYMENT, as PLUMBER; no objection to fill up his time at painting and glazing.—Address, pre-paid, to J. S. Mr. Bell and Son's, Bow Market, West Street, Sussex.

WANTED, by a thoroughly practical man, of great experience in the management of men, a SITUATION as FOREMAN of BRICKLAYERS on piece work, in town or country. Good references given.—Address W. E. No. 2, Swanscplace, Upton, near Slough, Bucks.

TO BUILDERS, HOUSE PAINTERS, &c.
WANTED, by a respectable Young Man, a constant SITUATION as WRITER, GILDER, PAPER HANGER, and PAINTER; has a thorough knowledge of measuring painters' work, and would make himself generally useful.—Address, pre-paid, to S. B. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, a SITUATION as WORKING or GENERAL FOREMAN, in or out of shop, a steady active young Man, by trade a Joiner, who has had five years' practice in the same capacity, and is well acquainted with shop-front, staircasing and the general routine of a Builder's Business. References for character and ability can be had from his present employer. The country preferred.—Address M. P. Office of "The Builder," 1, York-street, Covent Garden.

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A MIDDLE-AGED PERSON, of considerable practical experience in masonry and the different branches of a building, is open for a RE-ENGAGEMENT, either as Clerk of Works general Foreman to a Builder, or Yard Foreman of Mason's Manager, and Sale-man in a builder's yard, where the various branches are carried on. Can be satisfactorily referred to, and security can be given.—Address, N. H. No. 8, West-street, Newbury, Berkshire.

TWO or THREE DAYS a WEEK ENGAGEMENT is desired by a thorough practical Surveyor and Builder's Clerk, with first rate references.—Address ALPHA, Taylor's Post-office, Charles-street, Middlesex Hospital

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These Pencils are prepared in various degrees of hardness and shades.

H H H for drawing on wood.	F F light and shading.
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Sold by all the principal Stationers in town or country.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT. The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE, and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above fire-proof system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (*late* Fox and BARRETT),
12, York-buildings, Adelphi,
whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

TO LET, a BRICK FIELD, with immediate possession, on the line of the Great Western Railway, near Maidenhead station. The field is in full work, with every preparation for making 1,000,000 stock and washed bricks. The clay is of very superior quality, is to feet deep 6 feet of which is malm earth. The bricks made in this field last season were much approved of in the London market.—Apply to Mr. J. WETHERED, Maidenhead, Berks.

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BARBICAN FOUNDRY, PLYMOUTH, with DWELLING-HOUSE, &c. TO BE LET, with immediate Possession. The Steam Engine, Plant, Patterns, Lathes, Proving Machines, Planks, Tools, &c. will be Let with the Foundry, or may be taken at a Valuation. The Premises are extensive, and adjoining the Sound or Sutton Harbour. The Engine and Plant are in good order, and can be immediately set to work.—Apply to Mr. BAILY, Solicitor, Plymouth.

TO BRICKLAYERS AND CARPENTERS.
TO BE DISPOSED OF, an Old-Established BUSINESS, with good profits, situate in the City. For particulars apply to Mr. MATTHEWS, House and Business Agent, 45, Liverpool street, City.

TO BE DISPOSED OF, a long-established wholesale and retail LEAD, GLASS, and COLOUR BUSINESS. The lease, good-will, stock, &c. will require from 1,000l. to 1,200l. Principals only will receive full particulars on forwarding their names and addresses to Mr. W. HIGGS, Builder, New-road, Marylebone.

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TO BE DISPOSED OF, in a small town in the county of Norfolk, an old-established BUSINESS, making a good return in the above branches, and would prove a desirable investment to a man of energy and small capital.—For further particulars, apply to Messrs CHATER and SON, St. Duustan's-hill; or to Mr. J. BLOYD, 11, Duke-street, London-bridge, London.

TO BUILDERS AND OTHERS.
TO BE DISPOSED OF, the Lease and Goodwill of convenient PREMISES, situate within about four miles of the City, where an excellent business has been carried on for nearly fifty years, in the building, plumbing, painting, and decorating trades. The premises are held for an unexpired term of nearly thirty years, at an exceedingly low rental. Stock and fixtures at a fair valuation. Good-will 200l.—For particulars and cards to view apply to Mr. MARSH, Auctioneer and Land Agent, 2, Charlotte-row, Mansion-house.

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TO BE DISPOSED OF, an old-established BUSINESS in the above branches, in a flourishing town in the north-west of England. The business has been carried on successfully for above half a century, and the connection is highly respectable, being in a neighbourhood surrounded by families of the first respectability. Unexceptionable references will be required.—For particulars, apply by letter to Messrs. CUPPLEY and STORY, Wholesale Upholsterers, 4, Finsbury-place, or to Mr. JAMES TOLEMAN, Paper-hanging Manufacturer, 170, Goswell-street Road.

TO IRON AND BRASS FOUNDERS, IRONMONGERS, &c.
IRONMONGERY and FOUNDRY BUSINESS. In a Market-town in the West of England, within eighty miles of London, a good IRON FOUNDRY and FURNISHING IRONMONGERY BUSINESS are to be DISPOSED OF, with immediate possession. Any one who can command about 3,000l. will find this an excellent opportunity. The connection is first-rate, and satisfactory reasons will be given for the present proprietor's retiring. The business has been in the same family for upwards of half a century.—Application, with real name and address, to be made to Mr. J. W. RUSSELL, Solicitor, Merthyr Tydfil. The Foundry Premises are Freehold, and for sale, and with the plant would be disposed of separately if desired.

TO BE SOLD, a splendid ROSE ENGINE, with a complete set of tools, ornamental chucks, grinding apparatus, &c. Also, a small Lathe, with slide rest and overhead motion, eccentric chuck, and tool-fit for an amateur turner. Also, a 6-inch screw-cutting lathe.—For reference to view the same apply to the Office of "The Builder," 1, York-street, Covent-garden.

FREE EXHIBITION.—ART-UNION of LONDON.—The Exhibition of Works selected by the Fricholders of 1852, will be open to the public without tickets, from Ten till Six daily, at the Society of British Artists' Gallery, Suffolk-street, from Monday next, the 30th inst. till Saturday, September 4th. GEORGE GODWIN, } Honorary
LEWIS POCOCK, } Secretaries

ROYAL COLOSSEUM (every MONDAY at HALF PRICE).—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. Open daily from Ten till Five o'clock. In the Evening, from Seven till Ten, "Paris by Night," and the whole establishment brilliantly illuminated.—Admission, Day or Evening, 2s. Children and Schools half-price.

CRYSTAL PALACE (Admission 1s.). At the CYCLORAMA, Albany-street, daily at Three, Evening at Eight o'clock. Seven stupendous Tableaux of the Great Exhibition and its contents painted by Mr. Mac Nevin, from original studies, and on a scale nearly equal to the original. Reserved seats, 2s.

PATRON—H. R. H. PRINCE ALBERT.

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PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved.
BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous. TRACING PAPER and CLOTH; dividing Instruments.
GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.
WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament street, Lo don.
Contracts for the supply of large establishments.

BILLS of QUANTITIES.—DAY and SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.
Perspectives got up from Geometrical Drawings, either in Outline or Water Colours.
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GUTTA PERCHA TUBING.—Many inquiries having been made as to the durability of the tubing, the Gutta Percha Company have pleasure in drawing attention to the following letter, received from Mr. C. Hacker, Surveyor to the Duke of Bedford:—

"Office of Works, Woburn Park, Jan. 10, 1852.

"In answer to your inquiries respecting the Gutta Percha Tubing for Pump Suctions, I find that the water has not affected it in the least, although it will eat lead through in two years; we have adopted it largely, both on account of being cheaper than lead, much easier fixed, and a more perfect job.

"Yours truly, C. HACKER."

N.B. The Company's Illustrated Circulars, containing instructions to plumbers for joining tubes, lining tanks, &c. will be forwarded on the receipt of three postage stamps.
THE GUTTA PERCHA COMPANY, PATENTEES, 18, WHARF-ROAD, CITY-ROAD, LONDON.
Wholesale City Depôt, MESSRS. BURGESS and KEY, 109, Newgate-street.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Gosw ell-mews, Gosw ell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanised India Rubber Tubing, which is now manufactured from 1/4 inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.
*** Testimonials may be had on application at the Manufactory.
N.B. VULCANIZED WASHERS and SHEET RUBBER or Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

THE PERMANENT WAY COMPANY beg to inform Boards of Directors, Engineers, and others, interested in railways, that in order to facilitate negotiations for the use of their patented improvements, now so extensively adopted, they have arranged with Mr. CHARLES MAY, Civil Engineer, 3, Great George-street, Westminster, late of the firm of Ransome and May, Ipswich, to manage their transactions. Communications made either to him, or to the undersigned, will meet with prompt attention. WILLIAM HOWDEN, Secretary.
Offices, 26, Great George-street, Westminster.

TARPAULINS FOR COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE made by BULL from unexceptionable materials. Awnings and temporary Awnings on sale or hire. Orders per post receive the most prompt attention. WILLIAM PIGGOTT, 113, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

By Royal Letters Patent.

THOS. HAWKINS begs to inform Builders, Painters, and the Trade generally that he has now on hand a large stock of his newly patented Brushes, made on an entirely new principle, and warranted to stand any test. A trial will be sufficient to prove the superiority of these brushes over any other article now in use by the trade. Terms, cash.—Address, THOMAS HAWKINS, 3, Inverness-terrace, Bishop's-road, Bayswater.

DURRAND'S "BONDED and SUFFERANCE WHARF" TIMBER-PRESERVING WORKS, RUTHERHITHE.—BETHELL'S process consists in preparing timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piers, Docks, Harbours, &c.; and the Outside Planking of Ships and Barges. And also for use in the colonies, as timber perfectly impervious to the attacks of all land or marine insects. PAYNE'S, Sir W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and general Building.
Extensive and most complete Machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.
Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 2, Charlotte-row, Mansion-house, City.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that the Yard is now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS, and MATCH BOARDING of all sorts, from ½ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Plank, Scantling, Sash Stiles, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton road, Pimlico Basin

T. ADAMS, MAHOGANY and TIMBER MERCHANT, Bermondsey New-road, near the Bricklayers' Arms, ten minutes' walk from the London-bridge Station, will forward, upon application, his REDUCED LIST of the PRICES for SEASONED FLOORING MATCHED BOARD, Deals, and Timber, either whole or cut into any thickness and scantling, &c. Also, his drawing of 300 Patterns of MOULDINGS, on receipt of two postage stamps.—T. A. continues to offer all the advantages as stated in his previous advertisements.

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SEASONED WOODS by the Patent Desiccating Process for SALE, at E. I. FULLER'S Depôt, 27, Wharf-road, City-road. Spanish and Honduras Mahogany, Wainscot, Hornbeam, Limetree, Birch, Beech, and Veneers. Flooring and Match Boards, &c.

SEASONED FLOORING PLANED to a parallel width and thickness by improved patent machinery, at very reduced prices, as under:—

Per square.		Per square.
½ inch yellow	13s. 6d.	½ inch white..... 13s 6d.
¾ " "	14 6	¾ " " ..... 14 "
1 " "	16 0	1 " " 15 6

2½ per cent. discount allowed on amounts exceeding twenty pounds. Also timber, planks, deals, battens, scantling, sash-sills, &c. at equally low prices. Delivered free to any railway station in London. Terms, cash.
ARCHBUTT and ATKINSON, St. Pancras Saw-mills, Cambridge-street, Old St. Pancras-road, close to the Goods Terminus of the Great Northern Railway.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF, SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge,
are prepared to supply timber and deals, &c. cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c. from the company, will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.
The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, from drawings, &c. with an accuracy and despatch which must insure satisfaction.
The moulding list contains nearly 80 diagrams, with prices attached, may be had at the mills, or shall be forwarded on receipt of six postage stamps the amount of the postage thereon).

MUIR'S PATENT PLANING MACHINE.

SAW MILLS, GILLINGHAM STREET, PIMLICO.
TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle; Boards, &c. prepared, matched, and grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.
Address to HENRY SOUTHAM,
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N.B. Estimates given for Sawing and Planing.

CHARLES WM. WATERLOW, Manufacturer of Sashes and Frames, and Joiner to the Trade,
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Will season and materials, superior workmanship, lowest prices.
Upwards of FOUR HUNDRED DOORS, and a large variety of Sashes and Frames, always on sale.
Glass in any quantity packed for the country. Steam-struck mouldings in any quantity.
N.B. This establishment is worthy the notice of all engaged in building.

NOTICE of REMOVAL.—JOHNSON & PASK, Sash, Shop Front, and Door Makers to the Trade,
beg to inform their Customers and the Public generally, that they have removed to more extensive premises in
BAKER STREET, BAGNIGGE WELLS-ROAD, where they have convenience for carrying on a larger business.
N.B. By inclosing a postage-stamp a full list of prices may be had by return of post.

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TO BUILDERS, IRONMONGERS, AND OTHERS.
IRON RAILING.—TO BE SOLD, cheap, about 300 feet of IRON OPEN RAILING, and RAILING BARS. The bars are 32 inches long, by ⅝ths diam. with standards. The Coping in lengths of about 4 feet 8 inches each.—For further particulars, apply to A. B. 7, Wharf, Wenlock-road, City-road. Also a few lengths of 4 in. Rain Water-pipe.

OAK STAINING and VARNISHING.—Staining and Varnishing of Churches, Chapels, &c. done for the trade at 8d. per yard by JOS. WILLSON, High-street, Kingsland.—Oak Stain, 8s. per gallon.

ATTESTED PRACTICAL SUBSTITUTE FOR WHITE LEAD.
White or Oxide of ZINC for PAINT, &c.
under H. M. Royal Letters Patent.
LANGSTON, SCOTT, and WHITE,
Sole Manufacturers in the United Kingdom,
Grand Surrey Canal Dock, Rotherhithe,
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CERTIFICATE.

"Gas Works, Curtain road, July 29, 1852.

"Dear Sirs,—In answer to your inquiries respecting White Zinc Paint, I have used a considerable quantity, and have some lime vessels which were painted with it three years ago now in very good condition. This I consider one of the most severe tests to which paint can be put; however, the White Zinc Paint has stood it well, and saved the purifiers, &c. from oxydation.—I remain, Dear Sirs, yours faithfully, "A. UPWARD,
"Resident Engineer and Superintendent.
"To Messrs. Langston, Scott, and White, Rotherhithe."

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's-park, and various other public and private buildings; in quantities to finish twenty square yards for 10s.
PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8s. 6d. and 8s. each.
PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanency, ready for use. White Stone and Lead, 6s.; Greens and Blues, 8s. per gallon.
BLACK MINERAL PAINT, very permanent, half the usual price; only 3s. per gallon.
NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 5d.
D. BELL and CO. Steam Mills, 2, Wellington-street, Goswell-street, London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.
Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.
Its confessed superiority over every other paint hitherto known brought forward various imitations.
These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and rendered the preservative properties for which the original paint stands pre-eminent.
In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.
Hubbuck's paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.
As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT"

and if the cask has not been so marked, the reason is obvious.
The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit, &c. &c.
A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, from the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This PAINT is superior in every respect to white lead; it is unequalled in whiteness, and grows very hard after it is applied, and is, therefore, for interior work, susceptible of a high polish. Besides, it is entirely free from all poisonous influences, is unaffected by sea water, sulphurated hydrogen, or any gases, and preserves its original colour, which white lead does not do.
WHITE ZINC PAINT causes none of the ravages invariably committed by white lead upon the human frame; neither painter's cholic, nor paralysis, &c. &c. to which dangerous complaints the workmen and manufacturers who use it are subject, and to which persons who inhabit newly-painted apartments are also liable. Since its introduction into the United Kingdom by the patentees, the Admiralty and the most eminent professional men have given it their preference over any other paint. The public is sanctioned, that if white zinc paint is adulterated, it becomes a very inferior paint, instead of a first-rate one, and peels or washes off on outside work.
The VIEILLE MONTAGNE ZINC COMPANY imports largely from its works in Belgium WHITE OXIDE of ZINC in a dry powder, and the casks bearing their mark, VM, can only be considered as genuine, and may be obtained, for grinding in oil, at any of the Agents, residing in the following towns, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, and Jersey.
The same oxides ground "pure" to a White Zinc Paint, may be also obtained from the Company's Agents of the above mentioned localities, as likewise from their Grinding Agents, Messrs. C. DEVAUX and Co. 62, King William-street, City, London; and Messrs. ROBT. ANDERSON and Co. Timber Bush, Leith, Scotland. Pure White Zinc Paint may likewise be purchased from Messrs. BLUNDELL, SPENCE, and Co. Hull.
For further particulars apply to Mr. H. F. SCHMOLL, General Agent for the United Kingdom, at the Company's offices, 12, Manchester-buildings, Westminster-bridge, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of
PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.
Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the only compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.
But the chief and by far the most important advantage it possesses is its remarkable and very decided superiority in Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was directed to this property drawn to it by circumstances, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practicemen, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an enamel than paint.
In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed in much the same way as for White Lead, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable.
The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 5, Upper Thames-st.; Mr. Rhodi. Cooke, 7, Sise-lane.
LIVERPOOL	Messrs. Johnson and McGowan.
MANCHESTER	Mr. James Douglas.
LEEDS	Messrs. T. and E. G. Jepson.
SUNDERLAND	Mr. John Young.
DEVONSHIRE AND CORNWALL	Mr. Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Lindsey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun. and Co.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established, in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank. Mr. THOS. THOMPSON, Agent.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.

A liberal discount to the Trade.

MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.

Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

MARBLE.—To MASONS, BUILDERS, and OTHERS. Now on SALE, at the Stone, Marble, and Wood Sawing and Planing Mills, Commercial-road, Pimlico, the largest stock in England of veined and other MARBLES, in slab or block, to select from, at the lowest current prices. Marble sawn, carefully packed, and delivered to railway station or vessel.

Vein and Sicilian sawn at 5d. per foot for cash

Portland, Part Spring, Robin Hood, Hare-hill, Wingerworth, York, and other Stone in general use, from the best quarries, either in blocks, landings, slabs, or sinks. Granite, Portland, Hare hill, and other Curb.

New landing, in Chronometer, 373 tons of Statuary, Vein, and Sicilian Marbles. JOHN HOLMES, Agent

N.B. A lot of Marble Chimney Pieces on hand to be sold cheap.

TO SCULPTORS, MARBLE MASONS, AND BUILDERS.

ITALIAN and GALWAY MARBLE QUARRIES.

Depôt, Whitehall Wharf, Parliament-street, Westminster.

Mr. FRANKLIN begs to inform the above that he is daily expecting the arrival of a cargo of very superior BLACK MARBLE, in blocks of very large dimensions, and 10,000 feet in slabs, of various thicknesses, the produce of his own quarries, which on account of their superiority, have supplied the London market for the last twenty years.

Just arrived, ex *Windsworth* and *Favourite*, Leghorn

Superior Statuary, Vein, Sicilian, Dove, Black and Gold, new coloured Marbles, and St. Anne's, at reduced rates.

The following vessels are expected from Leghorn:—

Sceptre, *Fencer*, *Merchant*, } 150 tons, 80 blocks of Statuary, Dove, Vein, Sicilian.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN and STONE-MERCHANTS, BATH.

(DEPOTS.)

Great Western Railway Station.... PADDINGTON.

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Hope-street, Mount-pleasant ..... LIVERPOOL.

Castle-fields ..... MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

CAEN and AUBIGNY STONE.—F. FOUCARD, Stone Merchant and Quarry Proprietor, Quai des Abattoirs, Caen, and at 6, Red Lion-street, Borough-market Contracts taken for any quantities. Cargoes shipped to order from Caen to any port.

CAEN and AUBIGNY STONE.—Gates and George, late of the firm of LUARD, BEEDHAM, and Co. Quarrymen and General Merchants, Caen Wharf, Rotherhithe, London, and Caen, Normandy. Depôt—Hope-street, Mount Pleasant, Liverpool; Castle Fields, Manchester.—Information and samples forwarded on application to Caen Wharf, Rotherhithe.—Samples may be seen at the Office of "The Builder."

BATH WEATHER STONE.—For Combe Down and Box Hill Ground Stone of the best quality, apply to HENRY STONE, Quarryman and Stone Merchant, Widcombe, Bath. N.B. Cargoes shipped and delivered to any part round the coast on the most reasonable terms

THE DELMAR QUARRY COMPANY desire to direct the attention of surveyors, dealers, and others, to the superior quality of their FLAG-STONE, it is equal to Cathness, and lower in price.—An AGENT WANTED in London.—Apply to the Company, 4, India-buildings, Liverpool.

TO CONTRACTORS, BUILDERS, AND OTHERS.

TO BE DISPOSED OF CHEAP, about 1,000 tons of New Bramley Fall and other STONE, in random sizes; also a few thousand feet of coping, 1 ft. 6 in. by 6 in. The above (or any portion of it) can be shipped in cargoes and delivered in the river, or any port coastwise with immediate despatch.—For price and further particulars apply, by letter or otherwise, to Mr. MORTIMER, 26, Saint Thomas's street, Borough, London.

ORNAMENTAL CHIMNEY SHAFTS.—About a hundred different patterns and sizes of chimney tops for Gothic, Elizabethan, and Italian buildings are kept in stock. J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel-row, New road.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Tops, &c. &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs (near the West India Docks), and sold at No. 3, Prescot-street, Edgware-road, Paddington.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Flooring laid with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed. Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

E. and W. STURGE respectfully announce to Builders, Masons, and others, that they have made a FURTHER REDUCTION in some of their prices of STONE, &c. a list of which they will be happy to forward to the trade on application. Sinks, 1s. 8d. per foot; Paving, 32s. 38s. and 42s.; Slab, &c. E. and W. S. are confident the quality of their goods will give satisfaction, and that their prices will be found very much lower than the usual charges.—Bridge Wharf, City-road-basin.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELSH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Herfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABYS Belvedere-road, where terms may be obtained.

THE PIMLICO SLATE WORKS. Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of this patent that are attempted), continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Stoves, Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Alhambric Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Copings for Grates Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 3, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

PAN TILES, 48s.; Plain, 32s. 6d.; superior White Suffolk Facing, Red ditto, Fire Brick, 65s.—Best Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, Tiles, Clay, Windsor Loam, &c. Gas and other shaped Goods, Windsor and Nonsuch Oven Tiles and Bricks, Dutch and English Clinkers, Patent Malt-kiln and Corn-drying finely-perforated Tiles, 12in. and 18 in. Paving ditto, unequalled in quality and colour, at WARD'S old-established Honduras Wharf, Bankside, Southwark, London. Thames Sand, Concrete, Gravel, &c. &c.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.

ILLUSTRATED TRADE LISTS, containing much information useful for reference; also testimonials respecting a MATERIAL which, when well wrought, is probably superior to every other for drains or conduits, for ridges, hips, valleys, and every part of roofs, for plain or chequered floors, for paving and cestions, of a strong and durable nature, also many other purposes, supplied genuine by THOMAS PEAKE, (proprietor of Peake's "Terro-Metallic"), No. 4 WHARF, CITY-ROAD BASIN, LONDON, and at THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices by number, and approximate cost by measure. It is solicited that letters be prepaid. Peake's Tiles, Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 27, No. 123 (having been at first No. 111).

HOLLOW BRICKS.—Samples of Hollow Bricks of every kind may be seen, and prices and particulars obtained, on application to Mr. THOMAS BEGGS, 13, Fleet-street, London.

ROBERTS'S HOLLOW BRICKS FOR SALE. They will bear a pressure of five to six tons each, at prices less than good stock bricks: shape suitable for working with ordinary bricks.—Apply to JOHN ROBERTS, Upnor Tile Works, near Rochester, Kent.

BRICKS.—White Suffolk Facing Bricks, Red Facing Bricks, Hard Clinkers for stable paving, &c. &c. and Moulded Bricks to any pattern, of superior quality, and at reduced prices.—Apply to Messrs. RUSHBERY, WRIGHT, and SONS, Brick and Tile Manufactory, Woolpit, Suffolk; or to their Agents, W. and S. WRIGHT, Brick and Tile Works, Hanwell, Middlesex.

WHITE BLUNHAM BRICKS and TILES.—These Goods, so justly celebrated for retaining their colour without vegetating, and, combining great strength with a fine face, can now be obtained in London, in various forms and sizes, and in any quantity. The Paving Tiles, Chimney Pots, Splays, Bullnoses, and Facings are well worth attention. Sole Agents: PHILIP HARE and CO. 22, Steel-yard Wharf, Upper Thames-street.

HOOPER'S WHITE BRICKS, moulded for Plinths, Jambs, Chimney-shafts, &c. and copings (at from 4d. to 8d. per foot run); Paving Tiles of different patterns, in white, red, and blue; Fancy Roofing and Ridge Tiles, coloured brown, or for slate; White Rebate Tiles, for facing buildings, &c. sent to all parts of the country direct from the kilns.—Office, 3, Portland-street, Southampton, where samples and illustrated price-lists may be had on application, post-paid.

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.

COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutters, Paviors, Shippers, &c. &c.

KENTISH RAG STONE of the finest quality, and of the blue tints so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.

Apply to Mr. BENJAMIN GOUGH, 37, Newington-crescent, Newington Butts.

BRICKS.—H. DODD is enabled to offer his BRICKS, which are of good quality, at the following low prices; and as his fields are only a quarter of an hour's walk from the City, H. D. earnestly requests purchasers will favour him with a visit, in order to inspect his stock and to judge for themselves:—

Marle cutters	84s.	Per Thousand.
Yellow seconds	80s.	"
Pale seconds	80s.	"
Paviors	48s.	"
Pickings	28s.	"

Delivered within two miles of the fields.

Marle place, half washed stocks, and place bricks, at equally low prices. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing. Apply to HENRY DODD and CO. at the Counting-house, Hoxton Brickfields, Grange-walk, near the Rosemary Branch, Hoxton. N.B.—Red pit sand of approved quality constantly on sale, upon reasonable terms; this sand, from its not containing any saline matter, is acknowledged to be preferable to river sand.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccos dry quickly and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES RICHARDSON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial Bushels, QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality, a desideratum never before attained in Portland Cements. It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall. March, 1852.

PATENT PORTLAND and ROMAN CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for either of the above Cements. Many highly respectable references can be given where their cements have been successfully used. Order, received and executed either from their works at Greenwich, or their wharfs Lindsey Wharf, Chelsea, or 24 Wharf, Horselydown, Paddington.—Agent at Southampton, Mr. GEORGE SHARP, Union Wharf.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other.—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no equal for durability, and may be painted in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, CHARLES PEARCE and Co. at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Menai Straits Tubular Bridge is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea sand, and has withstood the severest gales of the season, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. FLUDER, American Wharf.

GEORGE and THOMAS EARLE, CEMENT MANUFACTURERS, HULL.

Light and Dark equal to any made.

Also, Manufacturers of PLASTER, MASTIC, Importers of MARBLE and POZZOLANA.

Dealers in Slates, Slabs, Hair, Whiting, &c.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Terras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

The Builder.

SATURDAY, SEPTEMBER 4, 1852.

THE half-yearly meetings of railway proprietors, which are now taking place in due course, have suggested to us two or three points for a gossip with our readers in connection with what is now the business of the whole kingdom—our railway system. Its importance has outgrown the wildest visions of early dreamers. It has altered the whole face of the country,—will alter the whole face of the world,—and, in connection with the electric telegraph, which is, perhaps, even more important still, is preparing for the world a wondrous future. In a pamphlet on the advantages of railways, published by the conductor of this journal some years ago, in student days, when men's minds were less made up as to the results of railways than they are now, the writer closed his remarks on the probable effects of the establishment of railways with this sentence—"The length of our lives, so far as regards the power of acquiring information and disseminating knowledge, will be doubled, and the whole world will ultimately become as one great family, speaking one language, governed in unity and harmony by like laws, and adoring one God."* The pamphlet was favourably received in all quarters, but many even of those who went fully with it demurred at the closing sentence, as hyperbole and exaggeration, and, as one intelligent commentator wrote, thought that "when the author had laid down his pen, having achieved a useful work, some malignant imp had taken it up and added the closing paragraph, to throw discredit on all that preceded it." It will scarcely be read so now: such a result appears not merely possible, but probable. The railway and the electric telegraph are two of the greatest results before us of the philosophy taught by Bacon,—in opposition to the philosophy taught by Plato and the other ancients,—the philosophy which seeks to improve the condition of mankind; the science which deals with things instead of words; which produces what we need, lessens suffering, shortens life. As Lamartine observes, too,—"There is no one who knows or can say if there be more morality, more development of intelligence, in a thought of Plato than in the thought of Watt."

Apart from its higher developments, a very few gross facts will show the position of the railway system in our country. It appears that up to the end of 1850 railway companies had raised a sum equal to 240¼ millions sterling, and retained powers to raise a further sum of 122½ millions. In June, 1851, the number of persons employed on railways open for traffic was 63,500, and on those in course of construction 43,000.

In the United Kingdom, 85½ millions of persons travelled by railways in 1851, and paid eight millions sterling for doing so; while for the transport of goods, seven other millions were paid, according to the official report of Captain Simmons, recently published. Look, too, at the Railway Clearing House, which may be described as representing all the railways in account with any individual line, and which has become a matter of enormous magnitude, with a business of the most elaborate character. About fifty companies are associated in this system, of which the public know nothing, though they owe to it facilities of the greatest value and importance.* The increasing amount and difficulty of the business transacted here, in settling the proportions to be paid and received by different lines in respect of the travellers and goods passing over more than one *will ultimately lead to amalgamation* in one shape or other, even if other circumstances did not tend the same way. The public will have to protect themselves when this approaches. The companies, if they are wise, will make the present despotism so light that it may not be felt. Should they pursue an opposite policy, we may prognosticate, without fear of failure, the ultimate assumption of all the lines by the State.

The history of the great lines, should it ever be written, will amuse and startle posterity. The recklessness with which money was spent, the coolness with which million after million was asked for beyond the sum originally put down for the cost, and the consequent sacrifice of the original shareholders, will be some of the items for wonderment.

At a meeting of the Great Northern Railway, a few days ago, the chairman, Mr. B. Denison, M.P. came forward with a request of this sort, and asked for a million to supply deficiencies in their previous estimates. He was "not ashamed of saying, and hoped he never should be ashamed of saying, that they had made a mistake." The item land and compensation amounted to 299,000*l.* more than they expected; for plant and machinery the excess was 525,000*l.*; and so on. But Mr. B. Denison is a rare hand at "making things comfortable," and the shareholders received his explanation, and were perfectly satisfied. "In future," said he, with praise-worthy candour, "I shall be most cautious in expressing any opinion on the estimates given by one man or another. I have never built a house on the estimate of an architect; I think I never shall; and I never have had very great faith in the estimate of engineers or architects, or people of that description. I remember, several years ago, the engineer who projected the Hull docks being complained of because they had cost twice as much money, or three times as much money, as it was said they would cost, and his answer was this, 'If I had told you what I thought they would cost, you would never have begun them;' and I strongly suspect that architects and engineers belong to that class of people."

The cost of station at King's-cross, illustrated by us some time ago, is put down at 123,000*l.* It is fast approaching completion.

As a Board, men will do what they would shrink from as individuals. A more striking example of this could not be found than the case of the West London Railway. The North-Western Railway took a lease of this line, which connects their own, the Great Western, and the Thames, and agreed to pay for it, after discharging various liabilities, a certain proportion of the returns. They solemnly covenanted to "*efficiently work* and repair the railway and works hereby demised, and indemnify the West London Railway Company against all liabilities, loss, charges, and expenses, claims, and demands, whether incurred or sustained in consequence of any want of repair, or *in consequence of not working*, or in any manner connected with the working of the same railway and works."

They even agreed that in the event of constructing or leasing any other railway or works which might come in lieu of the West London the shareholders of the latter should have the same share in the rates, &c. of the new works as if they formed part of their own line. And yet, in the face of this, the North-Western shut up the West London line, excepting for a few heavy goods; and, stranger still, have been able to find law enough, up to this time, to allow them to perpetuate with impunity this, which is nothing short of a fraud. There is not one of the honourable men composing the Board of the North-Western who individually would be guilty of conduct which, as a body, they have exhibited to this unfortunate company.

The meeting of the Chester and Holyhead line, held last week, shows that this company are still smarting under the enormous expenditure into which they were led. Had they been contented with *one* tube at Bangor instead of two, they would have something less to grieve over. Still, in this case, as in many others, the result tends to the ultimate advantage of the country. The railways have developed constructive science to a remarkable extent, and led to wonderful works. We might adduce as a striking instance of this, if it were needed, that Messrs. Fox and Henderson are now forming an iron roof for a station at Birmingham, the span of which is *two hundred and twelve feet*, and which will extend 1,000 feet! The same firm, as we understand, have entered upon the construction of railways in Egypt, which can scarcely fail to benefit England and produce extraordinary results.

For the prevention of accidents on lines improved arrangements are still needed. It ought not to be the case, but it undeniably is, that the risk of danger in travelling has considerably increased since 1849. Statistics prove it.

We have had various suggestions as to self-acting signals of late, but we have first, it appears, to deal with the principle, to which the railway authorities indiscriminately and entirely object. The following quotation from a communication by a Mr. Wilkins, who had invented a self-acting time-signal about four years since, after a rather severe collision on the London and North-Western Railway, will sufficiently prove that such is the fact:—

"I obtained an interview with the manager of the London and North-Western Railway Company, and in less than a minute was dismissed without an examination of my scheme, and with an assurance from him that a self-acting signal would never do for railways *because they were self-acting.*"

Now had our correspondent proposed to substitute self-acting signalling machinery for signal-men actually employed, we think that the manager would have been perfectly right in objecting to the principle; but are signal-men so rife on a railway that self-acting signals could only be used as a substitute for the more expensive article? It may be that railway authorities can view the question in no other light; that

* "An Appeal to the Public on the Subject of Railways. By George Godwin." How strangely the title sounds even already!

* An account of the Clearing House will be found in Lardner's "Railway Economy."

when a proposal for increased safety to the public is made to them they dream of nothing but increased economy to themselves, and at once dismiss the proposal, merely because they have already decided that it would scarcely do to take off a signal-man and put on a self-acting signal in his place. But this, let us tell them, is not the light in which the public view this question; neither is it that in which either inventors or ourselves view it, although a consideration for this very economy is assuredly also involved in it. To insure the utmost possible safety to the public—and why should not the public be conducted with the utmost possible safety?—the signals (of whatever sort) ought at least to be as numerous, if not as expensive, as those that are deemed essential to the utmost possible safety of distinguished individuals — such as emperors, kings, or princes—when they travel by rail. In such cases we know that even a continuous line of living signals in sight of each other is not considered superfluous. Now, although we would not wish to insist on so expensive and impracticable a system of signals for the safety of his Majesty the Public, what we do insist on is, at least, a cheap and reliable substitute for it. Should it still be objected that no self-acting signal could be entirely relied on, let us see what would be the consequence of such a signal acting where it ought not to act, or not acting where it ought; keeping always in mind that *it is a substitute for the want of any signal at all*, so far as the public is concerned. If it did not act when it ought, why then the public would be no worse than they are without any signal at all: if it acted when it ought not to have done so, all the harm would be a little temporary and unnecessary slackening of rapidity on the part of the train following. In nine cases out of ten, however, it *would* act properly; and if so, what a mighty benefit would such a beacon of danger be to the public, who are now often hurried blindly on to their destruction without the slightest warning or provision made beforehand for its prevention! The railway authorities must be compelled to view this question in a somewhat less self-interested light than that in which alone they seem to be capable of viewing it as yet.

We have long called for the establishment of a means of communication between the conductor, the passengers, and the engineer. On the American lines accidents rarely occur, mainly because of the facility of such communication. A recent writer in the *Times* says,—

"No train, throughout the length and breadth of the United States, starts on its journey till the rope, permanently fixed on the inside of the roof of each carriage and luggage car, furnished with a swivel at each end, is connected with the rope of the neighbouring carriage, till the engine is thus reached, where a large bell is attached, and either conductor or passenger is thus afforded the means of instantaneous communication with the engineer. The man who has it in charge to couple the carriages and this rope would as soon think of starting the train with the coupling irons unhooked as with these swivels disconnected."

That the public is to be trusted with the means of communication, though denied in England, is thus practically demonstrated in a country where cheap and commodious travel makes all classes travellers—where the educated and the uneducated, the timid and the brave, ride side by side.

The fares in England are much too high, and the result is, empty trains where there might be full ones. A train one third filled, is very little less expensive than a full train, and with reduction to the public would come increase to the shareholders. The rates on the Great Western are particularly high. It is true that this line affords the greatest perfection of travelling to which we have attained, but the experience of other countries, as well as of our own, proves the shortsightedness of extortionate charges. Still it is a well-managed line, and their express trains leave little to be desired, travelling their 120 miles (London to Bristol, say) in two hours and three quarters, or the one run of fifty-three miles from Paddington to Didcot in sixty minutes,—starting punctually, arriving punctually. Often their express dashes along at the rate of seventy miles an hour, and you are only made aware of the terrific pace at which you are moving by an occasional explode through a bridge, so to speak, or the flash past you of an express the other way. Standing on a platform, this passage of two trains is seen to be positively terrific; so much so, indeed, that it is not wise for an unsteady head to get too near the edge on such an occasion, lest the influence of the whirlwind should prove too strong for it. Seventy miles an hour may be called 105 feet per second, and this rate is little more than four times less than that of a cannon ball when discharged; a

——— "Leaden messenger
That rides upon the violent speed of fire;"

and yet within, excepting on an occasional bad bit of road, you may write without inconvenience, so steady is the carriage. These very lines, indeed, we do write in an express thus flashing along. Trees, fields, villages, hills, come and are gone; the near objects first, those in the distance remaining longer in sight (like the earlier events of life in our memory); yet the paper may be held steadily and the pencil controlled. What is going on at the Swindon Station, by the way, to produce such an efflorescence of laurel leaves about the doorway? Some flowers, too. Oh! our gracious Queen is to take lunch here on her way (somewhat roundabout) to Balmoral. O! excellent, shrewd, and powerful Englishman! a foreigner might reasonably have said, is this all you can do to prepare a smiling reception for your Queen? Had you no taste and skill to show, as well as loyalty and good feeling? The smallest town in Belgium, or France, or Germany, or Italy, with the same expenditure, would have produced a *work*, a piece of art, something with a thought and a sentiment in it.

Well, well; one of these days, perhaps! At all events, it says, "We would give you something pretty to look at, if we only knew how."

By the way; why should a cup of tea be 6d. and a fivepenny newspaper be 6d. at a railroad station? The demand is great and certain, and there are no circumstances to justify the extortion. An ordinary newsman, who has to *send* the newspapers to his customers, gets his profit out of the five-pence: why should the railway newsvendors, whose customers come to them, and in shoals, charge more than the regular price?

We have already alluded to the effect likely to be produced by the electric telegraph, an effect far beyond what may appear at first sight probable. The whole civilised world will be in immediate communication before long, and the East-India Company have already determined on an immense step towards effecting it. They have arranged for the connection by means of the electric telegraph of the greater part of India, and have actually given orders, as we understand, which will require for their execution no less than 3,500 tons of galvanized iron wire! Truly an enormous work involving great results. We are beginning to move. What a Future "looms in the distance."

RESOURCES OF IRELAND.

THE spirit of progress is at length at work in this portion of the United Kingdom. Buildings of the first class are arising: harbours are being practicated, railways completed, telegraphs laid down: the staple of the soil, proverbial for being of the richest quality, is subject to the tillage of new proprietors, and multitudes of the surplus starving population fled from the sphere of wretchedness, have left their hovels and root-gardens to the enterprise of British farmers. Many of the unwrought sources of wealth in which the country abounds are now in active operation such as mines of copper and coal, quarries of slate, marbles of great variety, porphyry and granite; and even the peat, hitherto deemed the poverty of the land, has become an ingredient of wealth and commerce.

Imitating the example of London, Cork and Dublin have resolved on great local exhibitions, which must introduce a taste and necessity for improved manufactures. There is, however, one great source of industry and wealth for which Ireland is peculiarly gifted that appears to have lain torpid, if not wholly neglected: the bays and harbours of the island are notoriously more numerous, more capacious, and safer than, perhaps, those of any other known country of the same extent. The encircling ocean is redundant with fish of descriptions and qualities not to be excelled and yet no advantage has been taken of the abundance with which a bountiful Providence has so richly stored the waters.

Recent misunderstandings on the question of fisheries in the bay of Fundy and other maritime Transatlantic possessions of Great Britain, may well excuse an allusion to the long-neglected fishing stations on the west coast of Ireland. There exhaustless shoals of mackerel and herrings abound, and are hardly disturbed in seas that rarely show a fleet of hatch-boats. Cod-fish, turbot, and lobsters the most valuable products for any market are suffered to multiply, and are hardly molested. The peasantry of the coasts are more impoverished, and yet, will it be believed? the very peasantry *imports* a great portion of its cured fish (which, amongst the poor, is chiefly herrings) from Scotland, and even from the Dutch!

It is often argued that the natural inertness or want of industry, in the Irish, is the cause of this utter neglect of opportunities which nature has placed within their reach; but this cannot be so, since Irishmen, when transplanted to London, are the best labourers, and exhibit none of that repugnance to work which slanderers of the national character would ascribe to them: the evil rather lies in the want of education, of precept, and of example. If the peasantry of any parish or locality in England were deserted by the landlord classes, ground down by excessive rents for small tenures; and thrown upon the guidance of priesthood, possibly disaffected to Government, and dependant upon the very poorest for their support; if the lords and the squires and the other several independent classes, had left them to the teachings of such priests, and to their own imaginings, what better could we expect to find them than the unheeded lot of Celt?

In point of fact, the want of capital, the absence of commercial enterprise, and the utter want of encouragement, are the causes of the prostration which, up to a late period, has blighted the prospects and hopes of a people

naturally energetic, enterprising, and ingenious.

Long have these evils dominated over the destinies of Ireland. The population increased, and with that increase their miseries; and to these they submitted as to an inevitable fatality, until the famine first aroused the sympathies of England, and forced the Legislature to extend to them the benefit of a poor-law. Other events followed, to entice the squalid starvelings to the western lands of plenty: no complaints are there heard of Irish inertness or laziness: on the contrary, the Americans, who are a sagacious people, receive them with open arms, well knowing that the sinews of industry flow in with their immigration, and that they are amongst the best of settlers, as being a purely agricultural race.

Much has been said of the value of transatlantic fishing-grounds, of their being a nursery for sailors, and of the wealth that flows from that species of commerce. It appears that both France and the United States have given bounties for their encouragement; and yet here we have on our very coasts, at home with us, fisheries of the most prolific and exhaustless description, which to this hour have been *wholly neglected by our Government!*

There is a limited sort of trade carried on there, it is true: the Cloddagh fishermen, near Galway, have from time immemorial pursued the vocation: they have been used to arrogate a prescriptive right to a certain extent of ocean as the privilege of their caste: others they will not permit to fish in these waters, but, as a close corporation, reserve the creatures of the deep as their own locked treasure: they are imbued with the traditional prejudices of their ancestors, and will not fish but on certain days of the week, considering some days as obnoxious to the piscatory saints, and that the continuous pursuit of trade must exhaust the ocean! externs to their class have been forcibly driven from their grounds, and yet these people are incapable of providing a sufficiency even for the scant demand of the rural population.

A company of Friends (called Quakers), sensible of the advantages to the country and themselves which might be drawn from these pursuits, for some years successfully followed up a system of fishing by a joint-stock company: if that company yet exist it is feeble. About six years back some individuals in London attempted to get up a company for the purpose, but the effort was abortive from the want of public sympathy: one of them, well known as an author and philanthropist (an Irishman), applied to members high in Government, and received *verbally* every encouragement: that support, however, only extended to a liberal offer by the then Minister for Foreign Affairs of the uses of his own private property in fish-curing houses on the coast of Mayo. A request was made for a *loan* of 10,000*l.* in aid of the project: that favour was refused; and in the absence of any other *bounty* the thing fell to the ground. If fishing stations are not built at the expense of the Exchequer, at least loans at 4 per cent. might be advanced to responsible companies for the encouragement of so valuable a staple of trade.

It now appears that the question is assuming an importance in national points of view: it is certain that the inhospitable climate and uninviting region of Newfoundland has, by the fisheries, realised a larger revenue than some states of Europe can command; and it is equally certain that the elements of wealth exist in abundance more approachable and more useful on our own coasts; that the exploitation of that field of commerce would tend to the improvement and independence of the least cultivated and poorest of British subjects; and that a nursery for the national navy can be cheaply and profitably established in our own harbours: those harbours mayhap need improvement; there is no lack of engineering and architectural science any more than of funds to carry such into effect. Let the Government but speak, and it will be responded to around our coasts—"At thy word we will cast in the net." QUONDAM.

PARIS.

THE president has ordered the purchase of a number of pictures which formed part of the last Exposition of Modern Art. The next exposition of the works of living artists, native and foreign, is fixed to take place on the 15th of March, 1853, and will last two months.—M. Hittorff has been commissioned by the Préfet of the Seine to direct the decoration of the *Bois de Boulogne*. —— M. C. Clerget is publishing a collection of ornaments of the Renaissance.* The work will consist of twenty *livraisons* of six plates each, and the parts already published are well spoken of. ——The works in the court of the Louvre are being pushed forward with much activity: the new grass plots (*boulingrins!*) have been bordered, the bronze candelabra have been replaced upon elegant pedestals, and four octagonal compartments and walks have been formed with bitumen.

THE ARCHÆOLOGICAL INSTITUTE.

THE annual country meeting of the Archæological Institute was opened at Newcastle on the 24th August, when the corporation presented an address to the president (Lord Talbot de Malahide) and members. The president, in the course of his inauguration speech, said, the Government ought in every way to encourage the establishment of local museums, such as those of which this town could boast, for many a noble work would be preserved if that were the case. There was scarcely a town on the Continent which had not its local museum, in which objects of the highest interests were to be found, illustrative of history and the arts. Another object in which the Government could well interfere was by aiding in the publication of ancient documents, such as could not be undertaken by private persons. The preservation of ancient monuments was also a question in which the Government was bound to interfere. In France, and even in republican Switzerland, it was contrary to the law to destroy any ancient building which was associated with the history of the country; and he thought it was important, having due regard to the rights of property, that power should be lodged in the Government to interfere in flagrant instances of the decay or destruction of ancient monuments. He believed one of the most interesting Roman memorials in this country, the Roman Theatre at St. Alban's, was about to be demolished by a public company at this moment, and it would be in the recollection of almost every one that a great number of time-hallowed objects had from time to time been allowed to disappear within the sphere of his observation. Had he an eye to London Wall?

There was a conversazione in the evening. On Wednesday papers were read,—by Mr. Hinde, "On the History of Newcastle and Gateshead during the Saxon Times;" by Mr. H. Hinde, "On the Trade of Newcastle previous to Henry III.;" by Mr. T. J. Taylor, "On the History of the Coal Trade;" by the Rev. Mr. Traherne, "On the Votive Monument of Kloster Newburg, near Vienna," and others. Mr. Taylor concluded his paper with the following estimate of the total present consumption of coal in Great Britain. In operations connected with metallic ores, 10,500,000 tons; for railways and gas, 3,400,000 tons; for domestic consumption and all other purposes, 22,000,000 tons; total, 35,900,000 tons; exported, 3,500,000 tons; total, 39,400,000 tons.

On Thursday, in the Architectural Section, Mr. Edmund Sharpe, with after reference to a description of Tynemouth Priory, gave an exposition of his views on the periods of Gothic architecture, with which our readers are familiar.

Mr. Dobson, jun. read a paper on the Lady Chapel, at Tynemouth, and the Rev. C. Hartshorne an account of the Castle at Alnwick. The castle seemed to have been erected, he said, between the years 1140 and 1180. Several portions especially showed that they were built in the early Norman period. A paper was also read by Mr. Sopwith on "The History of Lead Mining," in which he urged that it would be of great advantage for the government to have systematic descriptions regularly made of the state of our mines, with plans and sections.

At a public banquet, on Thursday, the principal event was the speech of Lord Carlisle: "Where more than here," said he, "can we see the most interesting vestiges of our own mediæval era, the stately priory and the pillared cathedral, whether in picturesque ruins above the cliff of Tynemouth, or still towering, in unspoiled massiveness, over the hill of Durham? Where, too, can we see the marvels of modern skill and enterprise more than in these stupendous arches, close to where we are met, which span the depths of Jesmont-vale on the one hand, and the stately river of your ancient town on the other, and which, if constructed with more than Roman skill, do not tend, like their undying works, to repel hostile aggression, to ward off rough barbarians, but rather to facilitate, in a manner before unexampled, universal intercourse, and to speed the production of peace and civilization on wings of wind throughout the land?"

On the 28th a large party visited Durham, where the Rev. J. Raine read an historical account of the cathedral. A luncheon given by Archdeacon Thorpe in the dining-room of University College followed. We can only further mention that on the 30th the meeting visited Hexham, and under the guidance of the Rev. Mr. Turner examined the remains of the Abbey church and monastery, which were first built after the Roman manner by St. Wilifrid, about the year 673. They afterwards traced the course of the Roman Wall with the Rev. J. C. Bruce, and lunched with the town-clerk of Newcastle.

* Collection Portative d'Ornements de la Renaissance.

THE ASSERTED DISCOVERIES IN THE ACROPOLIS AT ATHENS.

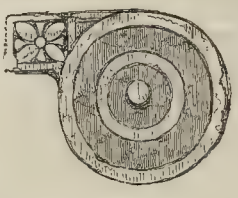
WE reported recently (p. 537) a statement from Athens by M. Bellet (or Beulé), a French savant, that he had discovered the ancient staircase which led to the principal entrance to the Acropolis, and the honour conferred on him in consequence. A recent letter from M. Renaud, a French architect, to M. F. Pigeory, throws doubt upon the truth of the statement. M. Renaud, who writes from the spot, asserts that the parts discovered have nothing antique about them, and must have been the work either of the Romans, or of the French dukes who reigned at Athens about the year 1200. He is prepared to prove it, he says, by numerous sketches, and will show that the construction is formed of antique remains, amongst which are fragments of ornaments reversed and a Roman inscription. It is not right, therefore, he says, to allow it longer to be believed that we have recovered the ancient staircase of the Acropolis and its entrance. M. Bellet appears to have jumped to a conclusion too quickly.

SUSPENSION BRIDGES.—Messrs. Dredge and Stephenson are erecting a suspension-bridge at Caerhowel, Montgomery, across the Severn, 150 feet span and 20 feet wide, at a cost of 2,600*l.*: for the county magistracy. The same engineers have put up two cast-iron arched girder bridges over the ornamental water at St. Margaret's, Isleworth, for Lord Kilmorey; and are about a suspension-bridge at Bradwell-next-Coggeshall, Essex, across the Blackwater, 52 feet span and 17 feet wide, which will cost 400*l.*: for the county magistracy. Messrs. Young are the contractors in each case.

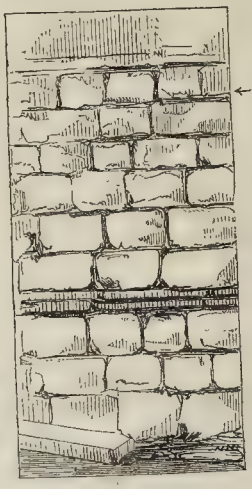
IMPROVED NAIL AND BOLT MACHINERY.—Messrs. J. Hinks and E. Nicolle, of Birmingham, have patented a machine for feeding metal rods to engines for making nails, bolts, rivets, and screw blanks, for tapering the rods by causing them to pass between rolling surfaces, the axes of which at the same time gradually approach each other; and for an improved machine for cutting off these partially formed nails, &c. by causing the dividing tools to approach each other by the action of a screw, the thread of which is partially right and partly left handed.

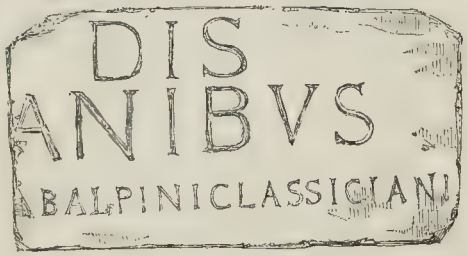
RELICS OF ROMAN LONDON.











THE ROMAN WALL OF THE CITY OF LONDON, AND RELICS.

THE crypt, as it has been called, of Gerard's Hall has become a thing of the past: the most ancient vestige of the dwellings of Old London has been removed, and the materials which formed its beautiful proportions are perhaps by this time in the hands of the fair housewives of the city and elsewhere in the shape of "*hearth-stone*." (Some of the finest fragments of St. Saviour's Church, in the Borough, were so disposed of.)

Much cry was made in the City when it was found that the *new street* would pass through and demolish the undercraft of Gerard's Hall: and the wish for the preservation of the undercraft of the old hall by the well-intentioned portions of the public press was responded to by numbers. It was, however, only when the public came generally to understand the matter, that the subject of the preservation of the City crypt was brought before the notice of the London corporation. The City authorities understood, as it would appear, the value of the crypt too late: a street had been arranged to pass over it, and when all had been settled respecting this new street, it was found that, notwithstanding the matters in the way, no alteration could take place.

In this week's paper it becomes our duty to allude to a further desecration of London antiquities, which does not depend on the authority of the parties connected with the City of London.

A large portion of the London Wall, erected in former times, as a means of defence, and standing at the present day as a *historical fact*, remains now, we should think, as high as 30 feet, and extending over a considerable length of ground at the back of Trinity-square; a matter of interest to parties not only in London, but in all parts of the country, and in large populations elsewhere, and which will every year possess increased interest: this has been within the last few days partially covered by the erection of stables for the horses of some persons who have arranged for it with the authorities at the office of the Commissioners of Woods and Forests.

It was some time since proposed to demolish this part of the City Wall, and the conductor of this journal then aided in preventing its destruction. It might have been hoped, as the relic was not to be removed for the purpose of building a church on the site, that at any rate it would not be disfigured for the accommodation of horses.

This part of the City Wall is in the hands of the Commissioners of the Woods and Forests, and of course is *public property*. This fragment is of a value that cannot be replaced: and as many little City churchyards are spared,—London pollutions,—where land is of more value, we cannot but think that it is want of a proper appreciation of ancient remains, and even needful modern improvements, which so often influences those who by their position have the means and ought to rectify such abuses.

As taste improves, and as each generation increases in knowledge, so will the regret for such disfigurements as that of the old wall of London be looked upon in a stronger light.

Our readers may form some notion of the relics of Roman London which have been brought to light, probably after a concealment of 1,000 years, from the accompanying drawings. The fragments would seem to be parts of a building of considerable extent and enrichment,—the volute of a capital (if it be such), which has been removed to the British Museum, is of considerable beauty, and is about 5 feet in length; the other remains consist of mouldings, and variously formed blocks of stone: a part of an incised stone, some of the letters on which are 9 inches in length, has also been discovered. The letters on this stone were found by one of the workmen accidentally tapping it with his foot while eating his dinner, The size of the stone is 5 ft. 4 ins. by 2 ft. 6 ins. and 1 ft. 2 ins. thick. The group of other stones shown in the engraving have been carted to a yard in the possession of Mr. Benson, 27, Buxton-street, Spitalfields. We trust that some measures will be taken for their careful examination and preservation: it is possible that other matters connected with this Roman structure will be yet discovered, as the excavations for the new building are not yet completed, and may afford materials for a restoration,—on paper.

The illustrations in connection with the London Wall are—

Fragments of a Roman Building found at the northern portion of the City Wall at Tower-hill—carted away to Spitalfields.

Inscription on a stone found at the above place: the letters of the top line are 9 inches in height: the inscription is imperfect.

Roman Masonry of the London Wall at

Tower-hill. [From the part marked A the wall has been recently uncovered.]

Part of Capital, or Ornament, of Roman London architecture.

Sketch of side opposite to that shown in the adjoining engraving.

NOTES IN THE PROVINCES.

Hillington.—At Hillington, near Lynn, in Norfolk, a stained-glass window, executed by Mr. T. Wilmshurst, has been erected by Sir W. B. Ffolkes, Bart. to the memory of his eldest son, aged 30, who was killed by lightning in 1849. The window is in the decorated style, and contains three figures, of our Lord, St. Paul, and St. Peter, beneath which are three subjects, of "The Entombment," "The Blessing of Little Children," and "The Resurrection;" each figure and subject beneath a canopy. The window is placed in a side chapel attached to the church, built by Sir W. B. Ffolkes. Mr. Donthorne, architect.

Norwich.—Building is going on rapidly in the hamlet of Heigham. All the houses are of moderate size. In fact the hamlet is likely to become a considerable town; but as regards sanitary regulations, this and all the other hamlets are in a worse state than they were a century ago, considering the increase of the population. By an account taken a few years prior to 1774, the number of inhabitants in Norwich was about 30,000. Heigham contained in 1752 only 164 houses, and 653 persons. Now, in 1852, that hamlet contains 2,000 houses, and a population of 8,000. Lakenham, in 1752, contained only 35 houses, and 165 souls: now it contains 1,200 houses, and a population of 5,000. The increase has not been so great in proportion in the other hamlets, nor in the parishes within the old walls. During the last century, the number of houses in the whole city and hamlets has increased from 7,000 to 15,000, and the population from 38,000 to 69,000.

Canterbury.—The newly-erected brick bridge over the Stour, on the Friars, is much complained of, and alterations are proposed. Some of the council suggest the erection of an iron foot-bridge. By a majority of one the council have resolved that both plans be investigated by the committee, and the relative expenses of carrying them out ascertained by means of advertisements in the local papers.

Sheerness.—The new County Court at this place was opened last month. It was erected at a cost of about 2,000*l.* It contains a court for public business, with accommodation therein for plaintiffs, defendants, attorneys, and the public generally. There is a private room for the judge, with suitable conveniences, room for clerk of court, high bailiff, and under-bailiff to reside on premises: adjoining to the court is the new lock-up house. The jury-room, according to our authority, the *South Eastern Gazette*, is but small: there is not a window on either side; but there is a sky-light on the top, about twelve feet from the floor.

Sydling St. Nicholas (*Dorset*).—The foundation-stone of a new bridge at the entrance to this parish from Cerne Abbas, was laid on 14th ult. There are two bridges much wanted over the same stream of water, on the main road leading from this parish to the county town. The funds necessary to meet the outlay on the new bridge, are being raised by voluntary subscriptions.

Cirencester.—A light spire has been added to the church of Holy Trinity at Watermoor, which may now be said to be completed. This addition has been erected at the sole expense of the Hon. W. L. Bathurst, who had previously been a large donor to the endowment fund.

Oddington.—On Thursday in last week, the Bishop of Gloucester and Bristol consecrated the new church at Oddington. It owes its erection to the zeal and in great measure to the liberality of the rector, the Rev. Wm. Wiggin. The cost of the building has exceeded 2,000*l.*

Slough.—The chief stone of a new Congregational chapel was laid here on Tuesday in last week. The site is nearly opposite the Mechanics' Institute, in the new and only partially completed street called Church-street. The building will be in the Early English style, and capable of holding, with galleries, upwards of 700 persons: school-rooms underneath the chapel will accommodate upwards of 300 children. At first there will be no side galleries, as there is a want of funds. The site (80 ft. by 100 ft.) has cost 140*l.* The building will cost about 1,500*l.*; for a moiety of which an appeal has been made to the public.—— This thriving new railway town is still on the increase, and now contains a population of 4,000.

Manchester.—The citizens have subscribed about 12,000*l.* wherewith they have purchased a building, and filled it with two libraries—one a library of reference, containing 16,000 volumes, and the other a free lending library of 5,000 volumes. The greater part of the money was subscribed by the rich, but the interest of the working classes was manifested by 800*l.* of the amount being raised by them in small subscriptions, nearly 20,000 in number. This library has been presented to the town council under the Public Libraries Act of 1850. The rate, not exceeding one half-penny in the pound, will raise an ample fund for defraying the expense of keeping librarians, &c. 3,962 burgesses personally recorded their votes in favour of thus taxing themselves, while the number opposing was only 40.

Preston.—The General Purpose Committee of the Council at Preston has resolved to recommend to the corporation to place a glass roof over the area of the Corn Exchange, after the plan adopted in the Crystal Palace and other buildings. This will enable the corn-merchants and others to occupy the area of the Exchange with their produce, and allow the colonnade to be converted into shops, of which it is proposed to place eight on each side.

Jarrow.—It is proposed to restore this ancient monastic edifice, the place of Bede's nativity, which is now, with its more modern additions, used as a church for behoof of the colliers and other labourers in the rural district in which it stands. The state of the church is fully described in a report by Mr. G. G. Scott, architect, who states that the cost of the works he recommends to be done will not be less than 1,400*l.* to 1,500*l.* as a considerable extension is required to meet the wants of the population. The only portions of the church which really belong to the ancient structure are the chancel and the central tower, which are both, in Mr. Scott's opinion, of ante-Norman date, or at least of very early Romanesque. The tower in its upper part is even yet pretty strong and substantial, but not so below. In one part of the chancel wall, too, there is a serious bulge; but both appear to be still quite restorable.

Newcastle.—The building for the medical school in this town, in connection with the University of Durham, adjoining Westmoreland House, and the premises of the Literary and Philosophical Society, approaches completion. The style of architecture is the Elizabethan, in general accordance with the revived portion of the old building of Westmoreland House, with which there is a communication, and which is intended to be fitted up for pupils, to reside under the superintendence of a professor of Durham University. The new building is two stories in height, the front elevation being of freestone. It comprises entrance-hall, students' waiting-room, porter's apartments, library, laboratory, dissecting-room, lecture-room with circular gallery, museum, and an apartment for general convenience. The windows will be of plate glass, and the upper apartments will be lighted from the roof. —— The chief stone of a new wing to the Newcastle Infirmary was laid end of last week by the Duke of Northumberland. The architect is Mr. Dobson. The addition will consist of a new west wing, 116 feet long, 56 broad, and 57 high; together with several one-story buildings attached to it for the purpose of bathing, brewing, washing, &c. The new wing will be of stone, and have four stories. The ground-floor is already built, and is subdivided into several rooms for relief of out-door patients, for medical officers, with dispensary and store-rooms, baths, &c. The three upper stories are for in-door patients. Each story is subdivided into two large wards or rooms, each ward being 111 feet long, 24 broad, and 15 high, and furnished with 24 beds. There will, therefore, be six large wards, capable of accommodating 144 patients. Each patient will have a small closet for his clothes, &c. and to each ward there is a nurse's room, bath-room, and other conveniences. The ventilation of the whole is on a simple and self-acting plan. The heating and lighting all conduce to the ventilation. The sum subscribed is 5,078*l.* 11s. 6d. The contract for executing the new building is about 6,000*l.*; but as it is proposed to alter and re-model the old part of the institution, it is calculated that 8,000*l.* will be requisite to cover the whole cost, furniture, &c. inclusive. The contractors for the work are Messrs. Gibson and Stewart.

Fort William.—The foundation-stone of a monument to the memory of a local celebrity of the Lochaber district, Dr. Kennedy, was laid in the village of Fort William on Wednesday week, by Campbell of Monzie, in absence of Sir Duncan Cameron. The ceremony included a masonic procession and "Monzie's piper" playing the wild and mournful but appropriate local ditty celebrated as "Lochaber no more." "We'll may he return to Lochaber no more."

Panmure.—Great alterations, according to a Montrose paper, are about to be made on the mansion-house and policies of Panmure. The southern gable is to be taken down, the house lengthened, and wings added, according to plans by Edinburgh architects.

St. Heliers.—The thorough drainage of the town, says the *Jersey Times*, which, since the completion of the Ann-street and Simon-place drain has been dormant, is now about to be recommenced, and in a portion of the town that greatly requires it, namely, along St. Saviour's-road and the Coie, from Simon-place to the Terrace. The contracts are to be given into the Greffier's office during the present week; and in the course of September this useful and necessary work will be commenced.

St. Peter's Port.—A Guernsey paper states that the contract for the works for the improvement of the harbour of St. Peter-Port has been signed. We believe, it adds, that the contractors are Messrs. Hutchings, Brown, and Co. and that the sum agreed on is something under 40,000*l.*; but our belief is founded on rumour, for we have no authentic information on the subject.

Powick.—The Worcester City and County Lunatic Asylum is now in use, although the buildings are not altogether completed. The principal deviation from the original plan has been the laying down of new floors through all the galleries and corridors. Those first prepared, of concrete and cement, proved an entire failure, probably from some inferiority in the material employed, as the *Herald* suggests, and they are now boarded throughout, but still fire-proof, the joists being all iron. An additional water-closet has also been put up in each ward, and the doors of every bed-room rehinged, so that they may fall back flush with the wall, the possibility of breaking them off by violence being thus avoided. The doors opening into the outer yards are now all hung on the same principle, the hinge being the invention of one of the medical superintendent's (Dr. Grahamsley) former insane patients at Morningside. The asylum, in its internal economy, will be a sort of epitomised town. The arrangements are a type of the "centralisation" which ought to be adopted wherever lunatics are concerned. The domestic offices contain surgery, drug-room, stewards' offices, store-room for clothing, groceries, flour, ware, &c.; a bakery, kitchen, laundries, sculleries, servants' day-rooms, smithy, carpenter's shop, engineer's room, &c. &c. The foul air is conducted through two tall shafts at opposite extremities of the building, which contain fire-places to increase the draft when necessary. The elevated points of the building have as yet no lightning conductors. It seems to be still a doubtful point where the chief supply of

water is to come from. An extensive reservoir is provided for rain-water, with a small steam-engine and a capstan to force it up throughout the building, but for spring-water, the workmen are boring an artesian well, and have not yet got the desired supply, at a depth of 150 feet. The medical superintendent is desirous of having a chapel erected at some little distance, to sustain the idea of "going to church," in which case the house chapel, with its organ, will be devoted to recreative purposes.

Glasgow.—In a dispute as to the Portland-street suspension bridge, Messrs. Grainger and Leslie, the contractors, as arbiters in the dispute, have issued interim findings, from which it would appear that the whole expenses already incurred in taking down the towers and in rebuilding them are to be paid by the parties in proportion, the trustees for the suspension bridge paying two-fifths, and the contractor paying three-fifth parts of these expenses, and neither party being found entitled to expenses in the submission. The arbiters find it established, that throughout the whole erection of the towers, so far as these have been taken down and reported on, the contractors have failed to execute the work in terms of the specification; that very defective and inferior description of workmanship and materials were employed in the erection of the towers; and that this is sufficient to account for the failure of the works. They further find that the contractors proceeded in the erection of the towers in contravention of the terms of the specification, under the superintendence, and with the knowledge, and partly with the sanction of the inspector appointed by the trustees. They are of opinion that, had the towers been erected, and the whole works constructed in terms of the specification, they would have been sufficiently strong for the purposes intended.

Crewkerne, Somerset.—On Tuesday, the 31st ult. the foundation-stone of a new church was laid in this town by Mr. Thomas Hoskins, with the usual ceremonies. The church will accommodate 400 persons, and will be built of the stone quarried on the spot in hammer-dressed masonry, with Ham stone dressings. It will consist of a nave, north aisle, and porch chancel; organ chapel on south and vestry on north side of the same. The foundations for a tower are laid under the vestry, and a bell-gable will be erected at west end of the nave. The church is to be of the Perpendicular style of Gothic architecture, and will be erected from the designs of Mr. Mountford Allen, architect, of Crewkerne, by Messrs. Chick and Son, of Bedminster.

WIDE AND NARROW FENESTRATION.

At present I have not seen the publication which forms the subject of the leader in The Builder before last; but after what is there said concerning it, I shall make a point of perusing it attentively,—that portion of it at least which treats of design and its proprieties. Many others will, no doubt, do the same, although its name would not have induced them to inquire after the book.

Together with many sound opinions, Mr. Garbett entertains some extreme ones. His rationalism causes him to be too much of a rigorist, and to lay down laws for others which he himself could hardly adhere to in practice. From one of the extracts given in your columns, it appears that he is exceedingly severe upon our general system of *fenestration*; and that too, for a reason precisely the reverse of what might be expected. Instead of censuring it for its crowdedness—for the too great frequency of windows in proportion to the width of frontage, which is such as to make the voids equal to, and often more than, the solids, as measured on the horizontal line or plan of front, he condemns it for "*fewness* of openings;" and taunts us with being content with "about half or one-third the windows thought necessary in the same latitudes elsewhere." Now, it is far easier to utter such criticism with the pen than to prove its correctness with the pencil.

It is of no use talking against facts and figures: either Garbett is right, or Barry is decidedly wrong; for in the "Travellers," the "Reform Club," and "Bridgewater-house," Sir Charles has adopted almost a minimum of aperture,—certainly what, according to the other, must be a very insufficient proportion of it to be suitable for our Anglo-hyperborean climate and latitude, which are so spoken of by some people as to render it wonderful that we should think of having any gardens but winter gardens, and that parasols should not be entirely discarded for parapluies. Really! what would-be philosophy, yet actual nonsense, is prated about climate! We ought to shiver here in England in the dog-days; to discard verandas and sun-blinds, and either augment or multiply our windows till they would afford us at least twice the quantity of light with which we are now satisfied.

According to the author quoted and to theory, the apartments in the three buildings above mentioned, and, of course, hundreds of others also, *ought* to exhibit scarcely less than Cimmerian gloom, instead of which they are amply lighted. It is a common mistake to suppose that abundance of light will of itself alone insure cheerfulness to a room, it being possible to have plenty of the former with very little, if any, of the other. That it is very possible, too, to have an inconvenient excess of the former, is tolerably evident; else, wherefore are so many contrivances resorted to for the purpose of moderating it? Yes, it will be said; but they are made use of only in sunshiny weather; at other times—Well, and at other times, too, there are disadvantages attending excess of window-aperture, no matter whether owing to the windows being unusually large, or to there being, as Mr. Garbett recommends, an unusual number of small ones. In the latter case the window side of a room would be quite cut up by a multiplicity of insignificantly small, although separate, openings, the piers or rather divisions between which would be so narrow as to leave no space for any furniture against them. Excess of *void*, as compared with *solid*, is ill suited to such an ungenial climate as ours has got the disreputable character of being, since it presents too great a surface of mere glass exposed to the influences of the unpropitious elements out of doors. Excess of window-opening in a room is quite at variance with that particular species of the "comfortable" which we English call *snugness*—a term for which no other European language affords a perfect equivalent. On the contrary, there is, at least according to my own feelings, and it may be very queer idiosyncracy, something peculiarly uncomfortable and cheerless in what this author would perhaps call a well-windowed room on an inclement wintry day. Let us be content with crystal palaces, and rein in our ambitious aspirings for crystal-fronted dwelling-houses.

Until now, multiplicity of windows—*i. e.* in proportion to the extent of line or quantum of general surface over which they are, or have to be, distributed,—has been accounted a most formidable, nay, insuperable difficulty in architectural composition. While it is destructive of breadth and repose—those two important qualities to which a very clever writer in The Builder lately called attention,—it is productive of littleness of manner and general physiognomy.

All this, however, is mere talking, and what Mr. Garbett has said is no more. Let the matter then be decided by putting it to the test of precise explanation, if not of actual ocular demonstration. Mr. Garbett contends that we ought to have narrower windows, and more of them than at present; which is, of course easy enough for any man at his writing-desk to assert, but not quite so easy for him to prove by sitting down to his drawing-board, and there giving us a satisfactory solution of what appears to be at present a most difficult problem. If Mr. G. *can* call out *eureka*, let him convince us that he is justified in doing so, by exhibiting to us a pair of "contrasts," viz. a London house of average frontage with the usual number of windows—*i. e.* three on a floor, and another design having its apertures augmented as to their number but diminished as to width. What sort of figure would the last cut? Would not such system of fenestration inevitably occasion a most disagreeable appearance of fritter and littleness, if not of weakness also? As far as appearance is concerned, there would be no improvement upon present practice; and still less would there be any with regard to internal convenience or effect. Admitted through a number of narrow apertures, light would be rather scattered about than diffused. Should I herein be mistaken, our author will, no doubt, hasten to set me to rights, and will, perhaps, even thank me for having afforded him the opportunity of coming forward again and explaining himself more fully. Q. E. D.

COMPETITION AMONGST BUILDERS.

If the letter of B. H. on this subject, is not answered by an abler pen than mine, I would venture to offer a few remarks on some obvious fallacies, which it appears to me to contain. In doing so, however, I do not wish to become the advocate of *indiscriminate* competition in any profession or trade. The architect seems to hold a position just mid-way between the *æsthetical* and the *practical*, the *artist* and the *manufacturer*, and he is called upon to exercise the functions, and ought therefore to possess the qualifications, of both. It is on account of this twofold nature of his work, that there must always be a difficulty in fairly determining his remuneration, which at present is generally a certain per centage upon the outlay incurred in the work he has designed and superintended: that outlay being ascertained, it must be evident that, if 5 per cent. is a fair remuneration, the architect who undertakes to do the work for less must either make a sacrifice, perform his task inefficiently, or his abilities must be of an inferior order, and therefore not deserving of the ordinary remuneration. It may perhaps be argued from this that the architect's fees ought to vary in proportion to the different abilities of individuals: this indeed is to a certain extent the case, but it may be considered generally that the adjustment is made by the circumstance that a man of superior powers and attainments is by them enabled to get through more work in the same time, and, from the reputation he attains, gets more to do, than his less gifted professional brethren.

With the builder the case is very different: every architect knows that there is no such thing as a fixed scale of prices of materials or labour, upon which a fair profit to the builder can be estimated: if there were, that portion of the architect's labour would be far easier and more agreeable. But building materials are bought in the market at constantly-varying prices: thus a builder may be able to undertake a work requiring a large quantity of a particular kind of material at a considerably lower rate than another, because he may have happened to have purchased, or knows where he can procure, that material below its average price.

There is another marked difference between competition amongst architects and amongst builders: in the former case those who sit in judgment on the merit of the designs are unfortunately in most cases non-professional men, too often sadly incompetent to fulfil their task, and who may readily be caught with a pretty drawing of a visionary building, and an offer to do it cheap. Whereas, when builders send tenders for a work, where an architect is employed, they know that a certain standard of excellence (as described in the specification) will be required, and the architect has always the discretionary power of rejecting anything inferior. The architect is also enabled, by comparison with his own estimate, to form an opinion of the amount of the tenders; and no respectable member of the profession would recommend the adoption of a tender which he considered very much below the proper amount. I do not think, therefore, that the case is quite fairly stated by "B. H." in putting the "time, talent, and education" of the architect in opposition to the "attention, capital, and experience" of the builder.

In conclusion, let me advert to the practical

working of the system of competition in the two cases. Amongst architects, I think it will generally be admitted that it is highly unsatisfactory, leading to practices which have, not without reason, lowered the general opinion of professional men, and leading, also, to constant disappointment in employers, who from ignorance require what is impossible, and only find out, when too late, that the architect they have chosen has either only given them part of what they expected, or has led them into an outlay much beyond what they intended. Thus the profession loses caste, and employers lose confidence, without any compensating advantage to either. On the other hand, the system of *limited* tendering among respectable builders is, I believe, considered by the best architects to be the only mode of arriving at the fair value that their clients ought to pay for their work; not, I would be understood, because builders cannot be trusted to ask only fair prices, but because, from various circumstances, one builder can afford to execute work at a lower price than another, even though his profit may be the same. At any rate, it cannot be asserted that builders have hitherto lost either profit or reputation by the system; and if competition amongst builders were confined to persons of known respectability, the gross discrepancies so frequently seen in the columns of THE BUILDER would probably soon disappear. C. F.

THE CAMBRIAN ARCHÆOLOGICAL ASSOCIATION, AT LUDLOW.

THE sixth annual meeting of the Cambrian Archæological Association commenced at Ludlow, on Monday in last week. The members made excursions to the various objects of interest in the neighbourhood, and the evenings were occupied with the reading of papers, &c. In the absence of the president (the Right Hon. Earl Cawdor, F.R.S.), the chair was taken by Mr. W. W. E. Wynn, F.S.A. one of the vice-presidents, who, on behalf of his lordship, resigned the office to the president-elect, the Hon. R. H. Clive, M.P. who took the chair, and delivered his inaugural address, in course of which he gave a brief account of some remarkable ruins in the neighbourhood. The remainder of the first evening sitting was occupied with business matters. On Tuesday the members visited Stoke Castle, Tangley-hill, where there are vestiges of a British encampment called the Bury Ditches, Clun Castle, Hopton Castle, Clungunford, &c. At the evening meeting the following papers were read:—On the Fitzwarine Family, by the Rev. W. Basil Jones; on the Distinctive Peculiarities of various Races in this Country, by Mr. J. C. Symons; and on some Excavations at Castell-y-Bere, in Merionethshire, by Mr. W. W. E. Wynne. On Wednesday morning the members visited Stanton Lacy Church, and afterwards lunched with the president at Oakley Park. At the morning meeting, Mr. E. Rogers read a paper "on the Deposits of Gold and Silver Coin in North Wales," and Mr. R. K. Penson, a paper on Ludlow Church, in which he expressed his opinion, afterwards supported by examination of details in the church itself, that the present edifice is built upon the foundations, in a great part, of a structure existing in the thirteenth century. "My impression," said Mr. Penson, "is that it consisted of a chancel, with two chapels adjoining, a nave and a north and south aisle. I do not believe there were transepts, because I find a weather moulding built into the lower portions of the north transept which protected the original roof of the aisles when the transept was built. I am not certain as to the existence of a central tower, and I am inclined to fancy that there was not one. If my theory is correct, as the church was not at that period cruciform, the constructive arrangements would not warrant the introduction of such a feature. I shall be able to show you traces of this church in the interior of the north chancel aisle, in the walls of the south aisle; and in the room over the present south porch you will find a portion of the Early English corbel-table which ran along the top of the wall under the eaves of the roof. Probably one of the buttresses of this date remains to the east of the present porch. In this wall there is a water drain connected with a recess further eastwards than the present south door. It may have been a holy water stoup attached to an earlier doorway than that now leading to the church, which is unmistakeably of early English date. I should say that the internal jambs of the windows of the aisle are of the same period. You will bear in mind that there were no transepts, and that the wall of the south aisle was a continuation of that of the south chancel aisle. Proceeding to the western front, the Early English basement remains; and in the north front there are now the bases of columns belonging to the early doorway in the north aisle. The internal mouldings of this door attest the fact. In continuing our examination along the northern wall we reach the present north chancel aisle, where the string under the windows has been allowed to remain. Further east, in what is called the high chancel, are remains of early work, the most remarkable instance of which is the external opening into the chamber at the back of the altar." The paper was concluded with some remarks on the additions made at a later date.

After the visit to Ludlow Church, at the evening meeting, papers were read by Mr. Matthew Moggridge, "On a Cruciform Mound near Margam, in Glamorganshire;" by Viscount Dungannon, "On the final Completion of the Excavations at Valle Crucis Abbey;" and by the Rev. Mr. Webb, of Tretire, "On the Roll of the Household Expenses of Swinfen, Bishop of Hereford, who died in 1182."

On Thursday the excursion was to Leintwardine, Brandon Camp, Brampton, Bryan Castle, Coxoll Knoll, or Gaer Ditches, all in Herefordshire. In the evening a paper on the "Last Battle of Caractacus," was read by Dr. Davies, of Sidbury, and Mr. Pigeon, of Shrewsbury. Mr. E. A. Freeman also read a paper on Leominster Priory Church; and Sir Roderick Murchison made some remarks "On District."

ARCHITECTURAL COMPETITIONS.

The British Hospital Competition.—We are told that Mr. Gingell's plan has been selected. We may have something to say hereafter.

Commercial Travellers' School Competition.—We understand that in more instances than one, competitors for the Commercial Travellers' Schools have not only submitted plans, but have sent round *lithographed copies* of them with printed explanations, to each individual member of the committee! Printed descriptions of designs submitted have, in like manner, been sent, without plans, and remarks tending to prejudice the committee against a particular style of architecture, "a fashion of the present day," as the author designates it. This must be regarded as taking an undue advantage and unfair to the other competitors, and should be looked at suspiciously by the committee, if they are determined to act justly.

ROUND TOWERS IN SCOTLAND.

YOUR description of the round towers you saw in Ireland, so graphically given, leads me to describe some in Scotland which are not known to tourists. There are some few in England, but those I have seen are scarcely worth describing, more than as to the shape agreeing with those in Ireland, whilst those in Scotland have the finish and ornamentation of the Irish towers.

THE ROUND TOWER OF BRECHIN.

This round tower is attached to the ancient cathedral, and is, perhaps, the best specimen in existence: it is built of a bright-coloured stone, different from that used in the cathedral, and has sixty courses of hewn stone laid regularly: its height is 85 feet to the cornice, and the stone roof terminates with eight sides, like the spire of a church, and is 15 feet high, terminating in a vane, and having four windows with cut stone pediments in the alternate spaces of the roof; the cornice being part of the first course of the roofing stones;—total height, 100 feet from the ground: the diameter at the base is 16 feet, and the entrance from the church is by a low door with cut stone mouldings and pointed arch, but without any other ornament. There is an external blind doorway on the south side, which is highly enriched, and evidently built with the tower, as the courses run into the mouldings: it has two arches, one within the other in relief: on the top of the largest is a crucifix, and a band or knot connects the two arches, and in the recess on each side between the arches there are two figures, one of the Virgin Mary and another of St. John, who holds a cup and lamb: at the bottom of the outer arch and sculptured on the wall of the tower are two beasts couchant: on each side of the crucifix are two raised stones, having nothing carved upon them, but intended for it. The cill of this door is 5 feet from the ground: there is no appearance of a door ever having been in this place, as the stones are perfect.

THE TOWER OF DUNROBIN, KIRK OF CLYNE PARISH,

is situate 150 feet from the old parish church of Clyne, in Sutherlandshire: it has the bell now hanging in it; is built on the top of a hill adjoining the church, which gives a greater height by the elevated position than what it would otherwise have from the tower being only 25 feet to the top of the stone roof, and 14 feet diameter at the base: the cill of the door is about 7 feet from the ground. This tower is seen for miles round: it is built in irregular courses, and of a stone the same as the church, but not of the same description as the quarries of the neighbourhood—perhaps Norman stone. The wall is 3 feet 2 inches thick at the base.

P.S. The name in the Irish language for the round tower is clogagh (cloigh-theagh), the English of which is bell-house, and they never have been called any other: some antiquaries have adopted the name fire-tower, but do not attempt to maintain it otherwise than by the obscurity in which their erection is involved.

W. HUGHES.

A CHEAP CONTRACTOR IN A FIX.

IN the Lambeth County Court, recently, an action was brought by a Mr. Brown, builder, against a gentleman named Murgatroyd, to recover the sum of 25*l*. From the evidence adduced on the part of the plaintiff, it appeared the defendant, requiring some repairs to be done to his premises, signified that he was open to the offer of any builder who would contract to do the same, and that the lowest tender would be accepted, subject to certain usual conditions. Out of a number of tenders sent in, the plaintiff's was found to be the lowest, at 25*l*.; the highest being at the disproportionate figure of 110*l*. Very shortly after the plaintiff had signed the contract, he discovered his mistake, and wished the defendant to annul the agreement. Mr. Murgatroyd would not accede to this, or abate one jot in the fulfilment of the contract, considering that as a specification had been prepared by his surveyor, and plaintiff had contracted upon that specification, he ought not to have tendered at a figure he could have known was unremunerative.

The plaintiff upon this scamped the work, using old materials, a mixture of size, whitening, and ochre, for paint, and deals of a thickness but little stouter than veneers. Upon the completion of the job he applied for payment, and was referred to defendant's surveyor, who ordered Mr. Brown to pull all his work down, and to perform his contract to the strict letter of the specification. The plaintiff and his witnesses swore that the work was well done, and but a shade under the specification; one of the plaintiff's witnesses stating that he had been carefully through the work, and he considered it well worth 40*l*.

Mr. Bussell, for the defence, said this was one of those cases, in which a grasping man for business had met his deserts. It was a common occurrence for some builders when they saw tenders for work advertised, to tender at a price which they well knew no tradesman could compete against, unless he swindled his timber merchant and other building-materialists. The profit they looked for would arise from their performing the contract in the scamping way the plaintiff had done in this instance, and also in the expectation of making some alterations from the specification, for which they invariably charged 100 per cent. over the fair trade price. It was a system at once ruinous to the fair builder, dishonest

to the customer, and he could state, generally ending in the cutting contractors' paying their debts through the Bankruptcy and Insolvent Courts. His client had, some few years since, been victimized by one of these cheap contractors, and consequently this time took measures to defeat another attempt of the kind. The specification was more than explicitly drawn out, and the quantities given, —he, Mr. Bussell, seeing to the legal part of the contract; and he was indeed glad to say he had now got the plaintiff in that fix, that unless he instantly fulfilled his contract to the satisfaction of his client's surveyor, and to the very letter of the contract, the defendant would at once employ a respectable builder and hold Mr. Brown and his sureties liable to the whole cost of carrying out the work mentioned in the specification. The present claim was one of the most impudent actions ever brought, and he was glad to find that no lawyer had recommended the course pursued by the plaintiff. Mr. Bussell then called the surveyor who prepared the specification, and took out the quantities. That gentleman and two other witnesses proved that the work done was widely different from the contract, and that it was decidedly necessary to pull it all down and begin *de novo*. One of the witnesses, Mr. Cooper, a builder, said he was positive no one, to do justice to themselves and the employer, could do the work required under 120*l.* or 130*l.*

The Judge said he was satisfied from the evidence that the plaintiff had failed to perform his agreement, and, until he had done so, he was not entitled under the terms of the contract to a fraction of money. From what he had heard of the case, he would advise the plaintiff to fulfil his contract; for he had got into the hands of parties who would speedily teach him that if he had made a bad bargain he must stick to it, or it would be worse for him. Verdict for the defendant, with full costs.

THE HOUSES AND SHOPS OF OLD LONDON.*

During the reign of Charles I. the Protectorate, and the first few years of the reign of Charles II. till the Great Fire of 1666, a period to which we, in the present paper, confine our remarks, the street architecture of London underwent a most important change, notwithstanding the troubles of the period. In spite of the statutes of former reigns against the introduction of wood in London buildings, a portion still continued to be erected, disguised by plaster, and in some instances they were, in defiance of the Government and corporate authorities, built without even the above precaution. The illustration No. 44, which still exists in a court in Bell-yard, Fleet-street, although older than the time of Charles I. gives a fearful notion of the dangerous condition of a considerable portion of London before the Great Fire. The majority of the buildings of this period were, however, constructed in a substantial manner with brick, with but little attempt at decoration. The picturesque Elizabethan style, so far as the exterior of London houses was concerned, rapidly went out of use. The few examples which are still existing of buildings which seem to have been erected at about the commencement of the reign of Charles I. exhibit an arrangement of more purely classic mouldings and cornices than is found in the preceding reigns of Elizabeth and James I. The illustration No. 45 (nearly opposite St. Clement's Church, Strand) is a good specimen of the period now under notice. No. 46, near the above spot, is a less decorated but elegant example. The small engraving of houses in Gray's-inn, No. 47, and No. 48, the residence of our great Milton, in King-street, Westminster,† will serve as characteristic specimens of many London houses built during the reign of Charles I. until the "Fire." The high-pitched roofs, with two or more windows, which are met with in various parts of England of this time and of that of Charles II. are not generally met with in London. This in the City may be accounted for by the circumstance of the small extent of frontage being at one time exposed for the purpose of building.

In Gray's-inn-lane some houses of the date 1633 have roofs similar to illustration No. 49, which, at a moderate height afford more accommodation in the attics. Several roofs of this description are met with in various parts of London, and often are the means of fixing the dates of buildings.

In 1623, two years before the commencement of the reign of Charles I. in the month of October, a melancholy accident happened in the French ambassador's house in Blackfriars, when Drury, a Jesuit, preached in a large upper room, three stories high, to a congregation of 300 persons and upwards: the floor gave way, and above a hundred of his hearers were killed, and nearly the same number badly wounded and buried in the ruins.

On the year of the accession of Charles I. the citizens were obliged to lay aside the entry of the king into London in consequence of the raging of the plague, which in that one year *in the City and suburbs carried off* 35,470 *persons, besides upwards of* 18,000 *who died of other distempers.*

In the next year (1626), in the month of June, there happened so violent a storm of hail, rain, and wind, attended by thunder and lightning, that the churchyard walls of St. Andrew's, Holborn, and St. Botolf's, Bishopsgate-street, were blown down, and many corpses of those who had died of the plague were exposed to public view.

About 1628-30, an order was made by the Privy Council to confine the south side of Cheapside from the Old Change to Bucklersbury, then called Goldsmiths-row and Lombard-street, to the trade of Goldsmiths only.

In 1631, the streets of London became greatly incumbered with stalls and stands for the sale of various goods in defiance of the laws. Against this infringement the common council enacted,—"That no inhabitant whatever should presume to sell anything in the streets or lanes of the City on pain of forfeiting, for the first offence, twenty shillings; for the second, forty shillings; for the third, four pounds; and for each offence afterwards to be doubled."

In the year 1635, the number of hackney coaches having, in spite of the enactments of James I. greatly increased, they plied in the streets in the same manner as at the present time. But great inconvenience being found by their obstructing the common passages and rendering the streets dangerous (as the historians of the time say) to his Majesty and the nobility, a proclamation was issued on the 19th of January, strictly commanding,—"That after the 24th of June next ensuing no hackney-coach shall be used in the city of London or suburbs thereof other than by carrying of people to and from their habitations in the country, and that no person make use of a coach in this city except such persons as are capable of keeping four able horses fit for his majestie's service." The cause of these repeated enactments respecting hackney-coaches in London was, no doubt, in consequence of the deplorable condition of the streets, of the condition of which at the present day we can scarcely form an idea. Many of the streets and lanes were unpaved, and numbers only partially: the footpaths were mostly unraised and composed of shingle, into which the water from the roofs of houses would pour in torrents from the spouts and projections: these uncomfortable footpaths were defended here and there by posts, which, while they protected the wayfarer from carriages and such like dangers by day, were, no doubt, a great inconvenience to many in the then "darkness visible" of the London streets at night: the city gallants of this time, no doubt, exposed themselves to the greatest of the perils of the road, and so has originated the English practice of gentlemen placing ladies at the position (even in our well-flagged streets) farthest from the kerb.

During this sad period of troubles and disputes between the king, parliament, and citizens, the privy council sent an arbitrary letter in the king's name, commanding the lord mayor and aldermen to shut up all shops in Goldsmiths-row, Cheapside, and Lombard-street, which were not occupied by goldsmiths; which order was soon enforced by a decree of the dreaded court of Star Chamber: no attention was, however, paid to this order by the citizens.

Notwithstanding this and other contentions between the city and the court, the former prevailed on the king to grant them an extension of the charter of Henry VI.: besides provision for the preservation of the peace, &c. a grant is made of "Moorfields and West Smithfield, with liberty to hold fairs and markets in the said fields, with all tolls, profits, &c. thereto belonging;" to which grant is added this particular clause—

"*We, our heirs, or successors, will not erect or cause to be erected, nor will permit or give leave to any person or persons to erect and build a new one, or any messuages, houses, structures, edifices, in or upon the said field, called Inner Moor, or the field called Outward Moor, or the said field called* West Smithfield, *but that the said separate fields and places be reserved, disposed, and continued to such like common and public uses, as the said fields heretofore and now are used, disposed, and converted to.*" The Londoners' play-fields, the Inner and Outer Moor, are, in spite of the above compact, now nearly covered with bricks and mortar: let us hope that the feelings which forced the removal of the cattle trade from West Smithfield will also prevent the converting this valuable breathing place in the centre of the populous city to any other purposes than the recreation and advantage of the public.

In the City charter, 7 Charles I. the shops of pawnbrokers would seem to have been first directed to be licensed, and leave given to "expose and hang in and over the streets, and ways, and alleys of the said city and suburbs of the same, signs and posts of signs affixed to their houses and shops, for the better finding out such citizens' dwellings, shops, arts, or occupations," &c.

In 1642, the Parliament being at that time in favour with the citizens, dreading the advance of the king's troops on London, ordered the London trained bands to be in readiness, and all the passages and avenues leading to the city to be fortified by posts, chains, and courts of guard. The citizens on that occasion were so alarmed that a great number of all sexes applied so diligently to work in the digging and carrying earth that their fortifications were soon accomplished. Early in the same year, the common council passed an Act for the better defence of the city by fortifying the same with outworks at certain places, and it was likewise enacted by the said common council, that all the passages and ways leading to the City should be shut up except those entering at Charing-cross, St. Giles-in-the-Fields, St. John's-street, Shoreditch, and Whitechapel; and that the exterior ends of the said streets should be fortified with breast works and turnpikes musket proof; that all the sheds and buildings contiguous to London Wall without be taken down; and that the City wall, with its bulwarks, be not only repaired and mounted with artillery, but that likewise divers new works be added to the same at places most exposed. For defraying the expense of these works the common council imposed eight-fifteenths in the several wards of the City, which was afterwards confirmed by an order of Parliament. In consequence of this the work was begun with the greatest alacrity, and prosecuted with such amazing despatch that an earthen rampart, or wall, with bastions, redoubts, &c. was in a short time erected round London and Westminster and the borough of Southwark. Yet notwithstanding this, and other heavy expenses, so great a spirit of opposition had the citizens at this time to the king, that they did not think themselves at all oppressed.

In 1643, the common council ordered their representatives to apply to Parliament for leave to take down the cross in Cheapside, and destroy all the superstitious figures thereon.

1644.—The trade of the City westward, by water, being greatly obstructed by the loya

* See page 471.

† This house was for several years the residence of Milton. The tree shown in the front of the engraving is said to have been planted by the poet. The sketch was taken from the garden of the house formerly occupied by the celebrated Jeremy Bentham. There was formerly a communication between Milton's house and this garden. On the slab shown in the engraving the late Mr. Haslitt had engraved the words, "Sacred to Milton, Prince of Poets."



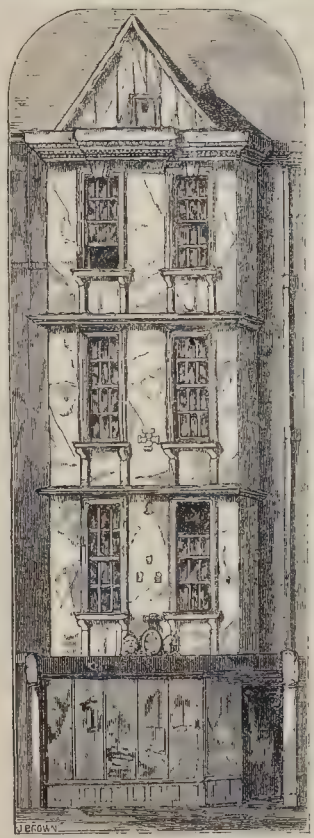
No. 44.



No. 49.



No. 47. No. 48.



No. 46.



No. 45.

garrisons of Greenland and Basinghouses, the City sent out two brigades of horse and foot, under the command of Colonel Brown, who attacked and obliged them to retire. And the Marquis of Newcastle, in possession of the coal trade in the river Tyne, having prohibited the exportation of coals to London, the Parliament issued an ordinance for supplying the City with turf and peat, with power to the lord mayor to nominate and appoint persons to enter into, and buy any quantity of turf and peat in and upon any grounds, except orchards, gardens, and walks.

1647.—The City defences were levelled by the army of the Parliament, in consequence of the citizens having refused to agree to a grant of money for the army.

On the 30th of January, 1648, Charles I was executed at Whitehall.

During the reign of the Protectorate, several proclamations and orders were delivered, to prohibit the increase of new buildings,—to effect which he passed an ordinance, that all persons who had erected houses in contempt of former prohibitions, since the 25th of March, 1620, should, for every such house, not having four acres of land attached thereto, pay to the Protector one year's rent; and for every house erected after the 29th of September, 1656, without land, as aforesaid, to forfeit 100*l.* for his use.

In 1658 Cromwell died, and whether it was caused by vigilance in sanitary measures, or from other causes, it is a remarkable circumstance that but few persons in London died of plague and other infectious diseases during his government.

Charles II. made his public entry into London on the 29th of May, 1660, amid great rejoicing.

In 1662 the hackney-coaches (still seemingly a great difficulty) having created an extraordinary charge on the inhabitants of London and Westminster, by destroying the pavements, the Parliament enacted, that all hackney-coaches in and about London and Westminster should annually pay towards the charge of paving and cleansing the streets and ways in and about the said cities, the sum of 5*l.* each; and every load of hay, 6d.; and straw, 2d. The same Act provided for enlarging the passages at Stock's Market, from Fleet Conduit to St. Paul's Church, the passage and gateway out of Cheapside into St. Paul's Churchyard, the passage at St. Dunstan's Church in Fleet-street, from Cheapside into Bucklersbury, the passage at Temple Bar, and several others in the out parts, and to pave Petty France to St. James's House, St. James's-street, Pall Mall, and Hedge-lane.

Early in May 1665, a pestilence, known afterwards, on account of its dreadful consequences, as the "Great Plague," broke out in London; and it will be useful, in afterwards alluding to this calamity, to copy the numbers, as given by the parish clerks of London, of those who died of plague in London from 1603 until the cessation of the plague, 1679.

Years.	Died of Plague.	Years.	Died of Plague.
1603 Accession of James I.	30,561	1636	10,400
1604	896	1637	3,080
1605	444	1638	393
1606	2,124	1639	914
1607	2,352	1640	1,450
1608	2,262	1641	3,067
1609	4,240	1642	1,824
1610	1,803	1643	998
1611	627	1644	1,492
1612	61	1645	1,871
1613	16	1646	2,436
1614	22	1647	3,597
1615	37	1648 Death Chas. I.	611
1616	9	1649	67
1617	6	1650	15
1618	18	1651	23
1619	9	1652	16
1620	2	1653	6
1621	11	1654	16
1622	16	1655	9
1623	17	1656	6
1624	0	1657	4
1625 Accession of Charles I.	35,417	1658 Death Oliver Cromwell	14
1626	134	1659	36
1627	4	1660 Accession of Chas. II.	14
1628	3	1661	20
1629	0	1662	12
1630	1,317	1663	9
1631	274	1664	6
1632	8	1665 The Great Plague	68,596
1633	0	1666 The Great Fire	1,998
1634	1	(Total, 185,052)	
1635	0		

Number of deaths by plague in London, from 1603 till 1623 inclusive, a period of twenty-one years—45,536.
Number of deaths by plague in London, from 1624 till 1644 inclusive, a period of twenty-one years—60,134.
Number of deaths by plagues in London, from 1645 till 1665 inclusive, a period of twenty-two years—79,382.

Number of Deaths by Plague in London after the Great Fire.

1667	35	1674	3
1668	14	1675	1
1669	3	1676	2
1670	0	1677	2
1671	5	1678	5
1672	5	1679	2
1673	6	(Total, 82)	

After this time no record of deaths by Plague in London is made in the Bills of Health.

Nothing can be more striking and conclusive than the above tables, which not only afford great encouragement to the sanitary reformer, but ought to be a lesson to those having the care of the public health as to the responsibility of their position. Here we have the statistics of a scourge which continued during the above years to increase in violence until the Great Fire, and which, during the above-mentioned years, carried off 185,052 persons. If we allow an increase at the present time of only four times the increase of population, this would be at the rate of 11,000 and upwards of lives each year sacrificed to want of knowledge, and too often selfishness, on the part of the various persons engaged in the management and construction of a great city. It was vain to pass Act after Act against the extension of London: the authorities were alarmed for the public health: they were alarmed for the health of themselves and families; they passed enactments which, while not materially taxing themselves, they thought might help to stop the pestilence—*but the plague-spot was in the heart of the city.* Imagine, if you can, at the present day immense masses of houses, of which those in Baley's-court are an existing example. Let our readers go to this place—to some of the alleys near Bartholomew Church, Saffron-hill, and scores of other parts of London,—places which in 1852, notwithstanding the advanced intelligence and more stringent measures of the day, are an abomination and disgrace; and, after a few of these visits, they may have a faint notion of London before the "Fire."

In the older condition of London the plague was scarcely ever absent.

By the interposition of Providence, which punishes nations as well as individuals generally for their own good, the greater part of the city was swept away by fire. *After that event only eighty-two persons are reported to have died of plague.*

The plague still rages in the cities of the East: commerce has increased: the extent of communication between foreign countries is now greater than could have been dreamed of in the time of Charles II.: still we have no plague in London.

The proper object of antiquarian inquiry should be to discover in the past what may be beneficial and instructive to the living. This feeling in inquiring into the former condition of London causes us to regret, even at the present day, how sad is the condition of this great city, and how many thousands of lives which might be saved, are yearly sacrificed in consequence of the ill-condition of many of the neighbourhoods of this metropolis. The little court which we engrave is, as may be judged, of most inflammable material. A steam-engine and other dangerous matters surround the premises. The entrance is by a small door which might be passed a hundred times in Bell-yard without notice. None of the fire-escapes in general use could possibly enter, not even, we should think, the parish ladder. Sleeping in such premises is scarcely less dangerous than doing so in the neighbourhood of a gunpowder magazine. This, however, is only a portion of the evil. In the cellar between one of the houses is a cesspool, which at times, said our informant, "nearly poisons us." This is kept under lock and key by the landlord of the premises. A convenience opposite the houses is the only means of accommodation for twenty-two persons; for whose use also is a small leaden cistern, placed close to the dust-hole and near the place above mentioned, and this, from its size, is totally inadequate to the use of so many persons. On Sundays they are often without any water. There is no drain from the court: if any water be thrown down it runs into Bell-yard, and the shopkeepers and other respectable inhabitants speedily interfere to stop such a practice. What chance have people in such a place to preserve health? Many will say, "Why live there?" To these we would answer—The poor are not always their own masters, and often are ignorant of the consequences of such localities. In thousands of instances the inhabitants of unwholesome neighbourhoods take possession of them for want of better; and once located, the landlord too often allows a little arrear of rent—just about the value of their furniture. They now become fixtures for life: child after child dies of the absolute poison of the atmosphere: the regular rent is strictly enforced, and the arrears used as a means of stopping the demand for improvement.

Baley's-court is bad enough, but there are others in London infinitely worse. It is not long since we saw water sold in St. Giles's at the shop from which the poor creatures purchased bread, tea, and other necessaries of life.

REFERENCES.

44. Baley's-court, Bell-yard, Fleet-street.
45. Houses in the Strand, nearly opposite Saint Clement's Church.
46. House in Strand.
47. Building about time of Charles I. Gray's-inn.
48. Residence of Milton, the Poet, at Westminster.
49. Roof of House in Gray's-inn-lane, about the date of 1633.

The whole of the engravings are from sketches made on the spot.

PLANK ROADS IN AMERICA.

The signal benefit of this system of roads, says the *New York Daily Times* of 26th July has caused it to be interwoven, within the last five years, into the economy of our state. Special application for plank-road charters so besieged the doors of the Capitol that the legislature enacted a general law, so that any one, by complying with certain regulations, may incorporate himself for the construction and maintenance of such a road. Some of our central cities radiate their roads toward all points of the compass. Syracuse first set the example, under the direction of George Geddes, esq. a senator from Onondaga, who has inherited ingenuity and engineering qualities from his father, formerly one of the most distinguished and experienced surveyors of the state; and now, over 100 miles of plank road make that thriving and enterprising city the active focus in which they centre. During the fall and spring, when the roads were formerly blockaded by mud, and all trade with the surrounding country interdicted, there is now a steady and uninterrupted commerce. In some instances property along the line of these roads has doubled in value. Oswego, Rome, and Utica have exhibited similar energy in weaving around them this invaluable net-work, and have experienced and realised similar results. Other states have adopted the system, and already this delightful road, with which for ease and comfort the Appian Way could not compare, is steadily winding itself amidst the hitherto almost inacessible forests of Michigan, Illinois, and Wisconsin; and one, of 200 miles in length, stretching along the western shore of Lake Michigan, penetrates the great wilderness of the north, and opens its sequestered fastnesses to the activity of trade. Probably 3,000 or 4,000 miles of this style of road now exist in the state of New York, and, in the Union, perhaps as many more, although it is now not over five years since its first introduction. These roads are not so much needed in the sandy soil that surrounds New York, as in those sections of the country whose loam retains the rain. Yet they are rapidly clustering around us. A plank road reaches from Brooklyn to Jamaica; and if any one would see an unbroken stream of fleet and magnificent trotters, let him some lovely afternoon give himself an airing on this hoof-beaten way. Another, a double-track road of this descrip-

tion, proceeds from Williamsburg to the cemetery of the Cypress Hills, where it forms a junction with the Brooklyn and Jamaica-road. Ground is also broken for a plank road, leading from the Williamsburg and Cypress Hills road to Rockaway. Still another road is constructed, or in process of construction, from Williamsburg to Flushing, while the dominions of Governor Davis (Coney Island) are accessible from Brooklyn by the same pleasing conveyance. New Jersey, too, in our immediate vicinity, is bestirring herself in this behalf, and hiding her red soil from view by rows of compact planks. Let us have more of them. We care not how many. The railroad may be and is more useful to the traveller, but as a convenience to the immediate vicinage, to the trade of the county, to those who will to go short distances, to the farmer and the market man, the plank road bears away the palm from every mode of conveyance hitherto known. On such a road, a stage horse can travel from eighteen to twenty miles a day, at the rate of seven to nine miles per hour: a team of two horses has been known, without any extraordinary strain, to draw six tons of iron the distance of twelve miles. It is one of the great improvements of the time in which we live, and we look to it to work out wonders in the developed and undeveloped portions of our country.

BUILDINGS PROPOSED AND IN PROGRESS IN IRELAND.

The friars of the order of St. Dominick are about having a new church erected in Lower Dominick-street, Dublin. The design comprises nave and choir, aisles, and lateral chapels, with extensive sacristies, and organ chamber, and the style of architecture is decorated Gothic. The entire length will be 160 feet, the width about 70 feet, and the height of nave interiorly about 70 feet. Mr. J. J. McCarthy, architect.

New churches have been consecrated by the Bishop of Tuam, at Achill Sound and Moyard-bridge, and the church at Oughterard, which has been undergoing a series of alterations and additions, has also been opened.

The first stone of a new school-house in Cappanalaura, across Lough Corrib, and opposite Castlekirk, has also been laid by the Bishop of Tuam. The site is on the hill-side, over the lake, and commands an extensive view. Two Dublin gentlemen have supplied the building funds.

A new church has been consecrated at Spiddal, a place ten miles west of Galway. Another is to be built at Maam, a place farther west about sixteen miles.

The new church on the Island of Arran, in the Atlantic, is almost completed, and we believe it will soon be opened.

A new church has been lately erected and consecrated, near Leemere, at the head of the inlet of the Killeries, and it is stated that this is the first that has ever been built in Joyce's country.

Another is to be built in the peninsula of Erislannan, within about five miles of Clifden, in the county of Galway, according to plans by Mr. Francis Farrell, architect, Dublin.

The subscription list for the new convent and schools at Ballinrobe, is increasing, and we believe building operations will be shortly commenced. The convent will accommodate twenty-four nuns, and will consist of the ordinary reception and noviciate rooms, refectory, infirmary, chapel, with vestry attached, cells, culinary offices, &c. The schools, which form a distinct portion, are placed in a one-story building at the western angle, and project about 60 feet. The style is early English. The principal feature on the front elevation is a projecting gable (with stone-roofed oriel window, nearly continued to apex), and a square tower 80 feet high, with high pitched leaden roof, and vane on top in connection therewith. Probable cost, 5,000*l*. Mr. Lyons, architect.

The new Roman Catholic Church of St. James, Dublin, has been dedicated by Archbishop Cullen. It is in the Lancet Gothic style, and was erected from the design of Mr. P. Byrne, architect. The walls are of masonry, with horizontal beds and vertical joints, and dressings of limestone.

New schools are to be erected near Clough, county Down. Messrs. Hay, architects.

A new market-house is to be erected in Mulgrave-street, Limerick. The building is to consist of a corn exchange, containing a large board-room, and offices; also a public hall and reception-room with kitchen, &c.; markets for wheat, oats, barley, hay, straw, and green-feeding, cattle, pigs, fowl, butter, turf, coal, &c. &c. are to be provided; also stalls for butchers' meat, fish, &c. The expenditure will probably be 10,000*l*. We are glad to find that the workmen in the vicinity of Limerick are likely to receive by means of this (and the new chapel also to be erected here) employment, as for some time building has been at a stand-still in the "City of the Treaty."

A new "monster" house is to be built in Sackville-street, Dublin. Five houses opposite the Post-office are to be pulled down, and a site will be afforded for the new building of 172 feet in depth and 92 feet frontage. The competition for the approved design is limited to a few local architects. The probable expense will be from 4,500*l*. to 5,000*l*.

A mural monument to the memory of Lieut.-Colonel Tomlinson and the officers and privates who fell in the Chinese war at Chippoo is being fixed in St. Patrick's Cathedral, at Dublin, by Mr. Farrell, sculptor to Earl De Grey. The tableau consists of seven figures, with the Lieut.-Colonel in the agonies of death leaning upon two soldiers. The wolf-dog and harp of Erin are not forgotten.

A NOTE FROM EXETER.

The baths and washhouses were opened to the public on the 9th ult. There is little doubt of their being well attended: the number of bathers already exceeds all expectations. The building contains first and second class hot and cold men's and women's baths and men's and women's shower baths. The washhouse contains apartments separated from each other by slate partition for the washers, and ironing-stoves, drying apparatus, wringing-machine, &c. &c. The building has been raised wholly by subscription, so that the establishment has only its own expenses to cover and no interest of money to pay. The architects are Messrs. Brandon and Co.; builder, Mr. John Mason; and the engineer's work was done by Mr. Jeakes. There is no plunge or swimming-bath at present, but there is a space of ground left sufficient for a very good one to be made at some future time, it is hoped not far distant. The building is well situated, being in a very densely-populated part of the city, and having entrances from two streets running in different directions.

The county gaol will shortly be completed. Three wings and officers' houses are already built, and the fourth wing, debtors' prison, hospital, and laundry, will soon be finished: the whole cost of this model prison will exceed 30,000*l*. Mr. John Hayward, of this city, is the architect.

The St. John's Hospital Grammar School is being pulled down, previously to being rebuilt, under the superintendence of Mr. Macintosh, architect, Exeter. The Commissioners of Improvement are pulling down a great number of old and dilapidated houses in West-street, to give a freer circulation of air in that populated locality.

A new organ has been placed in the Episcopal Chapel, Bedford-circus, built by Smith, of Exeter, and is played by a person from the Blind Institution of this city.

The recent thunder-storms have made great havoc with some of the main sewers: in steep places, the pressure of water has been so great that the arches have been actually forced upwards. In one place, a horse and cart fell in, and almost killed the driver: he was taken to the Devon and Exeter Hospital, with little hopes of recovery. T. G. B.

Notices of Books.

The Patent Law Amendment Act (the 15 & 16 Vict. c. 83), and the Patent Law generally, as affected by that statute, analysed and explained; in substitution of the obsolete portion of Godson and Burke's work upon the subject; with the Act itself, the Schedule of Forms, and an Index. By Peter Burke, Esq. of the Inner Temple, Barrister-at-Law. W. G. Benning and Co. Law Booksellers, 43, Fleet-street. 1852.

The recent change in the state of the law of patents renders it necessary that all interested in patents should possess some work expressly treating of this change, and including the new Act itself, or a faithful analysis or abstract of it; and it is well that an author who may be depended on, such as Mr. Burke, has felt it incumbent on him to lose no time in issuing such a desideratum before the Act begins to operate on 1st October next. Purchasers of Godson and Burke's previous work, as well as others interested, will find it very essential that they should avail themselves of the additional information now published.

As Mr. Burke observes, however, the Amendment Act, of 1st July last—

"Effects a change rather in the mode of proceeding for the obtainment of letters patent, than in the nature of the patents themselves. The principal alterations occur in the increased facilities as to seeking and procuring patent privileges, in the reduction of the expenses attending them, and in the extension of a single patent to the whole United Kingdom and its dependencies. The law which forms the groundwork of our patent system remains much as before."

Miscellanea.

Royal Art Galleries on the Mound at Edinburgh.—This large structure is nearly half-built. The external and dividing walls of masonry are fully half up. The long and squared ranges of flat pillars that face the wings are pretty well raised, and present a considerable extent of building, with porticoes, colonnades, and pediments. There are six porticoes advanced from the building, two at each end, and one of enlarged proportions at each side. The style of architecture is Grecian (Ionic); the pediments surmounting the colonnades are up; and, although the tympanum is blank upon the plan, it has been proposed, according to the local *Post*, to embellish it with sculpture. The wings will have no columns; but, instead of them, *antæ*; and along the top runs a stone balustrade. The building, while thus in harmony with the Royal Institution, says the *Post*, will wear a distinctive aspect, and stand architecturally intermediate betwixt the Florid style of that columnar edifice and the severe and semi-monastic Gothic of the Free Church College, above these erections on the Mound—all being the designs of the same architect, Mr. W. H. Playfair. The interior accommodation may be said to extend nearly 200 feet from north to south, and to comprise three distinct suites of apartments,—all entering from the front, although the central passage betwixt the porticoes is quite contracted in its dimensions,—and the principal entrances to the respective apartments of the Royal Association and Scottish Academy. Iron arches braced with struts, have been thrown across the railway tunnel, beneath the mound, and these are sustained on abutments of masonry, so as to bear the weight of the foundations of the building, independently of the tunnel.

Caution to Water Companies.—At the Bristol Assizes, on Wednesday week, a person named Laverton recovered damages to the amount of 531*l*. 18s. 7d. from the Bristol Water Works' Company, for neglect. It appears that, by the Act under which this company was constituted, it became their duty to lay down pipes, to affix water or fire plugs, and to keep the mains charged, but they neglected to do so, and in consequence the plaintiff's premises were burnt down, and he sustained great loss, which the company have thus been made to pay.

The Holmfirth Deluge.—The statistics of relief afforded by charitable contribution to sufferers by the bursting of the long-neglected reservoir at Bilbury and the flooding of the Holmfirth valley and destruction of numerous mills and dwellings in the gorge, display an amount of sterling generosity and good-feeling that is an honour to our country; all the more especially when we consider that the catastrophe was quite easily preventible by a little outlay in repairs, which were grossly neglected by a corporation who ought to have had a strong money force subscribed against them by all those interested, as well as for immediate and necessary repairs, for the self-preservation of the community, failing those which ought to have been made by the authorised corporation. It appears from the report of the sub-committee, that 161 claims had been disposed of to 10th June, amounting to 24,834*l.* 3s. 6d. besides 667*l.* 17s. 7d. for subsequent claims. The total receipts, including donations, salvage, bank interest, &c. were 45,434*l.* 14s. 2d. There still remained a balance of 22,907*l.* 7s. 2d. for future disbursement; and, if all the subscriptions were paid up, the amount would be 37,234*l.* 12s. 6d. All the claims, with the exception of that of Mrs. Hirst, of Digley, were disposed of, and all the mills in the valley of the Holme, with the exception of Digley-mill, were either repaired or in course of reconstruction. To orphans from two to twelve years of age, the sub-committee recommended that 5s. (a-week?) each be paid until they are sixteen years old, and arrangements had been partly entered into with the Leeds and Yorkshire Assurance Company for the payment of that sum to the orphans for 1,078*l.* The committee has since voted the sum of 4,500*l.* to be invested for the benefit of Mrs. Hirst. A recommendation that money be granted for the restoration of the reservoir was strongly opposed at first by members of deputations, who considered that to make any grant would be like giving a reward for neglect of duty on the part of the reservoir commissioners. Others urged that the staple trade of the valley (woollen manufacture) could not be restored unless the reservoir was restored, and that it was not likely it would be restored unless some grant was made. Eventually it was carried almost unanimously, "That, with a view of restoring the Holme Valley to permanent prosperity, efficient assistance be given to restore the Bilbury reservoir," and "that a sum, not exceeding 8,000*l.* be placed in the hands of trustees for the purpose of carrying out the preceding resolution." After paying all claims, the sum of 400*l.* is to be left in the hands of the sub-committee to meet any casual expenses, and the surplus to be returned *pro rata* to the subscribers, not later than the 1st November next.

English Art-Discoveries in 18th Century.—Besides the steam engine, the blast furnace, and the spinning machinery of Arkwright, improvements were made in the manufacture of earthenware and glass, in the earlier years of George the Third's reign, which have given a prodigious extension to these valuable manufactures. In 1763, when Wedgwood perfected improvements in the Staffordshire pottery, the trade in earthenware took rank amongst the most valuable of the staple trades of the country. A noble and distinguished historian, in resuming his history of the events of the year 1763, speaking of the invention of Wedgwood, says, "So much did this branch of industry grow and thrive, that, according to Mr. Wedgwood's evidence before the House of Commons, in 1785, there were then employed upon it, in that district only, from 15,000 to 20,000 persons." "And thus," says the annalist of the trade, "are the meanest materials, the clay and flint-stones under our feet, converted into objects of the greatest utility and beauty." The abundance and cheapness of fuel induced Wedgwood to raise his English Etruria on the coal-field of North Staffordshire: and, fortunately for the commerce of Liverpool, the Duke of Bridgwater, Earl Gower, and other noblemen and gentlemen connected with Lancashire, Cheshire, and Staffordshire, were, at the date of Wedgwood's discoveries, forming a magnificent line of water communication from the Trent to the Mersey, which intersected the potteries and connected them with that port. As early as 1756, the manufacture of glass was introduced at Warrington; and soon after the date of the group of discoveries described, a large establishment for making plate glass was established at Ravenhead, near St. Helens. Thus were the foundations of much of the commercial greatness of Liverpool laid during the first thirteen years of the reign of George the Third, by the discoveries of Arkwright, Hargreaves, Crompton, Watt, and Wedgwood; and by the new and improved mode of transit introduced by Bridgwater and Brindley.—*Abridged from Baines's Liverpool.*

An Inquiry as to Shell Lac.—In a lac dye and shell lac manufactory I have at this place,* several tons of a stuff called by the natives "kiree" have accumulated, and I wish to know if any of your readers at home can tell me if it can be turned to any use. It is the refuse of the shell lac left in the bags after the finer parts have been extracted from it for exportation to England. In former years the natives used to purchase it with avidity to make bangles with, but since factories have increased, the supply is greater than the demand, and I fancy there is scarcely a manufactory in the country that has not tons of it accumulated. You are aware that seed lac, mixed with fine sand, is used in this country for making grindstones. Perhaps if this "kiree" was melted down with sand or some other cheap article, it might be turned to use for lights for flooring, or some other useful purpose. At any rate I will give 10*l.* to any person who will communicate to me by letter any means by which I may turn it to a profitable account. I will also give 10*l.* to any person who will tell me how I can make seed lac colourless. At present fullers-earth, mixed with lime-water, is used for washing the seed lac before melting it into shell; but it only extracts part of the colouring matter, leaving, as everybody knows who uses it, an orange-coloured shell lac. If any of your numerous readers, then, succeed in giving me the desired information on either subject, I will send them the money by the return mail on their sending out the information.—J. B. W.

New Composition for Railway and other Constructive Purposes.—Mr. Owen Williams, of Stratford, has patented a composition to be used in railway and other structures, in lieu of iron, wood, or stone, and for building purposes generally. One of these compositions consists of 180 lbs. pitch, 4½ gallons creosote, 18 lbs. resin, 15 lbs. sulphur, 45 lbs. finely-powdered lime, 108 lbs. gypsum, and 27 cubic feet sand, breeze, scoria, bricks, stone, or other hard materials, broken up and passed through a sieve with half-inch meshes. The sulphur is first melted with 30 lbs. of the pitch, after which the resin, and then the remainder of the pitch is added with the lime and gypsum, by degrees, and well stirred till the mixture boils. The earthy and stony matters are then added, and the creosote mixed in, when the composition is ready for moulding into blocks, for which pressure is applied. The claim is the mode of preparing such composition, particularly the use of sulphur therein.

More about Gold in Australia.—Mr. E. Wilson, of the Royal Exchange, has published several pamphlets on this subject,—one by "Nugget," on "Australia and her Treasures;" another by Mr. John Fairfax, joint-proprietor and joint-editor of the *Sydney Morning Herald*, "On the Colonies and Gold Fields of Australia, with Advice to Emigrants;" and a third by Mr. W. H. Hall, fourteen years resident in Australia, on his fortunate "Practical Experience at the Diggins" there. The last is a graphic and well-written, though modest and unpretending, narrative: the second is partly a condensation of the news extracted from the *Sydney Morning Herald*; and the first comprises a brief and rapid miscellany of interesting matter in regard to the colony and its agricultural as well as its gold fields, for behoof of emigrants.

* The address may be had at The Builder office.

Antiquarian Discoveries in Glasgow: The Old Bishop's Castle.—The excavations and levellings of the infirmary mound now in progress, for the purpose of improving the approach to the cathedral, says the *Glasgow Herald*, are looked upon with much interest by our local antiquaries; for the site is that on which the Archbishop's castle or palace stood, the surface remains of which were only removed at the close of last century. While Mr. Rankine's workmen were engaged in razing part of the foundations of the Castle-fort wall, they came upon three cannon balls, each about six inches in diameter, and weighing nearly 36 lbs. a piece. Two of them were got a few yards within the gateway of the infirmary: the other was about as far on the outside. Besides a groat and Danish pipe, several other articles have been discovered. Amongst these is a stone with a square hole in it, which is conjectured by some to have been the pedestal in which the foot of a gallows rested. There have also been found several beams of black oak, about from six inches to one foot in diameter, some with dools in them and checked. One of these beams, the largest, and circular, has a round hole about six inches in diameter, cut transversely into it. A few yards within the railing enclosing the mound, and encircling it, is a very soft portion of the ground, which is conjectured to have formed part of a moat round the castle.

Peel Statues.—The Huddersfield statue is to be of Sicilian marble, and 10 feet 6 inches high. There has been a dispute amongst the committee as to the artist. Mr. Bromley was selected, but it now appears that there is a desire to withdraw the decision in his favour by some arrangement with him, and to employ Mr. Behnes, with whom also negociations have now been entered into. The pedestal will be a separate contract.——The inauguration of the statue of Sir Robert, at Montrose, took place on Saturday week, in the presence of a large concourse of people. The statue, erected by subscriptions of the inhabitants, was delivered over in their name to the guardianship of the magistrates and town-council. It was executed by Mr. Handyside Ritchie, of Edinburgh. It stands in the High-street, opposite the house once belonging to the famous Marquis of Montrose.

Proposed Library, New York.—The proposed arrangement of the new library at the national capitol, as sketched in *Norton's Literary Gazette* (U S.), embraces a suite of five rooms, extending in the aggregate 302 feet. There will be two stories of alcoves, the second one receding three feet from the first, so as to admit of a gallery with but little projection; and above the second story of alcoves will be a third story, with bookcases against the walls. The whole interior is to be of iron, and fireproof, so as to avoid the possibility of another calamitous fire, and "is to be finished in a style of great architectural beauty." The shelves will be of porcelain. The expense will amount to 72,000 dollars; and the library is calculated, when finished, to accommodate 50,000 volumes.

Suffolk Fine-Art Association.—The opening of the exhibition by this association was to take place on Tuesday last. The paintings are said to be numerous, and to constitute a good collection, many of them done by well-known artists. The committee have made arrangements for a musical promenade on Friday evenings.

Sanitary State of Merthyr Tidfil.—A correspondent of a Welsh paper complains that although plans for the sewerage of the town are prepared, and an Act for water supply passed, nothing is done by the iron-masters to have the necessary works carried out, but, on the contrary, underhand influence exercised to throw obstacles in the way rather; and that the trade with Dantzic is likely to yield importations of a very different kind from heretofore, as "the cholera is in Dantzic," and Merthyr Tidfil is but too likely to become again a "city of the plague." It would be well that hundreds of other towns besides Merthyr Tidfil were awakened to a sense of the deadly peril that is impending.

COATING METALS AND METALLIC COMPOUNDS.—Messrs. Morewood and Rogers have specified their patent for improvements in the manufacture, shaping, and coating of metals, and in the means of applying heat. These improvements consist of a method of coating zinc with lead; a mode of coating zinc, or hard alloys of that metal, with lead, tin, or alloys thereof; the extension into sheets of zinc coated with lead, &c. by immersion; the use of sand, mixed with sal ammoniac or other suitable chloride, as a flux, when coating metals such as iron with zinc; the use of a lighter metal floating on the surface of a heavier one for coating purposes; the coating of wire, wire chains, &c.; the manufacture of tubes from black iron, and coating the same with zinc or other metal; the forming of grooves, or indentations, in the ends of eave and other gutters, by which they will be strengthened, and the facility of uniting lengths of them together increased; the producing of a flute or flutes, across the ends of plates of corrugated iron, in order to facilitate the formation of joints when several such plates are employed for covering roofs and other similar purposes; and lastly, the fixing or employing a fan or blower in the flue of a furnace for melting metals for coating purposes, at a point after or behind the fire, in order to draw away the smoke and products of combustion.

SINGULAR ACCIDENT ON THE NORTH KENT RAILWAY.—On Saturday last what is considered to have been a waterspout passed over, or rather poured down, a deep shaft communicating with the two-mile tunnel cut through the chalk hills extending from Frindsbury to Higham, and not only flooded the line of railway now laid down in the old line of the canal for which the tunnel was cut, but washed down both the brickwork and chalk in such quantities as completely to choke up the line, through which a passenger-train was running at the moment. Having an attentive driver, the engine was stopped just in time, and the motion reversed, so that most fortunately no one was injured.

ST. LUKE'S, CHELSEA.—RATING OF CREMORNE GARDENS.—On Saturday a meeting of magistrates was held at the board-room for the purpose of hearing appeals against the new assessment made by Mr. Payne, the surveyor, under the direction of the Poor-law Commissioners. Mr. Simpson, the proprietor of Cremorne Gardens, appealed against his assessment, which had been increased from 288*l.* to 740*l.* At the last sitting the appeal was adjourned by direction of the magistrates, with a view of the surveyor coming to an amicable arrangement with Mr. Simpson. The surveyor now proved the data from which he took his valuation of 740*l.* Mr. Simpson agreed to be assessed at 450*l.* but submitted that the tap ought to be separated in the assessment from the gardens, the latter being open not more than from four to five months during the season; and as the rates in Chelsea were made twice a year, that it was hardly fair to saddle him with a twelve-month's rate upon the whole of the property. The bench, after some consideration, settled the assessment at 500*l.*

COUCH'S PATENT ROCK-DRILLING MACHINE.—A rock-drilling machine, now at work on Taylor's Ledge, Somerville, United States, is thus described by a Boston paper:—"The machine consists of a small upright boiler, placed on wheels so as to be easily moved from place to place; to which is attached a small steam-engine, so contrived that it can be set in any required position. The piston-rod of the engine is made hollow, and through this and the cross-head the drill passes perfectly free. In the cross-head of the engine is placed a simple apparatus for seizing, turning, and throwing the drill. The motion given to the drill is the same as in hand drilling, where the 'churn-drill' or 'runner' is used. The machine strikes from 150 to 200 blows per minute, according to the activity of the steam power; and in the peculiarly hard rock of the ledge on which it was at work, it settled a 3-inch perfectly round hole at the rate of about half an inch a minute. By computation this machine, it is said, will do from sixteen to twenty men's work, at an expense of from three to six dollars per day. The probable cost will be short of a thousand dollars. It is said to drill a horizontal hole as easily as a vertical one. Indeed, this is one material advantage of the machine, that it can drill at any angle, from horizontal to vertical.

AN ARCHITECT, like a poet, is a public character. His works are published for the world, and the world is his critic. No one receives praise more universal when it is merited; and he who labours for praise must, if he misses it, learn to endure censure. Let him who may shrink under criticism, recollect that he is thus ranked among the finer spirits of the world, and that he has thrown his lot, not as an artisan, but for the chance of lasting reproach or permanent fame. The public at large has a claim over the architecture of a country. It is common property, inasmuch as it involves the national taste and character: and no man has a right to pass himself and his own barbarous inventions as a national taste, and to hand down to posterity his own ignorance and disgrace, to be a satire and a libel on the knowledge and taste of his age.—*Highlands of Scotland.*

DEATH OF MR. J. W. ALLEN.—Our readers will have heard with regret of the death of this able artist, whose works must be well known to all who visit the Suffolk-street gallery. He died at his residence in Hammersmith, on Thursday in last week, and leaves, we are sorry to say, a wife and young family wholly unprovided for.

A NEW APPLICATION OF SCIENCE.—It is no long time since the public press of this town had to call attention to the discovery of our townsman, Mr. Spencer, namely, the deposit of metals by electricity. Much interest was expressed at the time by the scientific and curious, for it was seen that a new power was developed; but few, if any, realised even in their own minds the extent and diversity of its commercial application. We have now become familiar with the freedom it has given to the designs of silver-plated wares; but it was little expected that, through its agency, cast-iron could be invested with the beauty of rich antique bronze. Such, however, is the fact. This invention must prove an era in the iron trade, as it opens out a field for its use in articles of ornament which it has never hitherto had.—*Liverpool Mercury.*

THE NEW HOUSE-DUTY.—A return to Parliament has just been issued showing the number of houses valued at 20*l.* and upwards, the number of those which pay house-tax at sixpence and ninepence in the pound, with other information on the same subject. In England and Wales there are 179,234 houses charged at sixpence; and in Scotland, 6,377. The amount of duty in England and Wales is 200,182*l.* 19s. 2d; and in Scotland 5,288*l.* 11s. 9d.; making 205,471*l.* 10s. 11d. at sixpence; while at ninepence in the pound there are 252,213 houses in England and Wales producing 463,204*l.* 4s. 8d.; and in Scotland, 24,095 houses at 38,340*l.* 17s. 1d.; making the ninepence duty 501,545*l.* 1s. 9d. The total amount of duty is stated at 707,016*l.* 12s. 8d. The return, which was obtained by Mr. Goulburn, contains the number of houses in some of the principal towns rated at 10*l.* and other sums.

TENDERS

For a public-house and two houses for Mr. Brown. Mr. T. Mumford, architect:—

Millington	£2,153	0	0
Ashton	2,140	0	0
Colby	2,084	0	0
Langridge	2,061	0	0
Frown	2,053	0	0
Reed	2,000	0	0
Rudkin (accepted)	1,968	0	0

For house, at Winkfield, near Windsor. Mr. F. Stent, architect:—

Brown, London	£2,914	6	8
Willshire, London	2,580	13	0
Snowball, Slough	2,394	10	2
Hollis, Windsor	2,331	10	0
Manning, London	2,310	0	0
Titcombe, Windsor	2,174	4	6

The Contract No. 1, for Birmingham sewers, has been taken by Mr. William Hill, of London.

The Contract No. 2, for Birmingham sewers, has been taken by Mr. Hunbecow, of Wolverhampton.

TO CORRESPONDENTS.

"J. C." "H. S." "W. P." "T. D. B." "C. B." (forwarded), "W. E." (publication seems simply to have the effect of benefiting the under-writers), "H. B." (we do not understand the inquiry sufficiently to answer it), "W. P. G." "P." "F. S." (we cannot allow such influences to weigh. It is not our custom to give reasons), "Reader," Dunmow (we are unable to advise without examination), "C. R." "B. A." (MS. has been destroyed; we cannot undertake to return short communications), "C. B." (we have no reason to doubt our reporter's accuracy), "R. G." (under our mark), "P. Q." (ditto), "L. T." "L. P." "Mr. C." "G. H. S." "T. M. F." "Boreas," "E. L. T." (not advisable), "A. H. G." "H. J. D." "Q. E. D." (we are not in a position to comply at this moment, but shall return to the building hereafter. The subject suggested is a good one, and the paper would doubtless be acceptable.)

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

LIGHTNING CONDUCTORS. B. S. NEWALL and Co.'s PATENT COPPER ROPE, 3-8ths diameter, 75*s.* per 100 feet.
Office, 130, Strand, London.
Manufactory, Gateshead-on-Tyne.

SIR W. S. HARRIS'S LIGHTNING CONDUCTORS.—The public attention, as well as that of Church Building Committees, and those interested in the preservation of churches and all description of buildings, is called to the very numerous recent disastrous effects of the heavy thunder-storms which have prevailed. THOS. W. GRAY, 79, King William-street, City, London, respectfully announces that he is the only person authorised by Sir W. Harris to apply his Lightning Conductors, and who will not be responsible for their application by any other persons. The peculiar form and adaptation of these Conductors is such as to safely carry off any amount of electric fluid, as evinced in many hitherto fatal instances at sea, both in the navy and merchant service as well as in buildings; and to show the importance of these Conductors, it may be stated that the Prize Council Medal of the Great Exhibition was awarded for them.
Mr. T. W. GRAY will be happy to supply any information that may be desired, and to furnish estimates of the cost for fitting the Conductors.

PATENT PAPER-HANGINGS, from the Original French Designs. All the Machine Papers at Lancashire Prices.
SATINS, FLOCK, GOLD, MARBLE, OAKS, AND GRANITE.
Large Elegant Borders and Fillings for Decoration, equally low.
LINING-PAPER AT MILL PRICES.
Builders and the Trade, Country Dealers, and Exporters, will find the LARGEST MANUFACTURED STOCK at the LOWEST PRICE in the Kingdom, at
L. MARKS and CO.'S, Manufacturers and Importers, 2, Great Queen-street, and 31, Parker-street, Long-acre, and Consignees of the principal Parisian Manufacturers.
ESTABLISHED 1830.

PAPER-HANGINGS, by E. T. ARCHER'S patented Machine, Blocks, Cylinders, and Artistical Labour, at his Manufactory for all kinds of papers adapted for internal decorations. PANELLED DECORATIONS fitted up on the walls of the extensive Show Rooms, in every known style, and for all purposes, by artists of known merit.
Always on hand a CHOICE and EXTENSIVE SELECTION of FRENCH PAPERS, from the best manufacturers in Paris.
Attached to the paper-hanging factory there is the choicest assortment of CABINET FURNITURE in London, of the best make, and upholstery goods of the first fabric, Brussels carpets, 2*s.* 6*d.* per yard, floor cloths, the best that can be made, cut to any dimensions, 2*s.* 3*d.* per yard; silk and worsted curtains, of the finest fabric, 5 feet wide, 6*s.* per yard, at
E. T. ARCHER'S, 431, Oxford-street.

PAPER HANGINGS.—R. HORNE, PAPER-HANGING MANUFACTURER, 41, Gracechurch-street, City, invites builders and the trade to inspect his extensive stock of NEW DESIGNS in PAPER-HANGINGS, which, by the aid of powerful machinery, he is enabled to offer at the following prices, in stock quantities, for cash only, viz.:—

Stout lining paper		5*d.*
Superior ditto	6*d.* and 7*d.*	
Bed-room papers, in great variety	at	8*d.*
An excellent oak paper	at	8*d.*
Sitting-room ditto, on blended grounds	2*d.* to	9*d.*
Hand-made marbles	8*d.* to	1*s.* 6*d.*
Good satin papers	1*s.* 6*d.* to	2*s.* 0*s.*
Flock papers	2*s.* 0*d.* to	3*s.* 6*d.*
Hand-made granites	3*d.* to	1*s.* 0*d.*

Prices.

Every novelty in French and English panelled decoration always on hand; also excellent imitation of fancy woods.
N.B. Patterns sent into the country, by post, showing the style and quality of the above, on receipt of two stamps, and the goods despatched with promptitude on receipt of a remittance to the amount of the order given.

ROYAL COLOSSEUM (every MONDAY at HALF PRICE).—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. Open daily from half-past Ten till Five o'clock. In the Evening, from Seven till Ten, "Paris by Night," and the whole establishment brilliantly illuminated.—Admission, Day or Evening, 2*s.* Children and Schools half-price.

CRYSTAL PALACE (Admission 1*s.*). At the CYCLORAMA, Albany-street, daily at Three, Evening at Eight o'clock. Seven stupendous Tableaux of the Great Exhibition and its contents painted by Mr. Mac Nevin, from original studies, and on a scale nearly equal to the original. Reserved seats, 3*s.*

PATRON—H. R. H. PRINCE ALBERT
ROYAL POLYTECHNIC INSTITUTION.—Lectures by J. H. Pepper, esq. on Testing Gold, and on the Australian Gold Districts. By Dr. Bachhoffner, on the Patent Polytechnic Gas Fire; and on the Mode of Preserving Fresh Provisions, illustrated by Specimens from Messrs. Ritchie and McCall, and Samples of Fadeaithe's Solidified Preserved Milk, and Moore's Patent Concentrated Milk. By Mr. Crispe, on Morrell's Patent Needles.—By George Buckland, esq. on Music, entitled "Musical Varieties," with Vocal Illustrations, assisted by Miss Blanche Younge, R.A. of Music.—New Series of Dissolving Views, &c. &c.—Admission, 1*s.*; Schools and Children under ten years of age half-price. For hours see Programme.

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TO PARENTS AND GUARDIANS

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15	1 11 0	1 15 0	40	2 18 10	3 6 5
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621	1807	900	983 12 1	1,883 12 1
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CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

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THE PIMLICO SLATE WORKS, Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted, continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prisons, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABYS, Belvedere-road, where terms may be obtained.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELSH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

TO BUILDERS, &c.
THE SLATE SLABS manufactured at the Gwyder Quarries, will be found deserving the attention of the trade. The Quality and colour cannot be surpassed. Samples may be viewed at Mr. PROSSER'S Offices, No. 11, Adam-street, Adelphi.

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Medieval Works, Memorials, Fonts, Screens, etc.
AT A VERY ECONOMICAL RATE.
SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.
MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.
A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.
A liberal discount to the Trade.
MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.
Circulars sent on application.
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ORNAMENTAL CHIMNEY SHAFTS.—About a hundred different patterns and sizes of chimney tops for Gothic, Elizabethan, or Italian buildings are kept in stock.—J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel-row, New-road.

E. and W. STURGE respectfully announce to Builders, Masons, and others, that they have made a FURTHER REDUCTION in some of their prices of STONE, &c. a list of which they will be happy to forward to the trade on application. Sinks, 1s. 8d. per foot; Paving, 2s. 3ds. and 2s. 9d.; Slab, &c. E. and W. S. are confident the quality of their goods will give satisfaction, and that their prices will be found very much lower than the usual charges.—Bridge Wharf, City-road-basin.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

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TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs (near the West India Docks), and sold at No. 1, Pred-street, Edgware-road, Paddington.

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ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 62, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall. March, 1852.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting cement that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccos dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry two or three times its volume of sand and gravel. Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade that he is now able to supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial Bushels, QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

6, South Wharf, Paddington.
PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality, a desideratum never before attained in Portland Cements. It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PATENT PORTLAND and ROMAN and ANSTON CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for the above Cements. Many highly respectable references can be given where their cements have been successfully used, both at home and abroad. Orders received and executed either from their works at Greenwich, or their wharfs, Lindsey Wharf, Chelsea; 24 Wharf, Harrowood, Paddington; Phœnix Wharf, Whitefriars, City; Brine's Wharf, Kingsland-road; and Messrs. COLWILL, Bros. and Co.'s, Bridge-st. Covent Garden, opposite the Office of "The Builder."—Agent at Southampton, Mr. GEORGE SHARP, Union Wharf.

NOTICE.—PATENT PORTLAND CEMENT. Mr. W. ASPDIN, the sole manufacturer and first introducer of the Patent Portland Cement, for which he obtained the Prize Medal in Class 27 at the Great Exhibition, begs to inform Engineers, Architects, Contractors, Builders, and others, that he has Dissolved Partnership with the late firm of Robins, Aspdin, and Co. and to call their attention to the following notice from his present firm:—Messrs. ASPDIN, ORD, and CO. having taken extensive premises for the purpose of carrying on the manufacture of Patent Portland Cement, have the pleasure of announcing that the Cement may be had in the course of next month at their Depôt and Offices NEW WHARF, WESTMINSTER adjoining the Houses of Parliament, in the various qualities as under:—
1st. For Water-works.
2nd. For casting and running Mouldings.
3rd. Brickwork, and for making Concrete Blocks for Ins Walling
4th. For general purposes.
The above Cements are all warranted not to blister, crack, or discolour, as is the case with the Cements wrongly called Portland. The particulars of the experiments as tested at the Great Exhibition may be had at the Offices, New Wharf, Westminster.

GEORGE and THOMAS EARLE, CEMENT MANUFACTURERS, HULL.
Light and Dark cement in any make
Also, Manufacturers of PLASTER, MASTIC, Importers of MARBLE and POZZOLANA.
Dealers in Slates, Slabs, Hair, Whiting, &c.

The Builder.

SATURDAY, SEPTEMBER 11, 1852

UNTIL within a very short time ago the practice of working in iron had declined in England, and it is even now indeed but slowly reviving. The principle had been forgotten, that every material, to the extent that it differs in nature from others, should be wrought in a different form and proportion,—that to copy in iron the forms proper for stone is as contrary to good taste as it is to common sense. The introduction of cast iron, too, provided a cheap substitute for hand work; and as encouragement was thus withdrawn from the skilled workers, they gradually ceased to be. The want of right appreciation, even now, of the important principle to which we have referred, was shown, not many weeks ago, by the design determined on for the Clock Tower at the foot of Londonbridge, which we found it our duty to condemn. We have sought from time to time to lead to a consideration of the principles on which metal should be worked, and have given numerous specimens of mediæval skill in the shape of grilles, gates, hinges, knockers, locks, and other fastenings, not simply that they might be reproduced, but that the principles on which they were formed should be understood and applied in modern designs to suit modern wants. In our pages, too, we may add, will be found representations of some of the most important modern works in iron, both cast and wrought.

We are not to be understood as objecting to the use of cast-iron, notwithstanding its tendency to lessen the opportunities for the application of skill to the working of iron; it is much too valuable a material for that, and conduces so greatly to the improvement of the dwellings and the increase of the comforts of the masses; but it should be kept in its proper place, and used in a proper manner. Good forms may be cast as cheaply as bad ones, and manufacturers should not sacrifice propriety and fitness, as they constantly do, to obtain what they may consider a novelty.

This craving after novelty, undirected by right principles, leads often to the perpetration of strange outrages on good taste and good use in other materials besides iron: and we will wander for a few minutes from our present purpose, to mention an instance of this, which may be seen on the south side of Fleet-street, No, 79, where a new front is being put up for a well-known frame-maker and dealer in looking-glasses. It is a singularly strange and senseless composition. All sorts of caps, capitals, and termini in compo appear one over the other, resting on a magnified top of a looking-glass, full to overflowing of flowers and cupids, which hangs destitute of all support over a yawning void below, the latter filled in with some very fine sheets of glass. Round the caps and termini, the crowning cornice of the house breaks five times, probably to afford foothold for figures or vases of some sort. The whole is a regretful waste of money and modelling, which can but make "the judicious grieve." On the opposite side of the way, at the "shop-front maker's," a similar, though less costly, error has been perpetrated. Caricatures of various styles are presented one over the other, with inharmonious effect. The mischief done to the rising generation by putting before them such incongruities as these is much greater than the well-meaning persons who perpetrate them imagine. These are public offences, and justify public reprobation.

To return, however, to the particular materials for design to which reference has been made. We have had many fine specimens of ancient metal-works in late years depicted by antiquarian draughtsmen, especially by Mr. Pugin, Mr. Shaw, and Mr. C. J. Richardson, and disseminated by the engraver. Numerous detached essays and articles on the various branches of the subject have appeared, too, from time to time, but it was left to Mr. M. Digby Wyatt to produce the first book on the subject which approaches to anything like completeness. A copy of this is now before us, entitled "Metal Work, and its Artistic Design," and claims from us the warmest commendation.* With fifty large plates in colours, it contains eighty-one folio pages of letterpress on the subject, under the heads Theory, Practice, and History. The first of these is subdivided into—1. Iron work, and the principles of its treatment. 2. Bronze work. 3. Gold work. 4. Silver work. The second treats of general principles, the formative processes (working, casting, chasing, &c. &c.), and the decorative processes (enamelling, niello, damascening, &c.); while the third section—History—gives separate chapters to Italy, England, France, Germany, and Spain. The letter-press is necessarily, to some extent, a compilation, the writings of Benvenuto Cellini (especially), Theophilus, Müller, Kugler, Pugin, W. H. Rogers, Holtzappfel, Ford, Labarte, F. Sere, P. Jacob, and others contributing, but it displays considerable research, much personal knowledge of the subject, and more than ordinary subsidiary accomplishments. The illustrations consist of gates, grilles, screens, handles, locks, hinges, tazze, monstrances, thuribles, lamps, pastoral staves, book-covers, reliquaries, chalices, jewellery, figures, knockers, and panelling. In addition to the contents of his own portfolio, the author has drawn upon those of Messrs. Burges, Penrose, E. Willson, Gibson, C. Barry, jun. E. Barry, Spurr, and others, and the drawings are all exceedingly well lithographed by Mr. F. Bedford. The frontispiece is a beautiful design for a precious book-cover, in which are combined many of those decorative processes which have been at various periods employed to heighten the effect of artistic metal-work. This is printed in colours, and, like the whole getting-up of the book, is creditable to Messrs. Day.

The Government Department of Practical Art willonly be carrying out their purpose if they encourage the publication of works like this by purchasing a certain number for the provincial schools.† They may thus counteract the unjust tax levied on the producers of costly works by the law which requires the presentation of copies to various libraries, to some of which the public have not access even.

One of the laws to be deduced from the illustrations before us is, "that of the imperative necessity of adopting, as the basis of the design of objects executed in any material which nature offers to our use, a system of ornamentation strictly in harmony with the structure, chemical and mechanical, of the finished article—with the value of the materials of which it is composed—an association of ideas connected with them, and with its purpose and probable destination." The ornaments in metal-work ought not to be merely stuck on, but should arise out of the work. We have not yet brought ourselves wholly to condemn *imitative* design, as is the case with the able teachers who now regulate the Government schools, but we offer no approval to foliage and flowers in metal, which, as Mr. Redgrave says, "dangle and shake with every movement, as much almost as would their prototypes on their natural stem." We do not want iron to look like roses: we want it still to be iron ornamentally disposed. Objects of utility are to be beautified, not disguised. Having fixed upon the form most useful, we should decorate it instead of seeking to conceal its purpose. Mr. Wyatt justly opposes himself to the notion that good results can follow while the contriver of the object (the manufacturer) and the artist who makes the outward design are different people. "No successful results can be attained in the production of beautiful ironwork, or beautiful anything else, until one of three things takes place,—either, first, until the manufacturer and designer are one individual doubly gifted; or, secondly, until the manufacturer takes the pains to investigate and master so much of the elements of design as shall at least enable him to judiciously control the artist; or, thirdly, until the artist, by a careful study of the material and its manufacture, shall elaborate and employ a system of design in harmony with, and special to the peculiarities so evolved."

Our author refers slightly to one department of metal-work in which at this time not an attempt even is made to be decorative,—we mean plumbers' work, perfect in its execution so far as use goes, but "deservedly regarded as too ugly to be ever allowed to show its face; and it is invariably boxed up and hidden with an ingenuity that might have been better spent in redeeming its unnecessary deformity." Many ancient leaden coffins and fonts have been found curiously decorated: some of the old lead crestings are elegant heads of rain-water pipes display design; and in the Low Countries some of our readers will remember leaden canopies and terminals displaying considerable fancy and elegance. The lead font at Mayence, too, may be mentioned. Who will be the first to re-apply art in our plumbers' work?

Of the modern gold and silversmiths of France our author has a very high opinion, in which we participate: but we cannot go so far with him as to indorse his opinion that in Vechte we have an artist equal to Cellini. Of Professor Herdeloff, the Nuremberg designer, our author apparently has but a mean opinion. We are unable, however, to see the want of understanding which he thinks is shown in the design of a lock by that gentleman: the access to the keyhole is not blocked up any more than it is in the majority of ancient locks given.

It is quite certain that a change is taking place in our practical arts, and we trust our

* "Metal Work, and its Artistic Design." Dedicated by permission to the Right Hon. H. Labouchere. By M. Digby Wyatt, Architect. London: Printed in colours, and published by Day and Son, lithographers to the Queen, Gate-street, Lincoln's-inn-fields. 1852.

† The Museum of Practical Art, at Marlborough House, is now, again, open to the public, with many important additions.

artist-architects and "designers," as they have long been wrongly called, will open their minds to the matter, and having mastered the *principles* of ancient art, and acquired facilities of expression, will give their own genius fair play, and do for posterity what our ancestors have done for us.

"When we bend our thoughts to a contemplation of the genius, taste, and delicate refinement of Visscher, Cellini, D'Arphes, Sansovino, Ghiberti, and many other artists,—when we realise to ourselves their industry and patience as mechanics, and their judgment, experience, knowledge, and energy as artists, we cannot but feel that to produce works approaching, far more excelling, those which have been executed in the past, qualities of the most varied kind must be united. Let the student of design but make the endeavour to combine these in his own person,—let him but struggle to add to a refined appreciation of the highest objects of his art a thorough mastery over the immediate processes of manufacture, and the joint production of his hand, eye, mind, and soul, will then bear the true and unmistakeable mint-mark of pure and beautiful individuality."

Mr. Wyatt's elegant book will assist the endeavour, and we again warmly recommend it to the consideration of the public.

FENESTRATION—COMPETITION, AND ST. PAUL'S.

The criticism of Q. E. D. on my suggestions about house fenestration, comes very opportunely just now, to illustrate part of my argument on St. Paul's. Otherwise I should not have entered into any controversy on things which I had meant merely to submit to the consideration of builders, to weigh, accept, or reject, as they think proper. They are, as Q. E. D. says, very easy to suggest, but when he adds, very difficult to carry out (or rather draw), I must demur, as I have not been able to discover the difficulty in either. However (though having on my drawing-board studies for a brick building, in which all the "rationalisms" he complains of will be practised), I shall not enter into the pencil competition with a "London house-front," to which he invites me; because, first, I do not see the utility of architects who require their work *entirely* done, as well as cut out for them; and, secondly, I wholly deny the ability of any man, professional or not, to decide between rival systems of building by a glance at two pretty drawings.

Indeed (if I may here digress into a subject of much present interest, though foreign to that in hand), I regard the whole system of choosing *designs* by *drawings* (even did they not admit adjustment and fancy shadowing *ad libitum*), as not so much a grievance to us, as a popular delusion of the most ludicrous kind,—an infatuation the most laughable into which their sloth (Englishman's besetting sin, as clear-sighted George Herbert sung long ago) has ever duped them,—did we not remember that its cost in money, inconvenience of every kind, and national dishonour, were far beyond laughing matters. A man or a committee has to erect a building,—a thing to last for ages, and influence, *for good or evil*, the minds and souls of all who see it, *i. e.* hundreds or thousands daily:—I say nothing of the more hackneyed but *far less important* matter of credit or discredit in the eyes of posterity. Well, waiving these, the mere structural efficiency and economy absolutely require a certain amount of knowledge and thought. They find it impossible to dispense with these entirely. Now, the primary error is supposing that *the whole* knowledge and thought can be delegated to an agent—much, of course, must be so;—the technical knowledge and the art must come of a man learned in building, and also an artist; and it is not necessary or possible that every one who builds be either of these; but it is absolutely necessary that he know *something* of so simple and universal an art as shelter-making, and also think *something* of the work in hand,—more than is implied in choosing the prettiest of some drawings, as he would choose a riband for his wife's cap. I know of no other delegated work, from the housemaid's to the legislator's, respecting which so egregious a delusion subsists. In none other is it supposed that the party for whom it is done can totally dispense with either knowledge or thought of it. Architecture is one of those very few things that are literally every man's business, like cookery or theology; and yet (so averse are we to minding our own business) I defy you to name the art or science so recondite and remote from common use, that the general English public of this day shall know or care so little of it, as of this which affects every one every hour of his life. They choose to be (and even boast of being) more ignorant of it than their fathers, still more so than their grandfathers; and probably there is not one in a hundred who knows or thinks as much of it as *every one*, or at least ninety-nine of every hundred, did in the middle ages, or still does wherever a more natural state of society obliges men to do more for themselves. The result of course is, millions spent to undo what millions have been just spent to do,—a land covered with ghastly mimicries called architecture, and cobbled failures called "triumphs of engineering," both alike *libels on the reason of humanity*, and which must render it a puzzle to future ages, what class of the monkey tribe inhabited this island. Nor is it easy to see what can arrest this monstrous and growing bane,—common ignorance of common things,—the ever narrowing into a smaller and more technical class, of knowledge that concerns all, unless it be a well concerted effort to make such matters (ecially the rudiments of building) subjects the earliest and most general education, so to supply in some measure that kind of owledge, or rather *common sense*, of them, ich, in less sophisticated states of society, picked up fortuitously, and which, from bei made more and more technical, seems now n danger of being lost altogether. I see no reason why the *parts of a house*, for instance (so far as they are deducible from natural laws, not custom), should not be as early and useful a matter of school learning, as the parts of a verb, or of the solar system; and by this means I fancy that by A.D. 1900, we might manage to dispense with tubular bridges, and view the next industrial jubilee without umbrellas.

Well, the advertisers having found they cannot do without a certain amount of thought, next settle how much this shall be,—say fifty pounds'-worth. Now, it is a fact important to be known by all rascals, and all dodgers however sharp, that you cannot, *by any contrivance whatever*, obtain more than a poundsworth of thought for a pound. We cannot deal with thought as with property or manual labour. We can neither steal it, cheat men of it, nor cheapen it in the minutest fraction of a cent. Mere labour we can cheapen to any extent by keeping our neighbours sufficiently poor: by capital retained for this purpose, we may so weaken them as to exercise this power without limit, even to the degree of making it impossible for the honest ones to live, and so, by driving them all out, placing ourselves alone in a weeded crop of knaves,—but thought cannot be cheapened. No craft, no tyranny, no force, no capital, can elicit from a man one farthing's-worth more thought than he thinks it fair to give us. Do you think, O most sharpwitted committee! that I will give you fifty pounds'-worth for a lottery ticket bringing me a tenth chance of fifty pounds? Oh, no! nor yet *five* pounds'-worth. For, look you, my sharp ones, you cannot have *quite* fifty pounds'-worth of thought altogether, because it is a commodity that can only be sold in wrappers, and, moreover, must be weighed like tea, *in the wrappers*. Now, a grocer will, if you ask him, sell you a pound parcel of tea in twenty papers, but then you will not have a pound of tea, though you have a pound parcel. So, your fifty pounds'-worth of work (be it in one design or twenty) must include not only all the thought, b also all the drawings (be they cheap or elab rate) in which it is wrapped up. (Apart fro having the most ridiculous ideas, by the b of the cost of real architectural drawings, handiwork alone, the public generally seem look on this as the *architect's* work, and t whole thereof. They might as well pay general by the number of words in despatches.) Well, supposing the drawin worth 5*l.* then you *may* have 45*l.* worth thought, but no more. Suppose you rece ten designs, the drawings of which altogeth have cost 40*l.* you plainly cannot have mo than ten pounds'-worth of thought—in all t But you can only use one of them, and if chances are (from your own knowledge a wisdom) that you will have the best, t chances are also (from your ignorance) th you will have that whose *drawings* cost mo and therefore whose thinker could afford le thought. Well, putting chance against chan you have, most probably, a pound's worth what you want, and have paid fifty for Ha! ha! Clever fellows, truly! You call th an architectural competition. If you let ea competitor build his building, and then cho between *them*, that would be the only *archit tural* competition. Don't you see? By th plan you make the prize depend not on w can *build* best, but who can *bamboozle* y best. O sapient advertisers! You cann cheapen thought *this* way, at any rate: y can only *drive it out* into other fields,—reno real architecture impossible,—place it benea the notice of thinking, honest men,—a insure all your work to the hands of sh artists and humbugs. O clever dodge!

But I must return to solve "Q. E. D." difficulty, viz. how to preserve the "breac and effect" of his dearly-beloved "unpreten ing" Old-Clarendon-Hotel front, with narr fenestration; and first I will inform him the true *architectural* solution, according the most approved modern authorities. Fir erect your house with its front a few ya back from the street, and precisely that fen tration, whatever it be, which suits structu excellence and convenience. Then build second front on the street-line (leaving ro behind for light to descend to the real hous and decorate this with just so many and si apertures (square or oblong) as will give yo desired "effect," after the Old Clarendon any other model you may fancy. This is orthodox *architects'* principle. There a fine specimen of it in Wiebeking,— suggestion for putting King's Coll Chapel inside the Parthenon; and I co refer you to many precedents in this met polis, at least of an upper story so trea (many about the Regent's Park); and in Mol gate-street the principle was once carried completely in whole fronts. Indeed the wh upper story of St. Paul's is an instance, p bably the earliest.

But if "Q. E. D." prefers the very unp fessional, vulgar, and tasteless, mean and p simonious proceeding of trying to get uti and "effect" together, in one work (as c fashioned gardeners do rhubarb and roses one bed), then the question whether "narr or crowded" apertures be compatible w "effect," "breadth," &c. is far better sett by old works than new designs, by stone r brick than paper. There is a building on Acropolis, commonly supposed in tolera taste, whose whole outer inclosure has m void than solid; and nearer home are m built expressly for this climate (before window tax) by architects quite as great Sir Charles Barry, in which the window vo take by far the chief part of the area (I do advise their doing so, observe), and yet wh "breadth and effect" I will back against work of his, before a tribunal of any except architects (for whose pleasure I p sume we do not exclusively build). I will o name, as an extreme case, the refectory Wenlock Abbey (Salop) having two w ranges of lights originally glazed, now uses verandahs. Every old town at home or abr can yield similar cases. Sir Charles's *magn opus* itself incloses one,—the double cloist adjoining St. Stephen's.

So, then, it seems a real architect can treat more window effectively, *if it be advisable*. Whether it be so or not, in ordinary building, is a question I do not mean to touch, only to observe that "Q. E. D." has not touched it either. His remarks about it are founded on notions peculiar to himself, as, for instance, that part of his house walls are built *to keep out light*, which I should think could be done far more cheaply than by fourteen-inch walls, and without the inconvenience of keeping it out always in all weathers alike. Again it seems he makes his house to his furniture,—most men their furniture to their house. Lastly, he does not like a side of a room "cut up" into many parts, when in Westminster Palace he will find his own authority "cutting up" every side, inside and out, with no such apparent motive.

But I return to what bears on my argument. When the clever paper to which "Q. E. D." alludes (treating this matter—amount of window void—as a matter of "effect") first appeared, I had thoughts of writing to you on the singular spectacle of your very same number containing another and much cleverer paper, treating the very same question as one of *engineering*, to be settled, that is, "by facts and figures," and Babbage's machine, if it were finished: for here we had two men, representing two crafts, both professing to do the very same thing, to decide the same question, and setting about it in totally different ways, reasoning on irreconcileably different grounds. Could anything be plainer to reason than that one of their ways must be wrong? (whether leading to a right result or not). This has nothing to do with the question, observe, which of these two crafts is *wanted*, and which *not wanted*; which I hope hereafter to place before you the means of deciding. The question here is, who took the right way of solving this particular case,—the architect or the engineer? The quantity of window area being a *simple* question, one that you cannot pull into simpler parts, it must be either wholly a taste question, or wholly an engineering one,—either to be settled by physics alone or æsthetics alone,—either by convenience and the laws of bodily health, or by the rules of Palladio, Barry, "Q.E.D." or some other tastemonger. The public will decide for themselves in which court to try it; and as Englishmen are not wont, after once tasting the benefits of common sense and free-trade in light or in anything else, to abandon them for any "architectural effect" (would to Heaven they were as parsimonious of sacrifices to a far worse idol—respectability), the architects may depend on it that—"difficulty" or none—they will have in new arrangements to find a new "effect," or do without any. For my part, I can discover no striking marks of "difficulty" overcome, or "effect" produced, in the present type of house-front, with which I am challenged to compete; but if any particular "effect" (what "Q. E. D." understands by "breadth," for instance) be incompatible with "rationalism" in untaxed fenestration, then that "effect," or that peculiar version of "breadth," *is no lawful quality in our architecture*. As well complain that a house has not the effect of a pyramid, or a carving not that of a painting. This subtle fallacy is the grand impediment to real art at present; for "respecta`ility" has had its day, and is on the wane; but the "*effect*" fallacy poisons and perverts everything, from plans down to the minutest details, and seems so bound up in the narrowness of mind common to the majority, that I confess I stand aghast at the rooted growing intensity of the mischief. Good heavens! can nobody see that different things must have different "effects?" What if a preaching church were not to have the peculiar "effects" of a minster? You might as well complain that it is not a basilica—that Shakspeare is not Milton, or that a saw is not a bill-hook.

But to St. Paul's.* I have treated certain matters there, as the engineer treated this window question, on purely utilitarian grounds, and shown them to be, on these grounds, wrongly settled at present, and that there can be only one physically *right* settlement of them,—only one that is physically *best*, or from which every deviation is a loss in utilitarian efficiency. Now, this having been disputed by no one, the question next arises, are solutions thus shown to be right in engineering, right also in "*taste?*"

Let us suppose one of them right in engineering, but wrong in taste. Who is responsible for the bad taste? Plainly not I, for I settled it without reference to my taste, and (by hypothesis) settled it the best way physically. Well, then, if I only applied certain physical laws, and the result be bad taste, whose is it? It cannot be mine, who (by hypothesis) only applied the laws: it must be His who made them. If the arrangement be strictly deducible from the laws, and be in blameable taste, the laws have made it so, and the responsibility is in whoever made *them*. Well, then, if the laws have been so made that what they call for and lead to is in wrong taste, who shall tell us what is in *right* taste? Vitruvius, or Barry, or Q. E. D.? Now, tastemongers, you see your work,—what you have to mend. Who begins?

How happy are we to have tastemongers! Truly we should be thankful, for you see the laws were so made, it seems, as to oblige all who merely followed their experience, all men out of Europe, and all within it, before the fifteenth century, to worship God in temples of bad taste,—all for want of tastemongers. But wait a minute. How is this? These poor men, left to nature and their own devices, invented the Grecian, the Gothic, and all the styles you tastemongers get your rules from! Ah! how is that?

Well, then, for present use, just till they have set the Law-maker right, I will make a shift with these rules instead:—1st. That to prove any arrangement wrong in taste, you must prove it physically wrong, or not so efficient as it might be; and if it be physically right, or as efficient as it can be, it is thereby proved to be in right or blameless taste, except in regard to decoration. Mind, I do not say it is proved to be altogether right, because I hold nothing can be in right taste which is not *decorated*. But it is *not wrong*,—it *admits* of right treatment and the right effect, provided only it be not altered or disguised, but rightly decorated. And here I should remind you that *decoration* of architecture is a thing wholly extinct among us; no longer to be found even in barns or other rural works out of sight (in which its vestiges lingered latest), far less in palaces and town shams. It has often struck me, when resting on a good, handsome, old five-barred field-gate (they make none such now-a-days)—this gate is more decorated than the Palace of Parliament, or, at least, than any other architectural work of this century. For, to be sure, the Palace of Westminster *has* a few door-hinges and nail-heads decorated, and the gallery-rails in the two houses, and is thus not so utterly plain as most contemporary structures,—though, compared with any other of like extent, or even with the barns and stables of a century back, it is meanly and shabbily void of decoration. What part of this, or of our modern buildings in general, ever has a particle of decoration, *i. e.* work for grace?—the footings?—the walls?—the windows?—the roofs?—the ceilings? No part; no structure has. Cannot Mr. Bull see that, instead of *decorating* things, his architects only *hide* them behind ready-made pieces of decoration,—hide all that *their* building is composed of behind counterfeit parts of *old* buildings, because they are ready decorated by some one else. They cannot make *their own* work fit to be seen, so hide behind screens of *other people's* work; or, where they cannot hide a thing (as a window), they distort and disguise it into the semblance of something others have decorated! Alas, poor deluded Bull! when will you open your eyes to the true nature and tremendous disgrace and cost of this pretended art?

But, secondly, I think it demonstrates that while whatever is right in engineering *may* be so decorated as to be right in taste, whatever is wrong in engineering *must* be wrong in taste, however decorated. That is, if a thing be proved *less physically efficient than it might be*, it is, *ipso facto*, proved wrong in taste, and does not admit of improvement by decoration.

And, thirdly, it follows hence, that whatever point, great or little, *can* be determined by physical efficiency, *must*, for right taste, be so determined; *i. e.* it cannot rightly be made matter of taste at all. So that, *in right taste, nothing is settled by taste that can be settled anyhow else.*

With these blocks, Sir, and a challenge to the architects to shake them, I would lay a bonding-course on what I have proposed for the treatment of St. Paul's, and a foundation for whatever I may add to it. E. L. G.

* See p. 546, *ante*.

PUBLIC BUILDINGS AND NATIONAL GALLERIES.

My cautionary hints as to the interior arrangement of a gallery having been allowed insertion, I proceed to offer a like hint or two with regard to the *exterior*: and I must do this, as in the former case, by reference to an actual building. I adopt this mode, not to afford indulgence to an ungenerous spirit of criticism, but to show, as before, both what is to be avoided, and what premonitory notice is needed by way of security.

I have already disclaimed all professional bias. I may add that, in the present case, I am not sure that I know even the name of the architect whose work must be my text. Your columns, Sir, are no vehicle for personal depreciation; nor would I inflict a careless or causeless wound on individual susceptibilities. I suppose, however, we shall all agree that every public work is in some sort public property, and that we may speak freely and frankly on what concerns us all alike. I could say much on this topic did space permit. Not only has the public a serious stake in public buildings,—since, whilst *an architect* bequeaths a lasting ornament, the *brick-and-mortar man* inflicts a standing nuisance,—but architecture herself and architects are deeply interested in the public discussion of their merits—in the unlocking of the public sense to the perception of artistic beauty—in the education of the public taste, and the practical establishment in the public mind of that one conviction without which we can have, properly speaking, no architecture—the conviction, I mean, that buildings have something beyond mere utilitarian responsibilities. If art is to be patronized, she must be honoured; and if she would be honoured, she must not refuse the ordeal on which all honour is dependent.

The building I am about to speak of is not only a public building, but one as nearly analogous as possible to the one prospectively in view. Nothing, in point of fact, is more remote from *improbability*, than that defects in a British Museum may be further stereotyped in a National Gallery.

Now the first thing I would notice is the general plan of the grand façade. Here is a national museum rich, perhaps beyond compare, all things considered, in treasures of literature, history, science, and the finest art. It is a sort of sanctuary. One approaches it with solemn feelings. Here are objects that connect themselves and us with ages, some of splendour, some of mystery, to which the mind looks back along a vista crowded with dim images of hoar antiquity. Here is the Magna Charta of our national liberties. Here are venerable copies of the greater charter of the eternal liberties of all mankind. Here are marbles on which once rested the eye of Pericles and Plato. Here are sculptured records carved beneath the mandate of Senacheribs and Esarhaddons. Here are things that may have been standing when Moses led the Israelites out of Egypt—*gods* made with hands, once trembled to, now, in all their nothingness, like dismembered Dagon—and *men*, "fearfully and wonderfully made" by an Almighty finger, in times and places long forgotten, of whom exists no record save in the book that must be opened on "the day for which all other days were made." It is impossible to over estimate the worth and majesty of such a place. So the people of England have begun to feel. So should architecture have learned to say. But here, alas! begins my tale. By what unlucky

dexterity has this great idea been demoralised? What have *private houses* to do in the façade of a *British Museum?* Was there no lateral space? Was the less important outline inexorable? Was that one noisy frontage indispensable to the quiet functionaries of the establishment? Or did the *genius loci* demand that visitors, making their periodical pilgrimages, should be kept from transcendentalisms by glimpses of living babies and living nursery-maids, where they thought to see nothing but Greek demigods, mythic bulls, and the dust of Pharaoh?

I shall not waste argument upon the man who does not at once see and feel these incongruities. But I will come down, for the moment, to lower ground. Suppose an architect, like our living Barry in the Houses of Parliament, or our martyred Wilkins in the National Gallery, pestered with pitiful conditions, and compelled to sacrifice artistic feeling, by those who, when public taste is roused, join in the hue and cry and hunt him down. Suppose, I say, an architect, ruthlessly ordered to sacrifice architectural proprieties, and to degrade a public building by the introduction of private apartments,—was it necessary to do it as we find it here? Houses—unmistakeable houses—not incorporated by easy transition into the general plan, but standing apart, in all their commonness, robbing the façade of its due dimensions, protruding themselves,—arrogantly enclosing within their *littleness* what might have folded them within its greatness. What would Wren have said? What may not the least initiated of all your readers that has ever seen his Greenwich Hospital? Here is a whole building, every part of it, save the chapel, habitable, yet all over *palatianized*: Old England's rough but glorious tars more royally lodged than the *savans* of her museum. But I must pass to another point.

Now, I need scarcely premise that whenever a *pediment* is introduced, it should always preserve its prerogatives. Whether viewed in a mere constructive light, or in its conventional character, it is essentially a *dominant feature*. To depress it, or neutralize it, is against all architectural instinct. So the mere *linear* design of the Museum would seem to indicate; for the pediment is not only supported by some of the noblest columns the kingdom can boast of, but rises actually higher than the upper lines of the projecting wings, which have no pediment. This is the *de jure* view. I will call it the *natal* one; for it is plain here, as in too many modern buildings, that the plan was conceived and born, as well as educated, on a flat bodiless sheet of paper; that the purity of certain lines, not the salient majesty of certain masses, was the leading object throughout the process; that, in point of fact, the geometrical and not the actual has characterised everything. Hence what I call our *tea-board architecture*. Now, however, geometrically viewed, the pedimental prerogatives above named were provided for: it seems to have been wholly forgotten that such an aspect, beyond the studio of the architect, is confined to swallows (themselves architects certainly) and the favoured occupants (perhaps not architects) of the attics across the street. As the British nation sees its British Museum, the whole order is inverted; the omnipotent laws of vision put the geometrical *hors de combat*; the projecting wings (not to say the collateral houses) predominate; the pediment sinks; and, what is worst of all, *lines* as well as proportions are altered; the square outline of the wing overrides the triangular outline of the centre; the culminating point no longer culminates; the final loses its finality.

I know the reply. Things are really as the geometrical made them, and the mind realises the real despite the anomalies of the apparent. I will dare to say, "I trow not." "*Esse quam videri*" is beautiful enough in morals. In art we stand on other ground. Art must speak through, and therefore *to* the eye. Things must "*seem*," if they would "*be*." I do not plead, of course, for false perspectives and theatric tricks; but it is not enough to say a thing is really done when it is virtually—that is, by force of local circumstances and the laws of vision—*undone*.

I lay the more stress on this case, because, if I mistake not, writing at a distance, the Post-office in St. Martin's-le-Grand, of which the Museum would seem very like a copy or a duplicate, presents, in nine aspects out of ten, the same luckless peculiarity. The characterising, or, as the million will have it, *telling* features, are the projecting squares: the recessed pediment is made mincemeat of.

Let me guard against mistake, ere I proceed. I accuse not the projecting wings. I would not have them recede, and make the centre advance. *Cæteris paribus*, a building will possess twice as much majesty as the wings duly advance, giving concavity to the whole mass, and light and shadow to certain parts of it; enveloping the beholder, and filling the field of vision. Here, if, with the same ground plan, or perhaps the wings made coextensive with the centre, each projecting colonnade had borne its pediment (and it might yet do it), how simple, how harmonious, but how impressive the result!

I become prolix. The remaining point shall not detain us long. The mischief is soon told—easily seen—and, what should not be overlooked in this age of "economists," very costly. I allude to the iron railing.

I hear the exclamation, and perfectly agree with those who think it, in itself considered, very handsome. I am really not fastidious; but I cannot forget a homely proverb—"Handsome is that handsome does." Now what does the railing do? Just what the cast-iron age seems miserably bent on doing elsewhere. Here is the whole of a building, really very imposing, despite the faults I have dwelt on,—wings, columns, victimized pediment, and houses,—caged, like the fabled lion, in an iron netting, only without invocation to mouse or man to set it free. Here is an elaborate screen, so forgetful of its place in architectural society, as almost to quench what it was meant to guard; and this, not only by its extraordinary height, richness, and gilding (gilding iron railings for London smoke!—gilding iron railings in St. Giles's, when we lose golden opportunities of buying gems for our National Gallery for want of money!) but, as if to leave no room for mistake, strengthened by enormous masses of majestic granite, that seem to look disdain on the paltry houses dimly discerned within!

The absurdity ends not here. Passing, in the spring, to the Reading-room, I found some obtrusive but unimaginable process commencing outside the charmed iron boundary; and, on asking what it meant, was pointed to a dirty-looking, villainous, little iron railing that was to go, "railing for railing," outside (beneath the other). Here is certainly "confusion worse confounded." So it turns out that either the handsome railing above was all for *show*, that is, to show itself, but not to show the building I should have thought better worth the looking at,—or else, perhaps, by presenting its little dirty outwork aforesaid to answer that as yet unanswerable but most momentous question, specially pressing in these days of "self-government,"—*Quis custodiet ipsos custodes?*

Sir, I will not longer tax your indulgence. Let me only say, in conclusion, *Architects of the Nineteenth Century, these things ought not so to be.*

LENY.

ELECTRICITY: ITS INFLUENCE AND POWER IN ANIMAL AND VEGETABLE LIFE.

A CORRESPONDENT, "W. G." sends us an essay on this subject, which, however, is, in the main, neither so new nor so conclusive as he appears to regard it. Between some of the phenomena of life and some of those of electricity, there are certainly strong and beautiful analogies, but there are the like analogies amongst the phenomena of electricity, heat, and light; and yet it cannot be decisively ascertained that even these are identical, far less electricity and life. Nevertheless, that all three—electricity, heat, and light,—are intimately associated with vital action, there cannot be a doubt. With these few introductory remarks, we give, without farther comment, what we regard as the strongest points in the essay alluded to:—

"May not that great *binding chain* of the universe—that universal power—that wonder-working principle, whose intensity continues the same at all accessible distances from the earth's surface—'*electricity*'—be also the origin and universal cause of vitality and life, both animal and vegetable, and by which the instantaneous action of thought and feeling is telegraphed throughout the animal frame? Let us inquire; and, by way of illustration, we will take an acorn and an egg. Now, it is well known that neither an acorn nor any other seed will germinate if kept *dry*, nor will an egg produce a chicken at the common temperature of the atmosphere (at least in this country); but both will inevitably perish if their condition be not changed.

The great author of universal creation has inclosed in all seed, whether animal or vegetable, the 'type' of the future structure, and it is only by placing the seed in such a position as will fulfil all the requirements necessary to its growth, that the structure can be organized and developed; and when these conditions are accomplished, electric action generates circulation—physical agents are elaborated into aliment—circulation distributes the aliment throughout the 'type'—the type governs the order and form of the deposit that ensues—and thus is the structure built up and completed.

Hence if the acorn, or a grain of wheat or of any other plant, be buried in *moist* earth, all the requisite conditions necessary to its growth are fulfilled, because we surround the seed with the means from whence the nutriment for the organization and construction of the plant is derived; and the electric circuit being also completed by that simple act, such nourishment is distributed by the circulating current generated as has been just pointed out; and this electro-chemical process constitutes in fact the only *vitality* of plants.

The suspended vitality of seeds may be regarded as analogous to the broken galvanic or electro-telegraphic circuit in which the electrical action is suspended; and this valuable property is of the utmost importance in the economy of the physical world, for by it man is enabled to preserve and store up grain, &c. for food, to meet his future exigencies, which but for the suspension of vital action would be impracticable."

THE COST OF DRAINING BANGOR DIFFERENTLY VIEWED.

I TAKE the liberty of forwarding the following list of tenders for draining, as it will be a consolation to some of the London builders that they are not the *only* blind ones. It is cut from the *North Wales Chronicle*:—

Griffith Williams and William Griffiths	£9,182	3	4
Thomas Roberts and William Hay Bowker, Bangor	8,692	10	0
Henry Pace, Bangor	6,381	5	0
Thomas Murphy, Shire-hall-street, Carnarvon	6,343	0	0
William Williams, Bangor	5,526	6	0
Thomas Griffiths, Bangor	4,350	10	0
Owen Williams and Richard Hughes, Bangor	3,584	10	0
Hugh Jones, Glanadda-place, Bangor	2,925	10	0

The tender of Mr. Hugh Jones having been accepted by the Board, he was called in, and informed of the conditions required for the due performance of the contract, to the terms of which he acceded. The works will, in all probability, be finished about the beginning of May next. Tenders for the pipes were also submitted to the Board, who deferred their decision till next sitting. The cost of these will be about 1,750*l*.

A. B.

METALLIC CASKS.—Messrs. Fox, Henderson, and Co. of the London Works, Birmingham, have contracted for the exclusive manufacture of the iron casks, which appear to be chiefly designed for emigration purposes and to carry produce from tropical climates, and especially palm oil from Africa. These casks, it is said, can be put together by the most inexperienced hand in coopering.

THE DOORWAY OF PORPHYRY, TURIN.



THE DOORWAY OF PORPHYRY, TURIN.

In no city of Europe are there more magnificent doorways than in Turin: indeed, the whole architectural wealth of the place seems to have been treasured up for this one feature: not only are the art and labour exquisite, but the material is often of the richest and most costly description. An instance of the latter is the doorway shown in the present sketch.

Nor are the doorways only remarkable, but the doors themselves are equally worthy of attention, the carving on many of them being of equally good design and execution, and the *tout ensemble* is generally rendered complete by the guards of Bronze which protect them from injury when open. G. T. Robinson.

SURVEYS AND VALUATIONS.

The survey and valuation of Aberdare parish, within Merthyr Tidfil Union, has been determined at a meeting of the guardians. The parish of Aberdare comprises 16,858 acres of land; 12 collieries; 3 iron works, having 10 blast furnaces; 4 miles of canal, and 10 miles of railway. The Board determined on accepting Mr. T. D. Paine, of London, as their surveyor.

Wolverhampton.—The survey and valuation of the two sections of this town have been undertaken by Mr. Rampling, architect, Liverpool, and Mr. Henry, civil engineer, of Manchester.

THE INAUGURATION OF THE MANCHESTER FREE LIBRARY.

We are specially gratified to be able to record the safe accomplishment of a free library in such a city as Manchester. It is to be hoped not only that its thousands of working classes will largely and continually avail themselves of its advantages, but that the example will be rapidly contagious throughout the country. Some alterations, it appears, are required in the Act, which is unintentionally restricted in its operation as regards the supply and the repair of books, &c. and these should be seen to in the forthcoming session of Parliament; meantime, there is nothing in the Act to hinder, or to render it desirable to postpone, the foundation or establishment of new libraries, but quite the contrary: it is an Act available to all towns for the acquisition of a great good at a small cost.

The opening of the Manchester Free Library took place on Thursday last.

The building, situated in Byron-street, was originally erected in 1840, as a "Hall of Science," by Mr. Owen, and, having fallen into disuse, was purchased by the Library Committee, and remodelled for their purposes from plans by Mr. J. W. Pickard. Messrs. Taylor and Williams were the contractors, Mr. G. Jackson executed the decorations, and Mr. Chadfield the painting. The entire length of the building is 109 feet, and its width 54 feet. The lending library is 83 feet long by 51 feet wide, and 16 feet high, having a double row of five metal columns. The reference library has the same length and breadth, but is 27 feet high. A lavatory is provided beneath the entrance-hall. The building is warmed by hot water in 4-inch pipes; and certain arrangements have been made for the removal of vitiated air.*

The large room in which the reference library is stored was the place chosen for the ceremonial of inauguration, which was graced by the presence of various literary and other celebrities, among whom were Sir E. L. Bulwer Lytton, Mr. W. M. Thackeray, Mr. Charles Dickens, Lord Shaftesbury, Sir J. Stephen, Mr.

* The *Manchester Examiner* gives the following particulars:—"The arrangements for the escape of the impure air comprise two methods—gas ventilating chimneys, and special channels, or air ways, formed in the cornices. These communicate with down shafts concealed in one of the end walls, and they have all one common terminus at the base of a large ventilating chimney at one end of the building. The heated and vitiated air passes into these channels, which run completely round the rooms, by means of narrow slits in the plaster, concealed from view by mouldings in the cornice. All the impure air, whether arising from breathing or from the combustion of the gas, is brought by the down-shafts to the base of the large chimney, into which the boiler also sends its smoke and heated air. This chimney is divided, for several feet upwards, with brick partitions, so as to prevent any drawbacks of smoke or bad air, as well as to direct the vitiated air poured from many channels into one common upward course. No wind-guard, cowl, or like appendage, is found necessary, as the peculiar form of the ventilating chimney or shaft, which (reversing the usual construction) gradually widens from the base to its summit, contributes very powerfully to quicken the draught, and make it effective in all weathers and seasons. This arrangement of gradually widening diameters is adopted throughout the ventilating system."

P. Cunningham, Mr. Charles Knight, and many more, including several members of Parliament, and the *élite* of Manchester and its neighbourhood.

A report by Mr. Edward Edwards, the librarian, was read in abstract, from which it appears that there are already 16,013 volumes in the library of reference, and 5,305 in the lending library. The best furnished class of works in the former at present is that of history, of which there are 6,707 volumes. Of periodicals, poetry, prose fiction, &c. there are 4,626 volumes. Presents have been interchanged with the Smithsonian Institute of America, which has returned the Manchester contributions twentyfold. Of the lending library about 2,000 volumes are presents. There is at present shelving for 6,000 to 7,000 additional volumes, and room for many more. The total cost of the building in its present state, with all its fittings, furniture, &c. has been 6,963*l.* odd, of which 1,100*l.* were for shelving and furniture alone. The amount realised in the first subscription list, was 10,125*l.* of which about 800*l.* were raised by voluntary subscriptions, of more than 20,000 of the working classes! A second list of subscriptions had since been made up, amounting to 2,300*l.*; and 500*l.* more would suffice to clear off every liability, including 4,282*l.* the entire cost of the two libraries.

The Earl of Shaftesbury, in his address, on moving the first of a series of resolutions, said that besides the local benefits which would arise from the foundation of such an institution,—in these days of pursuit and excitement, in these days of novel projects and restless inquiry, in these days of accelerated intercourse, when time and space almost seem extinct, you are preparing thereby an antidote to mischief that might otherwise arise; and in setting an example that may be imitated, and laying down a principle of universal application, you assert that the true end of commerce is to make the institutions of the country subservient to its civilization, and then its civilization subservient to the social and moral amelioration of the whole family of mankind.

Sir E. Bulwer Lytton next spoke. In seconding the first motion, he said, I am reminded that there was once a Scottish peasant who, having raised himself to a rank in the eyes of posterity beyond that of ordinary princes, desired also to raise the whole class which he ennobled in the scale of intellectual nobility, and was the first to institute libraries for the people in the rural districts of Scotland. That peasant was Robert Burns, the poet; and when I look around this noble hall, and this large assembly, I own I do wish that Burns could have foreseen what a magnificence you have given to his idea. . . . . Far beyond the sphere of our daily labour you have opened the gates of that world which, like the divine poem of our own Milton, goes back to the infancy of creation, and forward to the promise of an infinite hereafter; so that I may say to those students whom this library will call forth and create—I may say to them, almost in the very words with which that poem concludes—

"That world is all before you, where to choose
Your place of rest. Be Providence your guide."

Mr. Charles Dickens said (in allusion to his exertions on behalf of the Literary Guild), that from the mere force of habit he rather missed the prompter, and would therefore trouble them with a very short speech. He would have rejoiced to have seen in this place, instead of himself, and to have heard in this place, instead of his voice, the working man of Manchester, in the solid and nervous language in which he had often heard such men give utterance to the feelings of their breasts, how he knows that the books, stored here for his behoof, will cheer him through the struggles and toils of his life,—will raise him in his self-respect,—will teach him that capital and labour are not opposed, but are mutually dependent and mutually supporting,—will enable him to tread down blinding prejudices, corrupt misrepresentations, and everything but the truth, into the dust.

Mr. Thackeray followed. Of course, he said, among the many sanitary and social reforms which every man interested in the public welfare is now anxious to push forward, the great measure of books will not be neglected; and we look to this, as much as we look to air, or as we look to light, or to water, for benefitting our poor. If books do sooth, and cheer, and console,—if books do enlighten, and enliven, and fortify,—if they do make sorrow bearable to us, or teach us to forget or to endure it,—if they do create in us harmless tears or happy laughter,—if they do bring forth in us that peace and that feeling of goodwill, of which Mr. Dickens spoke but now, and which anybody who reads his books must have felt has come from them, surely we will not grudge these inestimable blessings to the poorest of our friends; but will try, with all our might, to dispense their cheap but precious benefits over all.

Sir James Stephen delivered a very fine speech, from which also we can only quote a few remarks. Manchester, said Sir James, is a name of deep and even of awful significance; for here is the metropolis of that Titanic industry, on the continued success of which England has deliberately pledged her station and her authority among the nations of the world. Here are daily exhibited, in the light of day, miracles which no scepticism disputes—the miracles wrought by mechanism and by capital, in the hands of a skilful, an energetic, and a united population. Here is the mainspring of that mighty commerce by which we are united in the bonds of peace to every kindred, tongue, and people of this earth. Here is the theatre of that domestic union where meet in friendly concert, or in generous rivalry, manual labourers from each of the three kingdoms of our gracious sovereign—intellectual labourers from every field of science which is tributary to art—spiritual labourers from each of the churches which collectively constitute the church universal. Here is the sphere of the great and tremendous experiment, how physical force, in its most formidable aspect, may be brought into a glad subjection to moral force, in its gentlest and its kindliest forms. Here has been proclaimed, with unexampled success and eloquence, the truth of that which the French would call the *solidarité* of mankind; the truth, that the members of every human society, from the domestic household to the great commonwealth of nations, are knit together for good or for evil, by links wrought by the Almighty arm, and which, therefore, it is not permitted to any human hand with impunity to relax.

We are living, said he in conclusion, at a time when it is not permitted to any man to withhold the little which it may be in his power to contribute towards the advancement of such objects as this. These mighty discoveries and strange inventions, these gigantic revolutions, these unheard-of migrations, this heaving of the lower strata of human society, this increasing power of the popular voice,—all these things testify that we have reached the accomplishment of the prophecy of that time when 'men shall run to and fro on the earth, and knowledge shall be increased,'—and therefore that we are approaching a great crisis and catastrophe of human affairs. To approach such a crisis or catastrophe in a right spirit it behoves us all to do our best.

A great seed has been planted in Manchester.

THE SYNAGOGUE, DUKE'S-PLACE, after being repaired and decorated, was consecrated on the 2nd inst. with a ceremony and an audience that took you back to Nineveh. The first synagogue here was built by Moses Hart, "A.M. 5482;" and "A.M. 5550," his daughter, Mrs. Judy Levy, gave 4,000*l.* towards rebuilding it. The decorations offer no peculiarity for comment. Mr. Wallen was the architect employed, Mr. King the builder, and Mr. Hyams the painter.

WARRINGTON MARKETS' COMPETITION.—The committee, after some months' delay, have at length selected the design of Messrs. Barry and Murray, of Liverpool.

AMERICAN SAYINGS AND DOINGS.

IN the quality and construction of British and American mechanism, there is a contrast which is forcibly, though with some partiality on the one hand and a little exaggeration on the other, pointed out by the editor of the *Boston Journal*, in a leading article, from which we may quote a few paragraphs:—

"English mechanism," he remarks, "is cumbersome. From the wheelbarrow to the steam-engine, through every description of machinery, there is a great degree of strength. [Yes, doubtless a greater degree than generally exists in those engines, of whose tremendous explosions on American rivers we ever and anon hear the astounding *report* even across the wide Atlantic!] Stock is used freely; much too freely in a vast many cases. The strong parts are made very strong, and where strength is not so necessary, stock is put in freely, which gives the whole an overgrown appearance. We do not speak exclusively of the steam-engine, but take the farm implements, the carts, ploughs, harrows, harness, and, in fact, almost every description of mechanism. Every thing is rivetted, bolted, and braced, and made to endure almost for an age.

It is far different with the Yankee. His motto is to go a-head. Everything is done in a hurry. Stock and labour are dear, and capital is scarce, and he wants to get rich in a hurry: hence durability is not thought of. An English mechanic never thinks of getting rich. If he can keep soul and body together, and drink his pint of ale daily, it is enough. But the Yankee, day in and day out, has other thoughts. Go into an American machine-shop and ask the labourer how long he intends to work at his trade? 'Only a few years, and then I shall settle down,' is the answer. While he is cutting that screw, or chipping that block, he is thinking of an improvement in a patent brick-machine, or water-wheel, or other implement, that he anticipates will fill his pockets with gold. . . . .

But why do we not do things as well as the English? The answer is to be found in the different facilities enjoyed by the English and American artisans. Jonathan is young and comparatively poor. He commenced his clearing in the woods with nothing but his hands. He got out of his teens and had some hard blows with his father Bull, and started on his own hook. Whatever he has, has been earned by energy and industry. Now there is a vast difference between having capital and being without it. A man with a heavy purse can command whatever he will, but poverty must do as it can. Capital in England is a drug at 3 per cent. while here it is often not obtainable even at 6. Labour is cheap there, it is dear here. There stock is cheap, because labour is cheap. Here it is dear, because labour is dear.

Another reason why English mechanism is generally more durable than American is, that an Englishman never does but one thing. Go into their machine shops to-day and you will see one man making rivets, another cutting screws, another boring holes, and so on. Go again next year and you will see the same men making rivets, cutting screws, or boring holes. They never change, but year in and year out, through life, they pursue the same branch of their employment till death rivets and screws them into their narrow coffins.

Go now into an American shop to-day, and you will see an active-looking workman filing a piece of iron; to-morrow he will be turning a cylinder; next week he will make the connecting-rod; next month he will draft an engine; and next year he will be the overseer of the whole concern. Now, it is evident that work done by different individuals will not have that finish that it will have when each does his own particular part. But it is also evident, that the mechanic that has an ambition before him to reach the top round of the ladder, and understand every part of the engine, as a machine, will in the end do far more to perfect machinery than the man who makes rivets from the cradle to the grave."

In engineering Jonathan seems to confess that he has still his "Brunels" to get. At least we find him lately talking of "the future Brunel of America." To be sure he has him

in his "brilliant eye" already. Who, then, is he? To this question we shall allow the *Home Journal* to reply in its own way, merely noting, that although Jonathan stands in proper awe of his big engineering brother in "the old country," he can stand up to his little Canadian one and pummel him to his heart's content.

"Why Canadians are 'slow,' and Yankees 'fast,' is a political question into which we do not enter; but the fact is evident to every one, Canadian or Yankee, that crosses the line. At St. John's, in New Brunswick, a suspension bridge is in course of construction, 'the credit of which,' says the *St. John's News* [Canadian itself, of course], 'is due wholly to Americans.' Mr. Serrel, the constructor, is an American engineer. The originator of the scheme is an American, and an American firm is erecting the towers. 'In short,' says the *News*, 'we shall be indebted to Jonathan for the beginning, making, and finishing of one of the most spirited and curious undertakings known in America.' Mr. Serrell, the engineer alluded to by the *News*," continues our Yankee friend the *Home Journal*, "is a young New-Yorker, and one of the city surveyors. He has been practically engaged in engineering since he was fourteen years of age, and gained the greater part of his knowledge and skill in out-of-doors conflict with nature. During the years commonly spent in the 'office,' poring over books and making elegant outline drawings of imaginary aqueducts and viaducts, young Serrel was upon the road and in the woods helping to make surveys, bridging rivers, and adjusting railroad curves. Though scarcely twenty-five years of age, he has executed several important and original works,—among others, the famous suspension bridge over the Niagara, at Lewiston,—a remarkable combination of elegance and strength. The bridge at St. John will be 600 feet in length, and suspended 100 feet above the river. From our personal knowledge of Mr. Serrel's ingenuity, energy, perseverance, and caution, we hazard little in bestowing upon him the prospective title of the American Brunel."

Apropos of engineering works, we may here state that the harbour, and the prosperity of one of the most thriving and intelligent cities in the States, namely, Boston, appears to be in rather a perilous position. Its channels are constantly filling up and changing as its islands and headlands wear away, and the subject has been taken into serious consideration by the local authorities. A report to Congress has been drawn up, in which the urgent necessity of a large appropriation for its protection and safety is insisted on. Congress, in 1848, in fact did appropriate 40,000 dollars for the protection of the Great Brewster island, on condition that so much of it should be presented to the United States as might be necessary for that purpose. The city at once purchased the island at great expense, and operations for building the contemplated wall were commenced in 1849, but were suspended for want of funds; and it is estimated that not less than 50,000 dollars are now needed to complete the work, and render of any use what has already been done. The costly fortifications in the harbour, too, have been arranged with a view to command the entrance to the channel as it now runs; and the value and efficiency of these would be vastly diminished or altogether lost, if this channel should become naturally changed by the action of the sea on the various islands.

Building in Boston must be in an active state just now. The *Transcript*, in rather superlative terms for professional discrimination, says,—"We scarcely remember the time when so many first-class buildings were in the progress of erection as now, and a large proportion to accommodate the increasing business of the city. In Merchants'-row, a very splendid block of granite stores are nearly completed. On Commercial-street, another granite block is also progressing. On Federal-street, extending through to Atkinson-street, a very imposing block of granite stores are soon to be occupied by some of our leading merchants. On the old Theatre estate, the foundations are about laid for one or more of the most elegant and commodious granite stores in the city. On Washington-street, both sides, and in various parts, splendid stores are under contract to be built immediately. On Tremont-street, the 'Temple' is being rebuilt in superb style, more commodious and strong than before, adjoining which, also, an elegant free-stone store is nearly roofed in. On Cornhill, the 'Fifty Associates' are putting up some new and elegant stores. On Exchange-street, massive granite blocks are being raised for the completion of a building designed for banks and insurance offices. On Portland-street, near Haymarket-square, the new granite market and stores are progressing rapidly. On Kilby-street, the Shoe and Leather Dealers' Bank is about erecting a superb freestone building, designed by Arthur Gilman, esq. All these and more are rising up in all directions, taking the places of old and dilapidated buildings, and serving to accommodate the increasing wants of the business community, as well as to beautify and adorn the city."

Sanitary reform is exciting interest in Boston and is making way in New York. As to Boston, the paper just quoted remarks, that "notwithstanding the sanitary advantages to the city, from the introduction of Cochituate water, there is still a lamentable amount of disease engendered by uncleanliness, imperfect drainage, bad ventilation, intramural burials, and other violations of the laws of health;" and that "a sanitary police, with power to compel the abatement of nuisances, would contribute largely to the health of the immigrant class and of the population generally, there being something in the very name of 'sanitary police' suggestive of activities quite inconsistent with sinecureships and idle promenades." For New York such a sanitary police has been already formally recommended in a report by "The standing Committee on Public Health and Legal Medicine of the New York Academy of Medicine." "To do the poor and the public Hygiene full justice," says this report, "the health inspector must penetrate into their private dwellings: he must open the closed sashes and cut windows where there are none: he must ventilate their workshops and their bedrooms and their school-houses: he must pump the stagnant water from their cellars: he must connect their drain pipes and privies with the public sewers, whitewash their walls, fill up their hollows, and drive the troglodytes from their caves to the open air."

The New York and Liverpool Collins line of steamers, as appears from a Government report, have had a compensation grant by Congress of 858,000 dollars per annum, for the last year, in place of 358,000, as heretofore. The increased allowance was voted in the House by a majority of two.

We are further told by this report, with what truth we really do not know, that our own Government, within the space of six years, has derived from the postage on the Liverpool route, so long monopolised by the Cunard steamers, a clear income of no less than five millions two hundred and eighty thousand eight hundred dollars, after deducting the amount paid to the concern under the contract to carry the mails.

From a paper on glass-making in the *New York Herald*, we have picked up the following remarks on the state of the plate and window-glass manufacture in America, and incidentally in Europe also:—

"There are now six factories (of plate-glass for mirrors, &c.) in England, one in Belgium, and a number of little ones in Germany; but French plate-glass has nobly sustained its old renown, and like French silks and French wines, stands at the head of the line. For the last twenty years, the Royal Factory of St. Gobain, and the manufacture of Cirey, have a common agency and depôt at New York; and this establishment supplies the Union with looking-glasses and plate-glass.

The use of large mirrors has become much more fashionable among us; and, in fact, there is no finer decoration for our saloons. The retail stores have made immense advance by the use of plate-glass, and we need but walk along Broadway, to see how generally it has replaced the old-fashioned windows.

American industry has not yet been seriously turned to this manufacture and importation from France. England and Germany supply all that is sold in the United States. The fact is, that vast capital and consummate skill are required to bring to perfection the varied operations which transform into a splendid mirror the rough plate of glass, which, as in the iron trade, we might call pig-glass. The grinding, the polishing, and the silvering, require costly machinery, great ability to prevent breakage, and a vast expenditure of money.

This is not the case with common window-glass, which is now successfully manufactured on a large scale at Boston, Pittsburg, Baltimore, and in the State of New Jersey; but within the last few years French plate-glass has superseded the use of common window-glass in the mansions and dwelling-houses in the finer quarters of New York and our other great cities.

Rough glass, for skylights and tiles, of one or two inches, are manufactured in France, and are in great demand here. With some openings in the floors, covered by these tiles, dark basements can now be used, even in retail trade, which were formerly fit only as a place to store empty boxes and discarded furniture.

But we have lately seen glass, fragile as it is, put to a new use—that of building. The walls of some of our saloons have, of late years, seemed made of glass."

After an appropriate allusion to the construction of buildings chiefly of glass, in which, however, the splendid palm-house at Kew, and the Conservatory at Chatsworth, are ignored as buildings of considerable extent, chiefly of glass, and erected previous to our Great Exhibition building, the writer thus concludes his paper:—"We cannot but thank the Almighty for teaching man to transform the apparently worthless sand and soda into a material so brilliant, transparent, and useful, that the poets of all days have made it the theme of their most beautiful comparisons,—even the inspired prophet employing it again and again in his description of the heavenly Jerusalem,—'A sea of glass like crystal is before the throne of God;' and, further on, 'The sons of God stand on this sea of glass mingled with fire; and the city itself is of pure gold like to clear glass, and the streets as it were transparent glass.'"

NOTES IN THE PROVINCES.

Boston.—The extensive alterations and repairs of the old parish church of Boston are being gradually developed. A new east window has been lately put in, and the south porch, vaulting, &c. completed.

Ardleigh.—A new school-room, capable of accommodating seventy children, has been just erected on Crockleford Heath, Ardleigh, at the sole expense of the wife of Mr. Gurdon Rebow, of Wivenhoe Park, for the gratuitous education of the children of the parishes of Ardleigh, Bromley, Elmstead, and Greenstead. On Tuesday, in last week, the school was opened. A new residence adjoins the school-room.

Marlow.—On 13th ult. the new church at Great Marlow, Bucks, was consecrated by the Bishop of Oxford. This church, which is in the Middle Pointed style, with chancel, nave, north aisle, and chapel, is built of flint and Bath stone. The architect is Mr. Scott, the builder Mr. Bond. The building will accommodate 500 persons.

Coatham, near Stockton-on-Tees.—The first stone of a new church at Coatham was laid by Mrs. Newcomen, of Kirkleatham Hall, Cleveland, on the 23rd ult. The church, which is to contain 550 sittings, and is in the Early Decorated style, is to be built at the expense of Mrs. Newcomen. Messrs. Coe and Goodwin, of London, are the architects.

Leighton Buzzard.—Tenders for the restoration of the spire and roofs of the church were received by the churchwardens on Saturday week. They were as follows:—Messrs. Irons and Ashton, Aylesbury, 565*l.*; Mr. John Herbert Raunds, 450*l.*; Mr. Wing, Bedford,

412*l.*; Mr. Marshall, Dunstable, 342*l.*; and Mr. Merry, Leighton, 321*l.*: the latter was accepted. Brown's patent lightning conductor is to be used, and will cost, including fixing and protecting, about 45*l.* The peal of bells, eight in number, are to be thoroughly restored by Messrs. C. and J. Mears, of London, and will cost about 70*l.* The chimes, too, it is said, are to be put in order, and some repairs done to the interior of the church, which are not included in the contract; so that altogether the outlay will be upwards of 600*l.* Not more than about two-thirds of the amount are yet collected by the churchwardens.

Crewkerne.—The ceremony of laying the foundation-stone of the new church took place on Tuesday last. The building is to be erected in South-street, near the Wesleyan Chapel. It will be in the Perpendicular style of architecture, from a design of Mr. J. M. Allen, of this town. Its erection has for some time been in contemplation, owing to the increasing demand for accommodation in the present building. The contract for the new erection amounts to 1,517*l.* Messrs. Chick and Son are the builders. The site cost 300*l.* Mr. T. Hoskins, of Haselbury, laid the stone, under which was placed a document in which posterity were informed of the names and offices of some score of people, from the bishop down to the curate, and from the churchwardens down to "John March, sexton;" but neither architect nor builder, far less either mason or hodman, were deemed worthy of a place in these elaborate bills of *im*mortality.

Torquay.—On Tuesday, in last week, the foundation-stone of the new chancel of the parish church of St. Mary Church, South Devon, was laid by Sir John Patteson. Amongst the contributors to this work are the Bishop of Exeter and Dr. Pusey, the Marchioness of Bath, the Countesses Somers and Kilmory, Ladies Mary Arnold and Caroline Courtenay, Lords Lyttleton and Forbes, Mr. Justice Coleridge, and many other well-known names, together with an anonymous donor of 1,000*l.* Immediately after the ceremony a substantial dinner was provided for 100 widows and aged poor, on the vicarage lawn; and in the evening a supper was given to the workmen employed in the building.

Sheffield.—On Thursday, in last week, the corner stone of the Brightside district church was laid by the Rev. Canon Blackburn. The ceremonial was to have been performed by Earl Fitzwilliam. The fabric will be in the Early Decorated style of architecture, and will consist of nave, chancel, and south aisle, with a small tower and spire at the western end, forming the porch. It will accommodate 326 adults and 114 children. Placed on an elevated site, adjoining the Baggaley-road, and within a short distance of the Sheffield and Rotherham Railway, the building will form a conspicuous object in the landscape. The site for the church, schools, and parsonage-house has been given by Earl Fitzwilliam, who has, in addition, contributed 50*l.* towards the building fund. The church is estimated to cost about 1,200*l.*, the whole of which is subscribed, except about 300*l.* Considerable aid has been afforded by the working classes of the district. The architects are Messrs. Flockton and Son, of Sheffield; and the builders, Messrs. Gregory and Turner, also of Sheffield.

Liverpool.—On Tuesday week, the foundation-stone of a new school attached to the Hebrew Church was laid at Hope-place. The contractors are Messrs. Johnson and Robinson, and the funds necessary for its completion were all subscribed prior to its commencement. The building, according to the local *Times*, will be in the Tudor style of architecture, two stories high, and faced with patent bricks and Caen stone quoins. Fronting to Hope-place, it will extend 66 feet, and to Pilgrim-street, 70 feet, and will contain two school-rooms (capable of accommodating 350 pupils, boys and girls), each 24 by 28 feet; a large hall, 64 feet by 24 feet, suitable for festivals and public meetings of the body; apartments for the keeper of the schools, committee-rooms, and other offices.——The Music-hall, in Bold-street, was recently razed to the ground. The hall, however, is to be restored, and the basement of the building will consist of two large shops, both facing to Bold-street, and one of them showing, laterally to Concert-street, six large, arched, plate-glass windows. One of these shops, according to the *Journal*, has already been taken by a paper-hanger. The entrance to the new hall will be in Bold-street, between the two shops; and the room will be considerably heightened. There will be a small gallery, and it is intended to have a stage and proscenium. It is also designed to construct a long room in the roof, to be used for refreshment and retiring purposes.

Manchester.—A correspondent of the *Courier* having suggested the formation of a "Crystal Palace" at Manchester, a preliminary announcement has been issued, of a proposition to establish a company by means of shares, for erecting a crystal palace in an eligible situation (10 acres of land are required) in the neighbourhood, "for the purpose of affording to the large and intelligent population of the surrounding districts all the advantages derivable from such an institution, with its various means of recreation and instruction. It is proposed to make the institution worthy of the views with which the great Crystal Palace was originally designed."

Gilsland.—The Gilsland Spa Chapel was opened for divine service on Sunday last. The chapel is of white stone, in the Early English style, designed by Mr. James Stewart, architect, Carlisle, and executed by Mr. Thomas Robson, builder. The interior is open to the roof, and fitted up with sittings for 120 persons, the whole being free. The pulpit and font are in the white stone of the Kingwater quarries. Around the chapel is inclosed a plot of ground for burial. It is almost surrounded, says the *Carlisle Journal*, by one of those deep wooded *gills*, with which the district so much abounds. The parish church at Lanercost is distant several miles.

Glasgow.—A chapel is in the course of erection in Parliamentary-street, opposite the Town's Hospital, for the accommodation of the "Irvingites," or "Catholic Apostolic" sect. The church, which is now fast approaching to completion, will be, in many respects, one of the most striking in the city, in point of architectural interest, having much more of the Episcopal than the Presbyterian in its outline. It comprises a nave, north and south aisles, chancel, and apse. The length within walls is 124 feet, divided into seven bays; and it is consequently said to be the longest ecclesiastical building in Glasgow, with the exception of the Cathedral. The width is 45 feet, height of aisles 30 feet, and of nave 52 feet. The style is Early English.

THE METROPOLITAN MARKETS QUESTION.

THE first report of the committee appointed by owners and occupiers of property in Camden Town to conduct the opposition to the intended establishment of the metropolitan market in Copenhagen-fields, has been published; and it appears from this document that the matter rests in the meantime at that point where the committee formally appealed to the City corporation, having failed in their application to Mr. Secretary Walpole, on the ground that he feared he was morally bound to allow the corporation to set down the cattle-market nuisance in Copenhagen-fields, having, in fact, already agreed to it.

Is the Home Secretary under no moral obligations to the public? Why is he morally bound down to corporation abuses alone, if sheer neglect of his moral obligations to the public led to the moral error of agreeing to such a public nuisance? Is not such a moral error much more easily retractable in reality than a transaction involving moral corruption would have been?

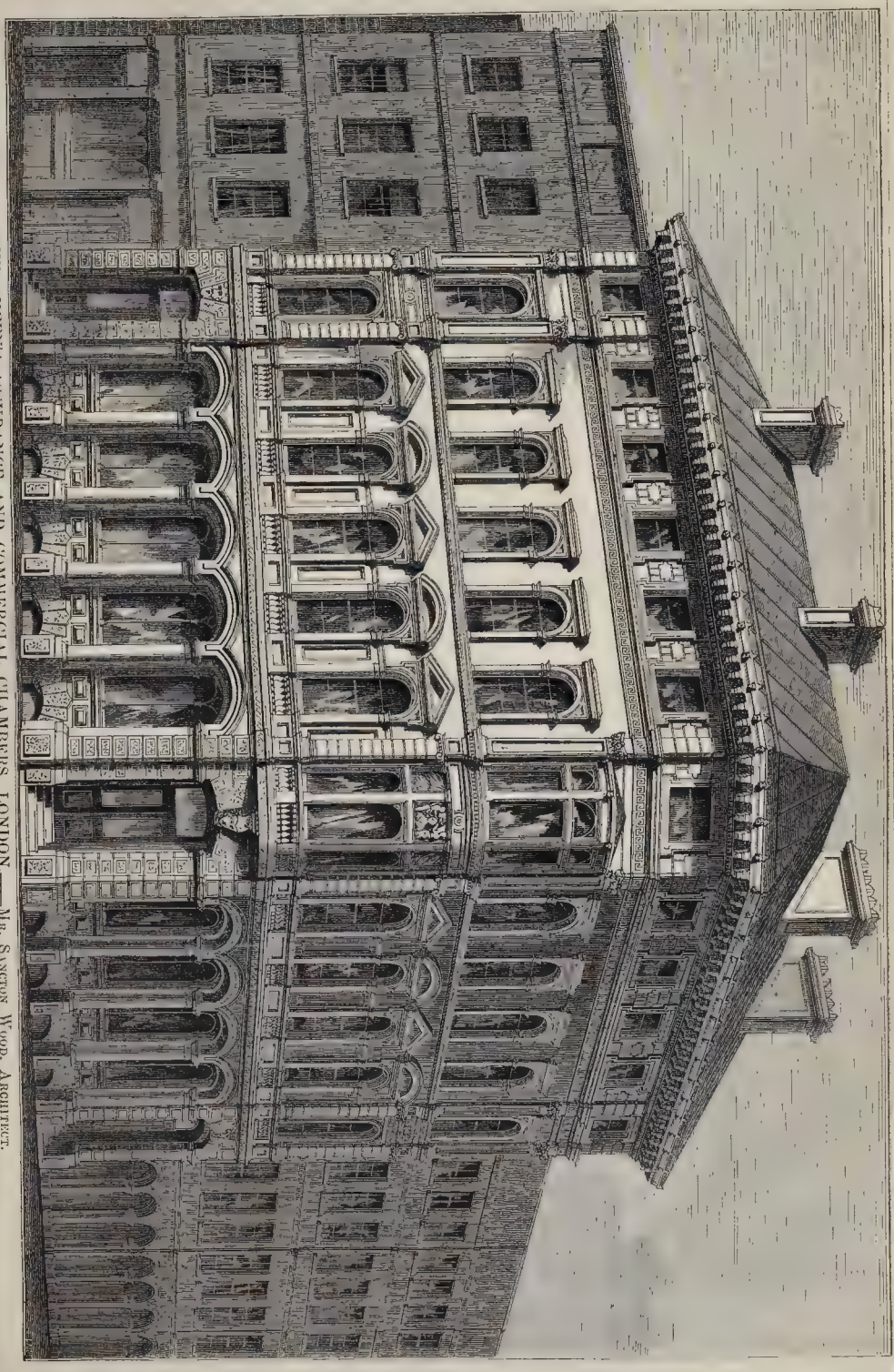
The corporation, on the Camden-town committee's appeal, referred the matter to the markets' committee, but hitherto nothing farther is reported, except that notice of the first meeting of the latter will be given to the former.

In their memorial to the corporation the Camden-town committee point attention to the fact, that should the corporation persist, they will have to submit to very stringent by-laws, which must be approved by the Home Secretary; but is it possible that the Camden-town committee can lean on that brittle reed after what has occurred? The public interests have already been betrayed in the much greater matter of the re-establishment of the nuisance itself, nearly as much in the midst of the population as it was, and notwithstanding the public battle that was deliberately fought to get rid of it: the disgusting object, though compelled to "move on," has plumped down again in the midst of the streets immediately the policeman's eye was for a moment off it. By-laws, they may depend on it, will not operate *in terrorem* on such a subject. We have more faith in the force of a full representation of the extent and intensity of the proposed nuisance made to the corporation or the market committee themselves. We cannot believe that these gentlemen will persist, in the face of such a representation, in re-establishing the market on the site in question. One very strong objection to it, even apart from its public demerits, is the fact that there is not a sufficient supply of water for such an establishment, there being already a very restricted supply, chiefly from the ponds at Highgate and Hampstead. The populous and settled character of the district, however, constitutes the main objection to a nuisance which has already been found intolerable in *any* such district.

THE QUEEN'S ASSURANCE AND COMMERCIAL CHAMBERS, LONDON.

As we have given illustrations of some of the *ancient* houses in the city, it may be desirable to let our distant readers know the sort of edifices that are now being erected there; so here they have a view of a substantial stone-faced structure, which is in course of erection in King-street, Cheapside, at the corner of Gresham-street: the frontage in the latter is 56 feet 4 inches, and in King-street, 52 feet 9 inches. It is erected by private means, for establishing an insurance office and commercial chambers, and shews that considerable liberality of outlay on architectural decoration is regarded as a good investment. The cost will probably be nearly 8,000*l.* The stone used is Portland. Mr. Sancton Wood is the architect, and Mr. Jay is the contractor.

THE VALUE OF PRECISION IN DESCRIPTION.—The editor of the *Leader* quotes a story which may serve to elucidate this:—The mayor of Falaise having one night run foul of a citizen of the good town of Falaise (in those days there was neither gas nor oil-lamp), the mayor gave orders next morning that no citizen should go out at night without a lantern. The following night, the mayor, going his rounds, ran again against the same citizen. "You haven't read the *ordonnance*, you stupid fellow," said the mayor, in a passion. "Yes, I have," said the Norman, "and here's my lantern." ("*Mais si, à preuve que voilà ma lanterne.*") "But there's nothing in it," rejoined the mayor. "The ordonnance said nothing about *that*," replied the scrupulous citizen. The next day appeared a new *ordonnance*, enjoining the citizens to put candles in their lanterns. At nightfall, the mayor, anxious to see whether his orders were obeyed, went his rounds again, and once more ran foul of the luckless *bourgeois*. "I have you this time," said the mayor, in a fury: "you have no lantern." "Excuse me, here it is." "But no candle in it." "*Oh! que si*" ("Oh! but I have"), "and here it is." And out of the lantern he pulled a candle—*unlighted*. "But it isn't lighted," resumed the exasperated mayor. "You said nothing about *lighting* the candle," quickly rejoined the *bourgeois*. So another ordonnance had to be issued, enjoining the citizens to *light* the candles in their lanterns.



THE QUEEN'S ASSURANCE AND COMMERCIAL CHAMBERS, LONDON.—Mr. Sancton Wood, Architect.

ELECTRO-TELEGRAPHIC PROGRESS.

DOUBTLESS the apparatus for regulating time put up at the Electric Telegraph Company's station, in West Strand, will shortly come into correct working order, but hitherto it has been playing rather curious cantrips, to the amusement of some and the mystification of more. It is already proved, however, that the ball at Charing-cross can be made to fall simultaneously with that at Greenwich Observatory; but the telegraphic authorities should have stipulated with the public expectation for at least a month's experiment. As it is, the permanent reliability of the system, as a national one, to operate, as it is intended to do, throughout the country, is beginning, perhaps unreasonably, to be doubted.

Arrangements, meanwhile, are being made for the extension and distribution of Greenwich time to all the leading towns throughout the country. It would have been more satisfactory, since we are to have uniform time, could the standard have been calculated from the sun's full meridian in the heart of the island, midland between its eastern and western coasts, rather than from a point so much nearer the eastern than the western. All discrepancies might thus at least have been reduced to their minimum, instead of, as will be the case, rendering such absurdities possible as the sun coming lagging up every day to his meridian at Bristol, Liverpool, or Manchester, some quarter of an hour or so behind the time called noon in such localities. This is indeed a go-a-head British generation, since the sun becomes, in its estimation of time, a laggard throughout the greater part of the whole country!

It is in contemplation, on the other hand, to have a time-ball put up on a prominent spot on the South Foreland, near Dover, which will also, of course, act simultaneously with the time-ball at Greenwich, and in the Strand. A time-ball, regulated in its falling by the electric current, will enable all the vessels within ten miles' distance and in the Downs to have their chronometers corrected to Greenwich time to a second. It is also contemplated to fire a large gun simultaneously with the ball falling, the electric fluid being the agent in both cases.

The firing of a cannon in London every day at the precise meridian, or at 1 p.m. Greenwich time, would be still more useful than the fall of the ball at Charing-cross, as it would instantly announce the time to the whole metropolis, which the time-ball cannot do.

The national telegraph is to be extended to the racecourse at Doncaster during the race week, rather a boon to betting-houses and gamblers in general than to the nation at large, we calculate. One great "advantage" of the proposed extension will be that "in all probability, therefore, the result of the approaching Leger will be known in the metropolis, York, and elsewhere, even before it is known in Doncaster." A mighty advantage, truly!

An arrangement was entered into some time ago between the British Telegraph Company and the Caledonian and other Scottish Railway Companies, to bring the wires along their lines, commencing at Carlisle, and running along the Caledonian, Edinburgh, and Glasgow, Scottish Central, and Scottish Midland Railways, by way of Stirling, Perth, &c. thus avoiding a ferry. It is understood that when the wires are completed to Forfar, the southern extremity of the Aberdeen Railway, the telegraph will probably be then continued along their line to Aberdeen.

The *Paris Constitutionnel* gives the following account of the working of the continental telegraphs:—

"The service of the electric telegraph has been for some time completely organised and at work throughout the whole line from Paris to Strasburg. This new line is connected at Kehl to that of the Grand Duchy of Baden, which in its turn joins the general network of German lines at Burschel, so that now the telegraphic dispatches, not only from the north of France, but from a part of Belgium and all England, for the centre and south of Germany, as well as for Italy, need no longer pass by the Austro-German lines but by Strasburg, which is the most direct and the shortest route. From Brussels to Vienna, *vid* Prussia, there are eighteen principal stations where despatches are stopped. From Brussels to Vienna, by Paris and Strasburg, there are only eight stations; and besides, from the multiplicity of the wires established with us, the French lines are less encumbered than the German ones. If, as announced, a convention is in contemplation between France, Belgium, and Germany for working the telegraph, it will give an opportunity for settling about the charges, by means of which the Austro-German Telegraphic Association seeks to prevent persons using the French lines for their despatches."

The telegraph connecting London with Paris, and which will soon connect it with Lyons, Chambrey, Turin, and Genoa, is to be prolonged to La Spezzia by the Sardinian Government. From that port the Submarine Company, it is said, is to sink an electric cable to the island of Gorgona, and thence to Bastia. The French Government will then continue the line, by land, at its own expense, to Ajaccio, and the narrowest point of the Straits of Bonifacio, where a cable 14 kilometers in length will, at the expense of the company, establish a communication with Sardinia, which the Piedmontese Government will continue to Cagliari. M. Bonelli, the author of this plan, has proposed to the Submarine Company to prolong the cable to Tunis, whence France would conduct wires to Bougie and Algiers, while England would conduct others to Tripoli, Alexandria, Cairo, and Suez. By this means Algiers would be brought within a few seconds of Paris, and news from India might reach London in little more than a week!

THE BRITISH ASSOCIATION AT BELFAST.

ON the 1st inst. the yearly business of the British Association was opened in Queen's College, and in May-street Church, Belfast, with, we are glad to observe, a good attendance. At the first general meeting, which was held in May-street Church, about 1,000 persons were present to hear the address by Colonel Sabine, this year's president. The Lord-Lieutenant—the Earl of Eglintoun—and his suite, with most of the leading men of the city and of the surrounding districts, were there. The meeting was opened by Sir R. Murchison. The address of the president was, as usual, a *resumé* of the state of science in general, particularly of subjects connected with those branches of it with which the president was more versant; such as astronomy, terrestrial magnetism, the trigonometrical survey, science of the tides, &c. and the question of a north-west passage. He notified that our Government had acceded to the request made by the United States Government, that scientific publications for the purpose of presentation should be admitted duty free, conditionally that they should pass through the Royal Society. This concession, so imperatively demanded for the advance of science, was speedily followed by a remittance from the United States, which was of such magnitude as to amount to three tons in weight. The Colonel concluded his able address by some observations on the advisability of science being more directly represented in Parliament—a question which had been mooted, but to which he could not give his support.

The report read at Queen's College by the general secretary, Professor Forbes Royle, F.R.S. gave details of the transactions of the council during the intermediate period. These transactions had reference chiefly to the successful applications for grants from the Government and East-India Company to aid in the publication of scientific works by Drs. Hooker and Thompson, Messrs. Huxley, Strachey, and Winterbotham, and to the representations made by them to the Government respecting the importance of sending out ships to extend our acquaintance with the phenomena of the tides of the Atlantic Ocean. An explanation was given in reference to some important sectional recommendations of last year, which had not reached the committee sufficiently early to be included in their report. Invitations for future meetings of the association were reported from Hull, Liverpool, Brighton, Glasgow, and Leeds, and some details were given of the proceedings at the establishment at Kew, and of the arrangements for balloon ascents, two of which have already taken place, and were to form the subject of a paper in one of the sections. The auditor's report of the treasurer's account for the past twelve months showed a balance in hand of 237*l.* 9*s.* 11*d.*

DISCOVERY AT ST. MARY'S REDCLIFF, BRISTOL.

THE removal of the lining of one of the modern ugly pews in the south aisle of the nave of St. Mary Redcliff, disclosed, under the window in the fifth bay from the west end, a large foliated arched recess, 6 ft. 4½ in. long, and 1 ft. 7 in. deep, and 5 ft. 4 in. high in the centre. The hood-mould, crocketed, foliates the reverse way, so as to produce a cusped outline, the cusps terminating in finials, and the whole resembling in arrangement the well-known monumental recesses in Bristol Cathedral. All the projecting portions had been cut away to make a level surface; but sufficient of the crockets, finials, &c. were found amongst the rough masonry with which the recess was walled up, to admit of its correct restoration, if it should be determined on. On the plain surface of the wall, on either side of the upper part of the recess, the remains of a black-letter inscription are visible. This discovery led to further examination, and in the wall under the adjoining window, eastward, another recess similar in general outline, but quite different in the details, was found. All the projecting parts had been cut away there, too, but portions were built up in the masonry, as in the other case.

In the south transept there are, as is well known, stone effigies, attributed to the first Canynges and his wife, within a canopied monument, to which they do not belong. On the discovery of the first of the recesses, it was found that it agreed precisely in length with the male effigy, and this, in some degree, prompted further examination to discover a second. The belief that we have here the original locality of the effigies in question, has been strengthened by the fact that in the second recess was found some panelling with a shield, on which have been painted in black, with the eyes and teeth white, three Moors' heads, the arms of Canynges; and on removing the earth below, a skeleton was found, which, from the size of the bones, &c. is thought to be that of a female. We have not yet examined critically into the matter, but shall do so, as it is one of considerable interest, bearing, too, upon the age of the different parts of this exquisite building. Mr. Godwin had long since expressed his opinion that this south wall of the nave, which, in its present aspect, is of the Perpendicular period, like the greater part of the church includes portions of the south wall of the earlier building, the building which belonged to the inner north porch. The "responds" to the clustered columns, which carry the groined vaulting of the aisle, are quite different from any others in the church, and much earlier—earlier than the monumental recesses which have been found below.

Notices of Books.

RAILWAY SERIALS.

Murray's Railway Reading.
Longman's Travellers' Library.

MR. MACAULAY's admirable essay on "Lord Bacon" forms a recent number of the latter work, and one which we heartily welcome. Writings of this class being brought into general circulation, substituted, by their publication at small cost, for the mischievous rubbish to which the travelling population were at first restricted, cannot fail to have a considerable influence on the growing manners and thoughts. The system will produce, too, a great and advantageous change in the publication of works generally, if we mistake not: cheap books will make a buying public, and a buying public will make cheap books pay. The life of Bacon, greatest and meanest of mankind, is an oft-told tale; but we do not know so acute and discriminating a view of it as that taken by Mr. Macaulay. From this chequered spectacle of glory and of shame all must rise humbled but improved. Knowing

our own weaknesses, let us each view leniently the failings of others.

The last volume of the same serial is *Pictures from St. Petersburg*, from the German of Jerrmann, — pleasant reading. The writer gives the following account of the rebuilding of the Winter Palace at St. Petersburg, after it was burnt down : —

"Long gazed Nicholas in deep sorrow at the grave of one of the prime ornaments of his beautiful city. At last he raised his head, passed his hand over his brow, and said, quite cheerfully, 'This day year will I again sleep in my room in the Winter Palace. Who undertakes the building ?'

All present recoiled from the challenge. There stood around the Emperor many competent judges in such matters, but not one had the courage to undertake that which seemed impossible. There was a brief pause, and then General Kleinmichael, an aide-de-camp of the Emperor's, stepped forward and said, like the Duke of Alba to Don Philip, 'I will !'

'And the building is to be complete in a year ?' asked the Emperor.

'Yes, Sire !'

'Tis good ! Set to work !'

An hour later the still burning ruins were being cleared away. The destruction of the building had occurred in December, 1837 : by December, 1838, it was rebuilt. Three months later it was occupied by the court.

Kleinmichael had kept his word : the building was completed, completed in the time specified ! but—at what a price ! ! Only in Russia was such a wonderful work possible ; only in Russia, where the will of the 'Master' is a decree of Providence ; only in Russia, where they spare nothing, recoil from nothing, to fulfil his commands.

Under the Empress Elizabeth the palace had taken eight years to build : Kleinmichael completed it in one. True it is that almost the whole of the masonry resisted the fire, but the whole of the interior had to be reconstructed ; and what a task that was ! The work went on literally day and night : there was no pause for meals : the gangs of workmen relieved each other. Festivals were unheeded : the seasons themselves were overcome. To accelerate the work, the building was kept, the winter through, artificially heated to the excessive temperature of 24 to 26 degrees Reaumur. Many workmen sank under the heat, and were carried out dead or dying : a painter, who was decorating a ceiling, fell from his ladder struck with apoplexy. Neither money, health, nor life was spared. The Emperor, who, at the time of the conflagration, had risked his own life by penetrating into the innermost apartments to save the lives of others, knew nothing of the means employed to carry out his will. In the December of the following year, and in proud consciousness of his power, he entered the resuscitated palace and rejoiced over his work. The whole was constructed on the previous plan, but with some improvements and many embellishments. With the Empress on his arm, and followed by his whole family, he traversed the apartments of this immense building, completed, in one year's time, by the labour of thousands of men. He reached the saloon of St. George, the largest and most beautiful of all, and the royal family remained there longer than anywhere else, examining the costly gold mouldings of the ceiling, the five colossal bronze chandeliers, and the beautiful relievo over the throne, which represents St. George slaying the dragon. The Empress was tired, and would have sat down : *the patron spirit of Russia prevented her :* as yet there was no furniture in the hall, so she leaned upon the Emperor's arm and walked into the next room, followed by the entire retinue. The last of these had scarcely passed through the door when a thundering crash resounded through the palace, which trembled to its very foundations, and the air was darkened by clouds of dust. The timbers of the ceiling of the saloon of St. George had yielded to the weight of the chandeliers ; and the whole had fallen in, crushing everything beneath its enormous mass. The saloon, a moment before so brilliant, was a heap of ruins. The splendid palace was again partly destroyed, but the genius of Russia had watched over her destiny—the imperial family were saved."

The Art of Dining ; or Gastronomy and Gastronomers, in Mr. Murray's series, we had put by, with the half-resolve to write a long article upon the subject, so many thoughts and notions the perusal of its pleasant pages had raised. Other things, however, more professional if less *palateable*, demand our space. The art of dining affects all of us : *il faut dîner* is a truth of universal application, and the mode of doing this well and artistically might with great propriety be treated of in our pages. One of the great merits of the essay, witty and anecdotical throughout, is the endeavour to remove the vulgar notion that a dinner to be good must be expensive—a fatal mistake, preventive of much social enjoyment. To say nothing of those

"Who think less of good eating than the whisper,
When seated near them of some pretty lisper,"

nine-tenths of the recipients of a grand state dinner, formal and costly, would infinitely prefer a fish, a joint, and a bird, with freedom and good talk.

"Boys, 'tis little I care to dine
Where the host is vain and the guests are fine,
Where the wines are warm and the dishes cold,
And the mutton is young and the spinsters old."

Some of the most delightful dinners in memory have been the simplest—all wit, fun, and good sense, with merely "flashes of silence." "Cheerful looks make every dish a feast." The very essence of a dinner is absence of ceremony. Half the dinners that one goes to, offer but dry leaves instead of flowers : they are but mockeries of enjoyments, waste of hours, through fear of tyrant Custom and desire to be thought "genteel." Mr. Walker, of "The Original," truly says, "Any body can dine, but very few know how to dine so as to insure the greatest amount of health and enjoyment." Those who will help society to this knowledge, strangle foolish forms, and substitute for wasteful expenditure good taste, good sense, and good humour, should be regarded as its benefactors.

Popular Tables, arranged in a new form, giving information at sight for ascertaining, according to the Carlisle Tables of Mortality, the value of Lifehold, Leasehold, and Church Property, Renewal Fines, &c. By Chas. M. Willich, Actuary. Longman, Brown, and Co. 1852.

These seem to us a very valuable set of tables; they will be found useful by all our readers. The author has endeavoured to render the subject less intricate, by a simple arrangement of the figures, showing at once both the number of years' purchase, and the present value of 100*l.* a year. A correct idea of the value of any property is thus conveyed to the mind at sight ; and, if required, an exact valuation of any amount of annuity or rental may be readily obtained. Reference to the experience of assurance offices has proved to him the superiority of the *Carlisle* over the *Northampton* table of mortality, as a measure of the duration of human life. Up to the present time, the only tables involving three lives, were those computed by Mr. Francis Bailey, so far back as 1802, according to the *Northampton* table of mortality. The Carlisle tables make the average of life longer than the Northampton. Thus, at 40, the expectation of life by the Northampton is 23 years and '08 parts, whereas by the Carlisle tables it is 27·61, and the experience of assurance offices confirms the latter calculation. Amongst many novel tables Mr. Willich has given, in addition to one for the renewal of one life in a lease originally granted for three lives, a table showing the fine payable for the renewal of two lives in a similar lease.

The Builders' Pocket Book of Reference ; containing numerous Tables, calculated from Experiments on the strength of Timbers, Wood, and Iron Beams. &c. By Henry Malpas, Surveyor. Rouse and Co. 47, Bow-lane, Cheapside.

This is a hand-book to assist the merely practical in arriving at a knowledge of the strength of materials. Besides giving from personal experiments the weight timbers of various scantling will bear without bending, what will cause a 3-inch deflection, and the breaking-weight of the same ; the strength of iron beams ; the weight straps and bolts will resist ; the adhesive power of nails, &c. it contains much elementary information very necessary to all connected with building, and forms altogether a little volume which will be very serviceable for those for whom it is intended.

Miscellanea.

Walking, Feet upwards, on a Ceiling.—A somewhat dubious announcement was some time ago made, that an American had invented an air-exhausting apparatus for the feet, whereby he was enabled to walk along the under-surfaces of ceilings, &c. It would appear that there must have been more truth than mere Yankee *invention* in the announcement, for the poor man has fallen a victim to his singular enterprise, not from inability to perform his boasted feat, in which he must have repeatedly succeeded, but from strange rashness subsequently, in trusting his weight under such circumstances to a *plaster* ceiling. He is said to have been a circus performer, and the *Wolcot Standard*, Wayne county, states that he had actually walked across the under surface of the circus roof in perfect safety ; but from insinuations of jugglery, incidental doubtless to his profession, and quite natural under the circumstances, he offered to test the invention anywhere "on a ceiling having a smooth surface of sufficient strength to sustain his weight." The town-hall was accordingly selected, and the unfortunate inventor, Mr. Sands, is said to have walked several steps along the ceiling, when the plaster, on his return, gave way, as might have been anticipated, and the poor acrobat was precipitated head foremost to a depth of eighteen feet, and broke his neck. A failure like this would only prove the reality and the efficiency of such an apparatus, the nature of which it would be well not to lose sight of ; for it might be made as useful in interior decoration or repair, &c. of large buildings, where expensive scaffolding is at present necessary, as the diving-bell in submarine engineering and other works. The possibility of its realization may be made manifest to an unscientific mind by reminding it of the toy of boyhood, consisting of merely a soft leather disc, which, when moistened with water and pressed on a stone, will sustain its weight, even though pretty heavy, by simply pulling it into a void cone with a string fixed beforehand at the centre of the disc.

To America by Steam in Forty-eight Hours !—It is seriously proposed by Mr. D. S. Brown, a correspondent of the *Mining Journal*, to shape ships in such a way that, propelled by steam, they will rise to the surface of the sea altogether, and skim along it, so long as they *are* kept in motion, at the rate of thirty to sixty miles an hour,—thus, figuratively speaking, and as juveniles will at once comprehend the thing, making "ducks and drakes" of our steam shipping. This he proposes to do by giving them a greater depth of beam, and making the under surface flat, in two inclined planes, whereby, he calculates, that—the whole hull rising, while in motion, to the surface—the resistance at the bows, the great obstacle to progress, will be entirely removed. The hull is to be altogether of a square tubular form, the deck, bottom, and sides being of great thickness, and, in order to combine strength with lightness, intersected throughout with hollow cells or cavities, consisting of central cells, surrounded by smaller : by means of these the weight of the vessel would be reduced to one-eighth of the usual amount, and still have nearly all the advantages of solidity. The sanguine inventor believes that India might thus be reached in a fortnight (by the Cape, of course), and America in a couple of days !

Monument to Titian.—The *Athenæum* says,—A large sculptural monument, executed by the Brothers Zandomeneghi, has been solemnly consecrated to the memory of Titian in Venice ;—a city in which almost every monument, from the ducal palace down to the Academy of Fine Arts, is itself a monument to the great master. The group consists of a figure of Titian, surrounded by other figures representing the arts, and supported by sculptural representations of the fifteenth and the nineteenth centuries. The base of the monument is adorned with five bas-reliefs of the most celebrated of Titian's pictures. An imposing ceremonial attended the uncovering of the group, in which the military played a conspicuous, if not a very appropriate, part.

CAUTION TO WELL-SINKERS.—Many well-sinkers, a class of men who ought to know better, appear to be utterly ignorant of the fact that wells frequently contain an invisible water, which will as certainly drown those who plunge over head into it, even for a very few minutes, as the visible and ordinary water ever can do,—much more certainly, indeed, inasmuch as the invisible carbonic acid is more insidious, and neither excites those convulsive efforts which prevent choking by the reception of water into the lungs, nor buoys up the drowning body till the vital air is reached. A case of drowning in choke damp, as miners call it, has just occurred at Douglas, in the Isle of Man, where, in consequence of a stoppage in a pipe leading from a well, a workman uncovered the well, and began at once to descend by means of steps made in the shaft. He was presently heard to fall into the water. The owner followed to see what was amiss: he also fell to the bottom. A third man with a rope fastened to his body then ventured down, and while trying to tie a rope to one of the sufferers, the foul air began to take effect on him also, and it was necessary to draw him up. Eventually the two bodies were got out by means of drags: both were dead. It would have cost little trouble to have ascertained, in the first place, whether the well contained foul air, by lowering a lighted candle; for wherever a candle will not burn in still air, there no man can breathe.

EMBELLISHMENT OF THE CITY OF LONDON HALLS.—On this subject, to which the council of the Art-Union of London forcibly drew attention in one of their reports some years ago (echoed by many of the journals), papers have been given in the present and previous number of the *Art-Journal* by Mr. E. Hall. He begins with the Mansion House, and gives his ideas of how it should be treated. The writer says,—"Few persons are aware of what we discovered with some surprize, since it is not noticed in the work of Britton and Pugin, that the *whole* of the interior of the block of building was an open court of elaborate character, similar to that part of an Italian palace, except that there are no galleries, but scarcely fitted for the inclement weather of the English climate, particularly if the guests passed through the open air, which would appear to have been the only direct access to the Egyptian Hall. It is also right to notice that the erection which now forms the saloon is of wood,—a fact which should be properly regarded, both in reference to durability and to danger of fire; and it might be a question to submit to the able architect to the corporation, whether a better use might be made of this central area, and advantage taken of the original decorative character of the internal elevations, and at the same time more light given by opening original windows to rooms which imperatively call for it, by inclosing the whole space under one roof at a much higher level, the light being admitted copiously through coffers formed by the intersection of beams in the ceiling, or by other well considered arrangement."

VENTILATION OF MINES.—On reading a late article on the ventilation of coal-mines, it occurred to me that the principle of Ericcson's caloric engine is peculiarly appropriate to that purpose. Perhaps this hint may set some of your philanthropic and scientific readers thinking on the subject. BOREAS.

COMPETITION AMONG BUILDERS.—"C.F." is most decidedly wrong in his statement in regard to building materials, for the market is open to *every* one, and very little advantage given to large purchasers: neither is it difficult for an architect (who thoroughly understands his profession) to prize work according to the existing rate of wages and price of materials: it is from ignorance in these matters that many architects encourage the system of contracting. As a builder I have had some experience in the working of the system, and find that it tends to deteriorate workmen, and bring into existence a lot of petty contractors, who have neither capital nor ability to execute good work. (*Here* they lose "reputation.") Then, after the most accurate estimate, a builder, calculating at times' prices, may become a heavy loser by an advance in materials or a strike for wages, which latter is far more common at a contract job than any other. (*Here* they lose "profit.") In my opinion there are only three things wanting to dispense with both public and private contracts, viz. honourable employers, competent architects, and respectable builders.—JACK PLANE.

RATING PUBLIC COMPANIES.—The property held by railway, gas, water, and other public companies amounts to an enormous sum; and from the want of any definite principle of rating such property to the relief of the poor, and other matters, great loss and inconvenience are constantly arising, and which, there is every reason to apprehend, will continue to be the case till some remedy is applied. We understand that many of the parochial authorities are therefore addressing the Poor-law Board on the subject, and entreating them to direct their attention to it, with the least possible delay, in order that a legislative enactment may be obtained in the ensuing session of Parliament, declaring the principle upon which all public companies shall in future be rated. A return of the sums of money wasted in litigation on this subject, through want of settled principles, would be a startling document.

A HINT TO ARCHITECTS.—The following passage occurs in Crawfurd's "Ava," and shows graphically how they correct architectural mistakes in Burmah—*Verbum sap.*:—"The workman who built the present palace (Ava) committed some professional mistake in the construction of the spire. The king remonstrated with him, saying it would not stand. The architect pertinaciously insisted on its stability and sufficiency, and was committed to prison for contumacy. Shortly after the spire fell *in a thunder-storm*, upon which the architect was sent for from prison, taken to the place of execution, and decapitated."

"GLASGOW IN 1852."—It is divided, like Edinburgh, into Old and New Town, and although it cannot boast of a romantic site, or of venerable antiquity equal to that queen of cities, still its older portions present features not less picturesque, whilst its noble cathedral is a monument of architecture to which its inhabitants point with justifiable pride. The modern division of Glasgow conveys an exalted idea of the wealth of its citizens and of that love of architectural magnificence which may be said to be characteristic of our northern compatriots, whilst the beauty of the material of which the Scottish cities are built attracts the admiration of Londoners accustomed to brick and compo. Besides this advantage in material, and their durable construction, many of the buildings in the classic style exhibit great merits in the design, although it must be said that others are devoid of it altogether. In Gothic architecture, judging from the churches which we saw, the Scottish architects have nearly everything to learn: we had not conceived it possible to erect such ungainly and poverty-stricken combinations of stone and lime. The Scotch, particularly in the west, appear to have absolutely no idea whatever of the proper nature of an edifice dedicated to the service of religion. The contrast between England and Scotland is in this respect infinitely in favour of the former, and the English architects have left their Scottish brethren immeasurably behind in ecclesiastical design.—*Art Journal.*

TENDERS

For building additional wings and a chapel, Sussex County Hospital, Brighton; Mr. Herbert Williams, architect, London.

	Wings.	Chapel.	Total
Fabian, Brighton	£5,794	£1,421	£7,215
Terry, Brighton	5,721	1,394	7,115
Patching and Sons, Brighton	5,600	1,355	6,955
Cheesman and Sons, Brighton	5,600	1,297	6,937
Bushby, Little Hampton	5,420	1,375	6,795
Thompson and Crosswell, London	4,988	1,256	6,244

For building eight pair of semi-detached houses, at Stratford, Essex. Mr. Wm. Lambert, Architect.

Cooper	£3,734	0	0
Vaughan	3,600	0	0
Thompson	3,578	0	0
Reycroft	3,400	0	0
Binder (accepted)	3,344	0	0
Sutton and Co.	3,300	0	0
Barley	3,280	0	0

TO CORRESPONDENTS.

"M. and Co." "A. B." (the Office of Works would seem to offer the best field for endeavour), "Mr. Wylson's Land Table" (in reply to several inquirers, this table, noticed by us, is not obtainable), "C. B." (the article would require more corrections to fit it for publication than we have time to make), "R. K. P." "Q. E. D." (will find a letter at the office), "E. W." "M. J. S." (we have already mentioned the fact), "W. B. A." "Hon. Mr. G." (shall hear from us), "T. H. H." (the British Museum is now open. We do not know of a copy elsewhere), "Rev. E. Y." "J. S. L." (it is against our rule to give addresses and prices. The competition referred to is not yet settled), "W. W." (must apply at the office), "J. J." "T. F. S." "F. C. C." "F. P." (we quite understand. We shall endeavour to see the buildings mentioned, being influenced, as Mr. P. is probably aware, by no sectarian considerations), "C. D. J." (may "*see* our journal at the newsroom," but evidently does not read it), "W. R. W." (shall appear), "W. S." "H. J. D." (it has been determined that the Ordnance survey of Fife shall be made on the *six inch* scale), "E. S. T.," "W. B.," "Artisan" (apply to Society of Arts. We gave the names some time ago), "Amelia" (next week), "A. F." (the original Northumberland House was built in 1605: Bernard Jansen and Gerard Christmas are supposed to have been the architects. The Strand façade alone of the old building remains. An account will be found in THE BUILDER for 17th May, 1851). "Competitor" (the medals are now in course of distribution to those who submitted plans for Exhibition building).

ERRATUM.—In our reference to the results of the "Baconian Philosophy," in last Number (first column of Leader), *for* "shortens" (a slip of the pen), *read* "lengthens."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

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By order, EDWARD S. STEPHENSON,
(Clerk and Solicitor to the Trustees.

NOTE. The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

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H H for engineering.		B black for shading.	
H for sketching.		B B	ditto ditto.
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17	1	9	1	1	7	0
18	1	11	3	1	8	10
20	1	14	4	1	11	6
24	1	17	0	1	13	8
28	2	0	0	1	16	2
*30	2	5	0	1	18	9
31	2	8	8	2	2	11
35	2	13	0	2	6	4
40	2	19	9	2	13	0
44	3	5	4	2	17	2

Age next Birthday.	A MALE. Whole Life Premiums			A FEMALE. Whole Life Premiums		
	£	s.	d.	£	s.	d.
46	3	11	6	3	3	2
50	4	1	9	3	11	4
54	4	11	6	4	2	6
58	5	4	1	4	14	0
60	6	6	0	5	12	6
64	7	4	0	6	9	6
66	8	4	0	7	10	8
70	10	0	4	9	7	6
74	11	16	2	11	2	6
76				12	1	9
78				15	12	10

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Clerks who have paid five annual premiums, and who are from [illegible] to keep up the payments, may [illegible] premiums paid from the Benevolent Fund.

The Association at the present time has on its funds five aged clerks, who receive 15L per annum each; twenty-three widows of clerks, with pensions of 10L per annum each.

By order of the Board,
PHILIP HENRY BYLNE, Sec.

42, Moorgate-street, August 4, 1852

TO ARCHITECTS.

COMPETITION and other DRAWINGS.—Mr. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen," &c. and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 18, Albany-street, Regent's-park.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manner of painting, whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons and Architect in particular, that he has considerably increased his Establishment, and is now enabled to undertake, at short notice, the embellishment of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Medieval, or Modern Styles. Apply to F. SANG, Decorative Artist, 58, Pall-mall, London.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied, lithographed, or printed.

PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved

BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous. TRACING PAPERS and CLOTH; ditto in lengths.

GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.

WATERLOW and SONS, 63 to 68, London-wall; and 49, Parliament-street, London.
Contracts for the supply of large establishments

BILLS of QUANTITIES.—DAY and SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.

Perspectives got up from Geometrical Drawings, either in Outline or Water Colours.

17, GATE-STREET, LINCOLN'S-INN-FIELDS.

IMPORTANT to FAMILIES FURNISHING, who study Elegance with Economy.—French-polished Mahogany Arabian Bedstead, three guineas; Bedding, Cabinet, Carpet, Looking-glass, and Upholstery Warehouse. Estimates given, and a list of prices sent free.

JAMES COOK, BROMPTON HOUSE, 23 and 24, QUEEN'S-BUILDINGS, KNIGHTSBRIDGE.

ARTESIAN WELLS, Boring for Water, Sinking Shafts, &c.—The Nobility, Gentry, Water Companies, Towns, Poor-law Unions, Public Baths, Brewers, Distillers, Papermakers, Manufacturers of every description, may be SUPPLIED with any quantity by DAVID GREENLEY, Civil Engineer, and patentee of boring tools, 10, Cumming-street, Pentonville, London, who, having had upwards of twenty years' experience, is enabled to give the most satisfactory and highly respectable references. Pumps and machinery of every description for raising water from deep wells, boring tools, with suitable pipes, for exportation, with instructions. Men and tools supplied to bore for railroads, minerals, &c.

On the 20th of September will be published, price 5s. 6d. in cloth,

THE FIFTH VOLUME OF

HOUSEHOLD WORDS:

A Weekly Journal, conducted by CHARLES DICKENS.

Designed for the Instruction and Amusement of all Classes of Readers, and to assist in the Discussion of the Social Questions of the Time.

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Also, price 3s. each in cloth, the first and Second Volumes of

THE HOUSEHOLD NARRATIVE OF CURRENT EVENTS;

BEING A RECORD OF THE PUBLIC EVENTS OF 1850—51.

OFFICE, 16, WELLINGTON STREET NORTH.

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CAKES and ALE, being the Fourth Volume of the Collected Edition of the Writings of Douglas Jerrold.

*** Volumes 1, 2, and 3, price 4s. each, in cloth, may be had by order of any Bookseller or Newsvendor, and at all Railway Stations.

BRADBURY and EVANS, 11, Bouverie-street.

Now ready, in large type, 2 vols. price Two Guineas, or in 1 vol. small type, double columns, price One Guinea

EXHIBITION, 1851.—The REPORTS by the JURIES on the Subjects in the Thirty Classes into which the Exhibition was divided; printed uniformly with the "Official Descriptive and Illustrated Catalogue."

SPICER BROTHERS, Wholesale Stationers;
WM. CLOWES and SONS, Printers.
Tudor street, New Bridge-street, Blackfriars.

THE TRAVELLER'S LIBRARY.

Just published, in One Volume, 16mo. price Half-a-Crown; or in Two Parts, price One Shilling each,

PICTURES from ST. PETERSBURG.
By EDWARD JERRMANN.
Translated from the Original German by
FREDERICK HARPMAN.
Forming the Twenty-seventh and Twenty-eighth Parts of "The Traveller's Library."

Just published, price One Shilling each,

25. LORD BACON. By THOMAS BABINGTON MACAULAY.

26. ELECTRICITY and the ELECTRIC TELEGRAPH: together with, The CHEMISTRY of the STARS. By GEORGE WILSON, M.D. F.R.S.E.

London: LONGMAN, BROWN, GREEN, and LONGMANS.

On September 13th will be published,

METAL WORK, and its ARTISTIC DESIGN.
By MATTHEW DIGBY WYATT, Architect.

In fifty fully-coloured plates, being fac similes of the original drawings of the Author, some hundred specimens of the most admirable relics of the Middle Ages, and of the period of the Renaissance, have been collected. To the gold and silver-smith, sword-cutler, bronze-worker, ironfounder, lock maker, brass-founder, and all connected with design, &c. the objects so represented offer a model for study and imitation; and it is conceived that the carefully selected a series, illustrating the history of one of the most important branches of human industry, cannot fail to interest the public at large.

The subjects of the plates have been taken from monuments preserved in the most important museums and churches at home and on the Continent, and will be accompanied by an Essay, in which the principles and history of Artistic Design in Metal will be elaborately entered into.

Price, large folio, half-bound Morocco, price £4.

London: DAY and SON, Lithographers to the Queen, 17, Gate-street, Lincoln's-inn-fields.

Just published, in a convenient size for the pocket, neatly printed in a good clear type, price 5s.

THE BUILDER'S POCKET-BOOK of REFERENCE: containing numerous Tables, calculated from Experiments on the Strength of Timber, Wood and Iron Beams, Iron Columns, &c.; the Strength and Weight of Straps and Bolts; the adhesive power of nails of different sizes; with plain observations upon Roofing, Flooring, Sheeting, &c.; and a variety of other information useful to all persons connected with Building. To which is added a Concise Method of Calculating the Value of Leasehold and Freehold Property.

By HENRY MALPAS, Surveyor.
London: ROUSE and CO. 47, Low-lane, Cheapside.

THE BEST MATTING and MATS, of Cocoa-nut Fibre.—The Jury of Class 28, Great Exhibition, awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate-hill, London.

CHURCH BELLS of the highest quality of tone and finish, at 1s. per lb. Peals of bells recast and augmented House bells, with turned edges and wrought-iron clappers, at 10½d. per lb. Packs at proportionately reduced prices. Apply to BARRETT and OSBORNE, Bishopsgate Foundry, Skinner street, London.

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ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, and reasonable terms, by J. GIBBS and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

TO CONTRACTORS, BUILDERS, AND OTHERS.

JAS. COVINGTON and Co. Licensed Lighterman, beg to inform the above that, having a large STOCK of RIVER and CANAL BARGES, they are enabled to undertake the LIGHTERAGE of all GOODS at reasonable prices. Orders addressed to 26, Nicholas-lane, Lombard-street, City, will meet with prompt attention. Agents for Great Northern Railway Company.

ROBSON and SON'S IMPROVED WHEEL TIRE, for lessening the draught of Vehicles, and reducing the friction upon the axles.—R. and Son, Wheelwrights and Hoop Tire-smiths, having registered an Improved Iron (which is manufactured by a process recently patented), are prepared to tire wheels with the above iron, which has many advantages over the flat tire, as the strain is removed from the front and back edges to the centre, thereby decreasing the draught greatly, in vehicles with six-inch tire and under.—N.B. Old wheels can be new tired with the above iron.—Lists of prices may be had on application at the factory, Liquorpond-street, and Laystall-street, Gray's-inn, Holborn, London.

GAS CHANDELIERS, HALL LANTERNS, &c.—To Gas-fitters, Ironmongers, and the Trade generally.—The most complete assortment in London of every description of Gas-fittings, suitable for drawing and dining rooms, libraries, halls, &c. Every article manufactured on the premises, and marked with the wholesale price. Dr. Arnott's improved Ventilators, Patent Gas Meters, &c. at D. HULETT and CO.'S, 65 and 50, HIGH HOLBORN.—N.B. Large pattern book of engravings, with price list, 10s.; small ditto, 3s. D. Hulett's improved orrice Cleanser.

SUBURBAN ARTISAN SCHOOLS. — The NORTH LONDON SCHOOL at Camden Town, will REOPEN on WEDNESDAY EVENING, September 10th. The Art Classes for instruction in Drawing and Modelling will be reopened on the first evening at 8 p.m. The Geometry Classes for instruction in Perspective and the Elements of Geometrical Drawing, will reopen on Thursday evening, at 8 p.m. The Female Classes will recommence on Thursday Evening, at 8 p.m.

Admission, 2s. per month. The rooms will be open every evening, and attendance given in the Library on Monday evenings.

J. NEVILLE WARREN, Hon. Sec.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of all who are interested in building, to employ a fire-proof material, of imperial feature cannot be substituted for timber in the construction of floors, &c. without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, in which the above important feature, in which portions either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late FOX and BARRETT),
12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by fi hounding the rails, as exhibited by the new system, from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 26th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the railway and rolling stock, and adds great to the comfort and security of the passengers. The Patent Fish-joints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway
East Indian
Edinburgh and Glasgow
Egyptian
London, Brighton, and South Coast.
London and North-Western.
Midland.
Monmouthshire.
North and South Western Junction.
Waterford and Kilkenny.
York and North Midland
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Dublin and Belfast Railway
London and North Western
Midland
Midland Great Western (Ireland).
Newport and Abergavenny.
South Wales.
West Cornwall.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They were adopted on the

East-Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the getting in efficiency their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E., Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 26, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 26th of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 26th August:—

"The result of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the board having been directed to the best mode of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

THE PERMANENT WAY COMPANY beg to inform Boards of Directors, Engineers, and others, interested in railways, that in order to facilitate negotiations for the use of their patented improvements, now so extensively adopted, they have arranged with Mr. CHARLES MAY, Civil Engineer, 3, Great George-street, Westminster (lately of the firm of Ransomes and May, Ipswich), to manage their transactions. Communications made either to him, or to the undersigned, will meet with prompt attention. WILLIAM HOWDEN, Secretary.

Offices, 26, Great George-street, Westminster.

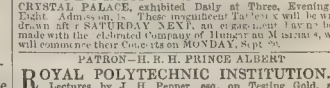
THE GOLD FIELDS of AUSTRALIA.—This New Moving PANORAMA, painted by J. S. Prout, from his Sketches made upon the Spot, is EXHIBITED daily at 3 & 7, Regent-street, next the Polytechnic. Among the principal scenes are:—Plymouth Sound—Madeira—Cape of Good Hope—South Sea Whale Fishery—Melbourne—Geelong—The Road to the Diggings—Mount Alexander—Sydney—The Blue Mountains—Summer-hill Creek Ophir—Encampment of Gold Diggers by Moonlight. It being desirable that the scenes should be described by one personally acquainted with the Colony, Mr. Prout has, for a short time, undertaken that office. Admission, 1s.; Reserved Seats, 2s.; Gallery, 6d. At Three and Eight o'clock.

ROYAL COLOSSEUM (every MONDAY at HALF PRICE).—The Panorama of London, Saloon of Sculpture, Conservatories Gothic Aviary, Swiss Cottage, &c. &c. Open daily from half-past Ten till Five o'clock. In the Evening, from Seven till Ten, "Paris by Night," and the whole Establishment brilliantly illuminated.—Admission, Day or Evening, 2s. Children and Schools half-price.

CYCLORAMA.—LAST WEEK of the CRYSTAL PALACE, exhibited Daily at Three, Evening at Eight. Admission 1s. These magnificent Tableaux will be withdrawn after SATURDAY NEXT, an engagement having been made with the celebrated Company of Hungarian Musicians, who will commence their Concerts on MONDAY, Sept 29.

PATRON—H. R. H. PRINCE ALBERT

ROYAL POLYTECHNIC INSTITUTION.—Lectures by J. H. Pepper, esq. on Testing Gold, and on the Australian Gold Districts. By Dr. Bachhoffner, on the Patent Polytechnic Gas Fire; and on the Mode of Preserving Fresh Provisions, illustrated by Specimens from Messrs. Ritchie and Medal and Samples of Fa culhe's Dried Preserved Milk, and Moore's Patent Concentrated Milk.—By Mr. Cringe, on Morrall's Patent Needles.—By George Buckland, esq. on Music, entitled "Musical Varieties," with Vocal Illustrations, assisted by Miss Isabella Lavanu, R.A. of Music.—New Series of Dissolving Views, &c. &c.—Admission, 1s.; Schools and Children under ten years of age half-price. For hours see Programme.

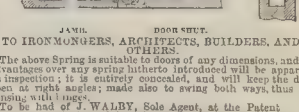


JENNINGS'S PATENT SHOP SHUTTER-SHOE and PASTENER costs HALF the PRICE of the unsightly SHUTTER BAR.

May be had from any Ironmonger, or from the Patentee, GEORGE JENNINGS, 24, Great Charlotte street, Blackfriars road.

PATENT DOUBLE and SINGLE ACTION and SYMPATHETIC DOOR SPRINGS; Patent Weather-tight Fastenings and Silibars, for Casements; Patent Copper-wire Rope, Lightning Conductors, Sash Lines, Picture Cords, &c. the Improved Patent Revolving Iron Shutters, and various Patent and other Inventions for Builders and Contractors, are manufactured, as usual, by A. SMITH, Engineer and Founder, 63, Princes-street, Leicester-square, where price-cards, ingrams, &c. may be had on application, or forwarded post-free

SAVAGE'S INVISIBLE DOOR SPRING.



TO IRONMONGERS, ARCHITECTS, BUILDERS, AND OTHERS.

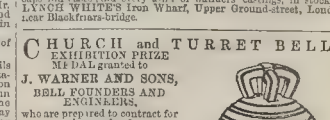
The above Spring is suitable to doors of any dimensions, and its advantages over any spring hitherto introduced will be apparent on inspection; it is entirely concealed, and will keep the door open at right angles; made also to swing both ways, thus dispensing with hinges.

To be had of J. WALBY, Sole Agent, at the Patent Depôt, 69, Greek-street, Soho, where models may be seen.

RAIN-WATER PIPES, O G and Half-round Gutters, Sash-Weights, Railing Bars, Air Bricks, &c.

J. JONES has the largest stock in London of the above and other castings, of the very best quality. Also, cast-iron pipes for gas, water, or drainage; bends, tees, &c.; flange and hot-water pipes, with all the usual connections; lamp-posts and turrets, stable fittings, pig troughs, &c. &c.—J. JONES, IRON BRIDGE WHARF, No. 6, BANKSIDE, LONDON, near the Southwark Iron Bridge.

IMPORTANT TO BUILDERS.



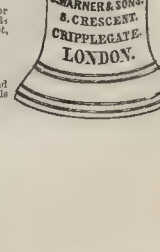
REGISTERED CAST-IRON CHIMNEY-HOPPER and CHIMNEY-BAR COMBINED, ensuring a perfect formation of the Flue, and rendering smoky chimneys impossible. One trial will cause their adoption in every building.

Price from 8s. 6d. each, according to size.

CAST-IRON KITCHEN SINKS, with overflow and cleansing pipe, at 8s. 6d. each.

RAIN-WATER PIPE and EAVE GUTTERS, at wholesale prices. Also, O G gutters, sash weights, STABLE FITTINGS, pumps, tomb railing, cattle and pig troughs, and COLUMNS with caps and bases, and every kind of builders' castings, in stock, at LYNCH WHITE'S Iron Wharf, Upper Ground-street, London, near Blackfriars-bridge.

CHURCH and TURRET BELLS.
EXHIBITION PRIZE MEDAL granted to
J. WARNER AND SONS,
BELL FOUNDERS AND ENGINEERS,
who are prepared to contract for the supply of
CHURCH BELLS
of any weight or key, singly or in peals, of superior tone. Peals augmented, cracked bells recast, rehung, &c.



MUSICAL HAND BELLS,
Clock, House, Ship, Cattle, and every other description of Bells kept in stock.
Old Bells taken in exchange.

ORSI AND ARMANI'S

PATENT METALLIC LAVA,

BROWN, WHITE, AND ORNAMENTAL,

AND

SEYSSEL ASPHALTE.

Messrs. O. and A. beg to inform ARCHITECTS, BUILDERS, &c. that in addition to their BROWN LAVA for floorings, roofings, &c. and their WHITE and ORNAMENTAL LAVA, for interiors of churches, halls, museums, vestibules (and in consequence of CLARIDGE'S PATENT for SEYSSEL ASPHALTE having expired), they are now ready to contract for work to any extent in GENUINE SEYSSEL ASPHALTE, imported by them from the original mines of Seyssel, and by their list of Prices, Architects, Builders, and Contractors will see a GREAT REDUCTION from those of any other importer.

A GUARANTEE IS GIVEN for work executed by O. and A. for THREE YEARS, free of any expenses.

For particulars, samples, and list of prices, at the Office, 6, Guildhall-chambers, Basinghall-street, City.

July, 1852.

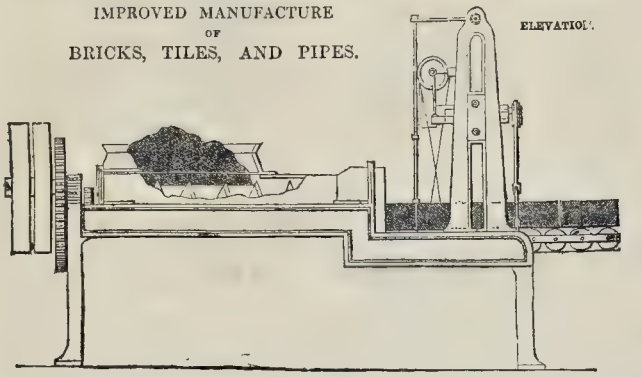
RANDELL AND SAUNDERS'S PATENT MACHINE

FOR THE

IMPROVED MANUFACTURE

OF

BRICKS, TILES, AND PIPES.



ELEVATION.

In this machine are combined the two objects so long sought in brick machines—a press which forces the clay through a die without cessation so long as the clay is supplied to the machine, and a perpetual self-acting cutter, which severs the clay the required lengths without interfering with its progress.

The clay, in a rough state, is thrown upon the screws by the person employed to fill the machine; the screws, in revolving, thoroughly pug the clay, and also force it forwards into a chamber at the other end of the cylinder in which they revolve; from this chamber the clay is allowed to issue through a die, and it is obvious that the stream of clay must take the form of the opening through which it passes, and this opening can be made of the form required to make bricks, tiles, pipes, and other descriptions of ware

When it is necessary to give the ends of the bricks a corrugated shape, this can be done by attaching a knife to the cylinder of the cutter; this knife revolves with the cylinder, and is made the shape required for the ends of the bricks, which form it imparts to the bricks in cutting them. This arrangement is adapted for making Messrs. RANDELL and SAUNDERS'S Patent Draining Bricks, for sewage purposes, which make a drain of much greater strength than the stoneware or redware pipes, and at far less cost.

The machine is self-acting—the attendants have merely to put in the clay, and remove the bricks, or other ware, which may be produced.

When worked with two-horse power, the machine will produce 1,000 bricks, or 1,800 2-inch pipes, per hour; more power can be applied if desirable, and a larger result obtained.

The screws propel the clay without taking air in with it; thus the ware comes out free from the imperfections which are so often seen in the ware produced by piston presses; and the loss so generally incurred by waste in burning, from the expansion of the air in the ware, is avoided.

The moderate price of this machine, and the simplicity of its construction, place it within the reach of almost every person in the trade, both as to cost and management. It not only lessens the cost of labour required in the process of brick making, but, as the clay can be used in a much drier state than it can be when moulded by the hand, the time occupied in drying is much less; and, when hollow bricks are made, a material saving is effected in the cost of manufacture and burning. In consequence of the great compression given to the clay in its transit, ware of very superior quality is produced.

For price and further particulars apply to RANDELL and SAUNDERS, Bath; CHARLES JOHN CARR and CO. Engineers Belper, Derby; STOTHERT, RAYNO, and PITT, Engineers, Bath; or to FOWLER and FRY, Engineers, Bristol

BRICK AND TILE MACHINES.

The Proprietors of HART'S PATENT BRICK and TILE MACHINES are now prepared to receive and execute orders with the least possible delay, but to prevent disappointment, they beg to state that they will rigidly adhere to the order in which they are received.

The advantages of the Brick Machine may be shortly described:—

1st. The clay is ground and the brick moulded by the same motion, and may be produced from clay that cannot be worked by hand

2nd. The bricks are superior in quality to hand-made, being of a uniform density.

3rd. The bricks pass from the mould to the pallet-boards without injury by handling, and are much sooner ready for the clamp.

4th. Is self-acting, portable, dispenses with skilled labour, and enables a contractor to estimate his product with certainty.

5th. Is warranted with two-horse power to make 3,000 bricks per hour, and will continue in working order for years.

6th. Saves 2s. 6d. per 1,000 in labour alone in the actual manufacture, but which will be found to be trifling compared with the enormous advantages in the use of untempered clay and the shortness of the time required between the mould and clamp

The above statements will be fully borne out on reference to any person using a Machine, and are confirmed by the performance of a Machine at the Yorkshire Agricultural Show, on the 7th of August, when, after a severe test, a Prize Medal was awarded to the Inventor, when the Machine made 2,700 first-rate Bricks within the hour.

Price ..... £200, net.

THE DOUBLE-ACTION HOLLOW-BRICK AND TILE MACHINE

Is very simple in construction, made entirely of iron, and will make with great rapidity. Hollow bricks of all sizes, and pipes of 4 inches diameter, and mouldings of 6 inches diameter; has two receiving tables, and may be worked by hand, horse, or steam power; travels on wheels, and may be worked by any ordinary labourer. If required, the dies for Robert's Patent Hollow Bricks, as exhibited in Prince Albert's Model Cottages in Hyde-park are manufactured for, and supplied with this machine.

Price for Hand Machine, complete..... £20, net.

Horse or Steam ..... 35, ,,

The price for horse work to drive one tile machine, 8l.; for two, 6l. 10s.; for three, 11l.

One horse will drive three machines

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SATURDAY, SEPTEMBER 18, 1852.

THE lawn of the Royal Dublin Society, facing Merrion-square, the site of the building for the proposed "Great Industrial Exhibition of 1853," is now full of activity. In one part sawyers are busily engaged in cutting timber for the work, and in the centre a large body of carpenters are framing the semi-circular ribs which are to form the roofs. A stone foundation has been put in, on which the whole will stand, and some of the iron columns are already cast. In our present number* we give a view of the entrance-front of the intended building, facing Merrion-square, and a plan of the whole, which shows that the central hall will be 425 feet long and 100 feet wide, and that there will be two side halls 345 feet long, and the width of the last, inclusive of a compartment on each side of them, 25 feet wide, running their whole length. Over these compartments there are to be galleries, also running the whole length of the building. The ceiling of these will be formed into panels, and provide opportunities for decoration. Wrought-iron trellis girders will support the galleries. The height to the top of the semi-cylindrical roof of the central hall will be 104 feet, and to the top of the similarly formed roof covering the middle of each side hall, it will be 65 feet. We have given these and other particulars before, but as the description will be better understood in connection with the drawings, we venture to repeat them. Comparing the central hall with the transept of the London Exhibition Building in Hyde Park, it will be found to be 17 feet longer, 28 feet wider, and about 3 feet less in height. It will have, however, an entirely different effect (an effect of its own), because the whole of the roof will be boarded, with the exception of a certain width at the crown of the vault, throughout its whole length, where light will be admitted. The ends of the three principal roofs, it will be seen, are semi-hemispherical, and, externally, the roofs will be covered with waterproof cloth, which we suppose will show some colours. The principal entrances will be under verandahs in the front facing Merrion-square, and there will be accessible external galleries.

Nine of the ribs for the side halls have been completed. Each rib consists of ten thicknesses, ranging from 1 inch to 1½ inch, of laminæ of irregular lengths, averaging 10 feet, the abutting joints so arranged that no two in the rib come opposite each other. These are secured together by inch and inch and three-quarter screws, according to the thickness of the board. The weight of the timber in each rib is about 28 cwt. and about 1,200 screws are used in its construction. Each of the larger ribs, having a span of 100 feet, will weigh, it is said, nearly six tons. The architect, as our readers know, is Mr. Benson, of Cork. Messrs. Young and Co. of Edinburgh, are casting the columns; and Mr. Turner, of the Hammersmith Works, Dublin, has the contract for the girders.

The general plan of the Exhibition will be similar, as far as practicable, to that adopted for the Exhibition of 1851. The four divisions,—Raw Materials, Machinery, Manufactures, and Fine-Arts,—will be formed into thirty classes, as was the case there; but in the class of Fine-Arts there will be this difference, that oil and water-colour paintings will be admitted; and we will here express a hope that our artists will lend their aid to render the Exhibition attractive;—they will, at all events, spread their reputation, if they do not benefit themselves pecuniarily, by doing so. We look upon this as a most healthful and promising movement for Ireland, and earnestly desire that it may be carried out successfully to the close. Mr. Roney appears now to be the acting secretary, and is throwing himself into it with that earnestness and vigour which characterise his proceedings. Mr. John Deane is his coadjutor.

Some of our readers who were led, by the notices we recently gave of some of the extraordinary groups of ruins which are to be found in various parts of Ireland, to visit the country and judge for themselves, have since expressed the gratification they experienced. Strange as it may seem, those notices first made known the existence of these antiquities to many English readers. Of course, it will not be supposed that we mentioned all: we could, even from our own note-book, have doubled the list. We travelled fast and far, and wrote only of the more salient points. Many of these, indeed, were omitted. The Round Tower at *Cloyne*, for example, should not be passed by those who visit Cork. It is but a short journey from that city, including a delicious sail to what *was* Cove and is now Queen's Town—through what Moore calls "the noble sea avenue to Cork"—and a noble avenue indeed it is. In Cloyne Tower all the stones used are round on the face, beautifully worked, and are each fitted one into the other, with the smallest possible joints. It has a stone plinth, projecting 4½ inches all round. The doorway, the usual height from the ground, is 2 feet wide at the bottom and 1 foot 10 inches at the top. The windows are also narrower at the top than at the bottom, and some of them have the angular heads to which we have already referred. The conical roof remains, either ancient or restored, but a battlemented parapet has been added. This tower is used as a belfry, and the floors having been reinstated and made accessible by ladders, it affords a better opportunity for examination than is found in most of the towers. It was in the base of this tower that some human bones were found in 1841.

When standing close to the base of one of these remarkable monuments, the round towers, and looking up to its summit, the rapid passage of the clouds over it, if the wind be blowing, gives strikingly the impression that the tower is falling upon you: on more than one occasion this effect was so strongly produced upon us, that we felt prompted to "run for it."

Cloyne Cathedral, the principal part of which is apparently of the 13th century, has little to interest. The neat little sextoness will show you a monumental slab, and tell you it is the earliest thing in the church, the date being 1177! And if you point out to her that what is taken for a 1 is in truth a 5, made as we all know fives were once made, and that the date is 1577, the aforesaid sextoness will not believe you, so do not try. Some amateur architect has been at work in the chancel, and has done wonders in it,—in the way of novelty! Such foliated windows, in deal, were never made before, and, we hope, never will be again.

Not far from Cloyne, at Castle Mary, there is a Cromlech, according to Mr. and Mrs. Hall,* not unlike this at Shanganagh, county Dublin.



The pertinacity with which custodians stick to early dates is shown, too, at *Blarney Castle*,—famous Blarney, with its beautiful groves and its gardens,—where the old lady who shows it reserves as a *bonne bouche* for the admiration of antiquarian visitors an Italian chimney-piece, put up perhaps 150 years ago, which she loudly declares, and honestly believes (and would fight for her belief too), is "a thousand years old."

When speaking of *Killarney*, which we did much too briefly, we ought to have mentioned the cathedral, which has been built here from the designs of Mr. A. W. Pugin: it is roofed in, but remains unfinished. It is a cross church, very lofty, and singularly grand in its proportions. The style is the Lancet. The circular columns which carry the clearstory of the nave are of a grey basaltic stone. The central piers to carry the spire (not yet built), are somewhat crushed. Externally the weather has caused the stone "to run" into stalactites. The edges of the mouldings at the doors, windows, buttresses, &c. are *fringed* with it in the most extraordinary manner. The new Lunatic Asylum here, which has been built for the county, under the direction of Sir Thomas Deane, is now finished. This, too, is Early Pointed in style, and is beautifully placed. With nothing adventitious, or introduced merely for the sake of ornament, the building is very picturesque and effective. It has cost about 30,000*l.* we understood, and will lodge 250 patients.

To begin with the proposed Exhibition Building, and end in a Lunatic Asylum, might be construed into a bad omen. We prefer to close, therefore, with a note of admiration for the successful efforts made by Henry Herbert, esq. to improve the condition of his tenantry in this neighbourhood. Clean, healthful cottages in smiling gardens show where his domains extend, and tend to prove the truth of the assertion, that good landlords make good tenants.

MR. A. W. PUGIN, ARCHITECT.—We hear, with great regret, that Mr. Pugin died on Tuesday morning last at Ramsgate.

* See page 593.

* "Ireland, its Scenery and Character." Virtue and Co.

LONDON NECROPOLIS AND NATIONAL MAUSOLEUM.

On the 14th inst. the directors of this company gave us the opportunity of viewing the site of the proposed cemetery at Woking, in company with about 300 visitors, representing various metropolitan parishes. The land is situated on the South-Western Railway, about twenty-five miles from Waterloo station, and borders the line to the extent of three miles. The portion that they intend first to lay out is on the south side of the line, and includes 1,000 acres. It is well placed, elevated to some extent above the line, and commands beautiful views on all sides, though it is itself wholly destitute of trees or other natural beauties. The station is fixed to be at the commencement of the land nearest London: if it were placed centrally the distance for the carriage of bodies in the ground would be materially lessened. According to drawings exhibited on the spot by the company's architect, Mr. H. R. Abraham, the church (of large size), chapel, &c. are to be Gothic in style.

The establishment of this company does not promise to effect those important advantages which might be made consequent on a wise and complete scheme, such as a great community should organise for the burial of their dead. If, however, we are not to have that, we ought, perhaps, to view as advantageous any arrangement which may be made to lead parishes to go some distance from London, instead of setting up a belt of cemeteries, as they seem inclined to do, all round the metropolis, with a never failing supply of miasma and poison,—sickness, death, and destitution. If St. Clement's Danes, when they have closed their pest-place, are to buy a piece of land in Kensington, and open a fever-manufactory there, the Kensington people in their turn to shut up and go merely to Hammersmith, and so on all through the metropolis and the suburbs, the deadly evil is only being shifted, not prevented. Then, of course, comes the question, where are they to go? The introduction of extra-mural burial places of necessity involves increased cost of conveyance, and it becomes of the utmost consequence that this should not be made to swell the already oppressive and extortionate charges for burials, and so act against the abandonment of the present abominable system. One site might be very much cheaper to the public than another, even though the former cost originally twice as much as the latter. It has been clearly pointed out, that such a change in the system might be made as would save the metropolis many thousands of pounds annually, and there is no valid reason why we should not have it. This is a matter of considerable importance, often and long ago treated of in our pages, and we shall seek an early opportunity to enter into it more fully. Of the London Necropolis Company we will simply say, at present, that they have a fine tract of land, and that the directors, ably represented by Mr. Voules on the occasion to which we have alluded, seem anxious to meet the requirements of the day so far as they are able.

Lead Pipe Machinery.—Mr. B. Tatham. C.E. of New York, has patented an "improvement on the method of making pipes from set or solid lead, described in the specification of a patent granted to Thomas Burr, of Shrewsbury, in Shropshire, England, dated 11th April, 1820." Mr. Tatham says,—"What I do claim as my invention is, connecting the core with the ram, by means of a universal joint, or its equivalent, substantially as specified, so that the core shall be retracted with the ram, in combination with the cylinder and die of a machine for making pipe by pressure, from lead or other soft metal, run into the cylinder and on to the said core in the molten state, substantially as specified, whereby the core is retracted with the ram, and held in position while the charge is poured in, and during the operation of forming the pipe, the vibrations of the ram do not practically affect the central position of the core in the dies, as herein specified."



LETTERS TO A LADY,

EMBODYING

A Popular Sketch of the History of Architecture,

AND THE CHARACTERISTICS OF

THE VARIOUS STYLES WHICH HAVE PREVAILED.*

My dear Sorillah:

The end is beginning. We have arrived at that time in our history when Gothic art had died out, and a desire to revive the ancient knowledge, and to fall back upon the ways of Greece and Rome, led to a style of building which has been called that of the Renaissance. I alluded to this in my last, and promised to revert to it. In Italy, pointed architecture never took such hold of the sympathies of the people as it did on this side of the Alps, and it was naturally, therefore, sooner given up in that country. The first who sought to return to the antique models, or rather pretended to do so, was Brunelleschi, who added the dome to the cathedral of his native city, Florence, in the beginning of the fifteenth century,—a wonderful work. Bramante, Alberti, Peruzzi, Palladio, Vignola, and others followed, forming the school of the *cinque-cento*,—literally five hundred, as you know, but representing *one thousand* five hundred (the century of the "Revival"), *mille* being understood.

After the notion of being the restorer of architecture had entered Brunelleschi's head he knew no repose, says Quatremere de Quincy; he forgot the necessities of life, the hours of repast and of sleep. He had no other desire than to lay down the plans, and measure the buildings of antiquity, to search out the true character of the three "Orders," to recover that system of reason, intelligence, and harmony, which should re-establish and perpetuate the authority of the ancient principles. He did not exactly do this; but Brunelleschi was nevertheless a great genius,—a man, as Cosmo de Medicis wrote of him, "*capable de retourner le globe*,"—and it would be pleasant to tell you something more about him, but it would lead us too far astray. After building, besides various churches, the Riccardi and Strozzi palaces at Florence, and commencing the Pitti palace, he died in 1444, and Strozzi wrote for his tomb,—

"Tal sopra sasso, sasso
Di giro in giro eternamente io Struzzi,
Che cosi passo passo
Alto girando al ciel mi ricondussi."

Bramante (you remember his palace *De la Chancellerie*, in Rome) designed and commenced St. Peter's (he died 1514). Michelangelo, painter, sculptor, and architect, built the wonderful cupola, and worked seventeen years in the completion of the cathedral without any emolument. This remarkable man died in 1564, when he was ninety years old, with no wife but his art, no children but his works, and dictated his will to his nephew in these few words,—"I leave my soul to God, my body to the earth, my estate to my kinsfolks." He strove for Fame, and gained it. The aspiration in general: how few can hope to attain it. As Sir Thos. Browne says,—"The greatest part must be contented to be as though they had not been; to be found in the register of God, not in the records of man."

Of Palladio's works, saying nothing of those intermediate, you will remember many,—the Basilica at Vicenza, for example. He built churches, palaces, theatres, in all quarters; had a world-wide reputation; and gave his name to the style of architecture which he used. He was unquestionably a great master,—the chief of the modern school,—but introduced much that is bad. He and those who preceded him appear to have overlooked the truth, simplicity, and real beauties, of the purer antique works remaining for their study, and indulged in littlenesses, vagaries, and deceits. Mr. Hope, Mr. Hosking, and other modern writers have forcibly pointed out the weaknesses and errors of the style of architecture which this period produced. Mr. Ruskin, more recently, has poured out the vials of his wrath upon it, and calls it the "pestilent art of the Renaissance." Modern architects will have to travel in the same road nevertheless, but should do it with the aid of the new lights they have. If they would look back to the finest works of antiquity, master the immutable principles which they illustrate, and bring to bear, in the application of these, the same amount of skill and genius as was possessed by some of the cinque-centists, they might produce the style of architecture best adapted to supply the wants and answer the purposes of the day.

The province of the true architect, as of the true poet, is to uphold "the glorious priesthood of the Honest and the Beautiful."

A *real* style must grow gradually out of the country and the purposes for which its structures are required. An architect's province is to make the useful beautiful by fitting decoration—not to disguise it or to substitute for it something less useful and proper because an ornament without trouble.

The excitement that prevailed at the time of which we are speaking in favour of the works and writings of antiquity, is strikingly illustrated in the account which has come down to us of the finding in Rome of the well-known group, the "Laocoon." Crowds flocked to the garden of Titus to identify it by a description which Pliny had given: bells rang; poets rhymed, and a fête was ordered for the following day, when the statue was carried in triumph to the capitol, the people filling the streets, and songs of joy rending the air. The finder was made "notary apostolic," and endowed with part of the revenue arising from the tax on

* No. XIV. See also pp. 100, 133, 164, 196, 228, 260, 292, 324, 356, 389, 436, 499, and 546.

salt. All over the world the same feeling was spread, and the discovery of a book of Livy. hunted for as if all future happiness depended on it, would have been hailed as an event of *national* importance. Nothing went down that was not classical :—

"In shaggy spoils here Theseus was beheld,
And Perseus dreadful with Minerva's shield."

Then came into education the Pagan element, and there it is still—perhaps somewhat too much of it. Our boys are well grounded in the adventures of Jupiter, though they are taught nothing of the arts which have given form to the beautiful fables; they are made to know thoroughly all the Labours of Hercules, to the exclusion sometimes of a knowledge of the labours of to-day, which are adorning, comforting, and lengthening life. The right or wrong in this, however, is a greater question than I may venture to solve. After Palladio, Bernini and others ran wild, and absurdities of all sorts were committed.

The Reformation, I need not tell you, aided in leading to the abandonment of Gothic architecture in our country. This style came to be regarded as tending to maintain the superstitions and abuses the Reformers were striving to correct. Churches were spoiled or sold; statues broken, painted glass knocked out, carvings hewed down. "Destroy the nests," said Knox, "and the crows will not come back." The energy with which the work of demolition was carried on under the Parliament, rather later, is shown forcibly in the Journal of William Dowsing, who was appointed to destroy pictures and ornaments of churches in 1643:—"Bramford, Feb. 1st," says he, "we brake down 841 superstitious pictures." "Broke in pieces the rails;" "took down twenty cherubims;" and "we broke in pieces the organ cases," are recurring entries.

The mode of building which followed the decline of Gothic architecture in England and preceded the complete introduction of Italian architecture, is known as *Elizabethan*, and presents a curious mixture of the two styles, of which I gave you an example (fig. 32) in my last letter. This style belongs especially to the sixteenth century, when the nobility and men of wealth indulged themselves in the erection of enormous country-houses, but it extends to the seventeenth. Though often incongruous and unmeaning, the architecture of this period is exceedingly picturesque, and allowed of much greater convenience in residences than had been obtainable before. Audley Inn, Essex; Hatfield, Herts; and Wollaton Hall, in Nottinghamshire (1588) may be mentioned as good examples.

John Shute, "paynter and architecte," published "the first and chiefe Grounds of Architecture used in all the ancient and famous Monyments" in 1563; and John Thorpe built a large number of the Elizabethan houses, including Longford Castle, Wiltshire, and Holland House in Kensington,—the latter in 1607.

It was left for Inigo Jones, to bring back a purer style. Walpole, in his "Anecdotes of Painting," says—"If a table of fame were to be formed for men of real and indisputable genius in every country, Inigo Jones would save England from the disgrace of not having her representative among the arts." Delaroche, in his great picture at the Academy of Fine Arts in Paris, has practically said the same thing, and has not found another Englishman to introduce amongst his worthies. The father of Inigo Jones, a clothworker, appears to have been in indifferent circumstances, and apprenticed his son to a joiner. Inigo, however, early displayed so much skill as a draughtsman as to attract the notice of the Earl of Pembroke, who ultimately sent him to Italy to study landscape painting, where he acquired friends and reputation as an architect, and was enabled, after a second visit to Italy, to obtain the appointment of Surveyor-General to James I. in England.

Jones, like many other great men, owed much to the time in which he lived. Ancient art was scarcely known in England: her wonders had not then been engraved in a thousand forms and distributed universally as now, so that when Jones produced in England the Italian style of architecture practised by Vignola, Palladio, and others, he was at once considered as a great originator. The Banqueting House, White Hall, was intended to form a part of a very extensive palace designed by him for James I. and a noble palace it would have been.

One of his most celebrated works was a Corinthian portico of large size attached to the west end of the Gothic cathedral old St. Paul's, an exhibition of bad taste, for which he has been justly blamed. Public opinion, however, was at that time different from what it is now: pointed architecture had fallen into contempt; and all who had obtained classic knowledge, whether in literature or art, were proud to display it. Jones and his scholar Webb were the fashionable architects; and, for a long time, few large buildings were erected without the assistance of one of them. Jones was employed in the production of masques for the court, and Ben Jonson, who was his colleague in some of these, satirised him on various occasions afterwards, when they had quarrelled, as Iniquo Jones, Vitruvius Hoop, and as "Medlay the Joiner, In and In, of Islington." The Watergate in the Strand, and the Church of St. Paul, Covent-garden, are of his design; and so, too, are some houses in Great Queen-street, Holborn. The civil war brought him sorrow: he died in 1652, was buried in the church of St. Benet, Paul's-wharf, and there is no monument to his memory.

The national troubles of course impeded the progress of the arts, but so soon as they subsided, a noble successor of Inigo was found in Christopher Wren.

Wren was born in 1632, and when at Oxford distinguished himself at an early age by zeal, talent, and perseverance. In all studies he made himself master; at one time inventing a machine for planting, or one for writing with two pens at the same instant, and at another composing Latin orations and treatises on abstruse mathematical points. He was thought "a miracle of a youth," and with justice. He does not seem to have studied architecture professionally, but having acquired profound knowledge of it, and given evidence of this, he was engaged by Charles II. to assist in some proposed works, and was appointed Deputy Surveyor-General. It would be impertinent to put before you the whole course of his life: suffice it to say, that the Great Fire of London (that fortunate visitation) provided the finest opportunity for him to exhibit his skill and knowledge that ever fell to the lot of an architect.

Previously to that event the streets of the metropolis were narrow and ill-arranged, the houses mostly of wood, ugly, and unwholesome, and yet then as now (and unfortunately now as then), what the people had always before their eyes they were satisfied with: they saw no occasion for improvement, and would have allowed matters to remain just as they were, and have looked quietly on while thousands were periodically carried off by the plague. As Ralph says, "Habit sanctifies everything with the multitude; and even that deformity to which they are accustomed becomes beauty in their eyes. '*As fine as London upon the bridge*,' was formerly a proverbial saying in the city; and many a serious sensible tradesman used to believe that heap of enormities to be one of the seven wonders of the world, and next to Solomon's Temple the finest thing that ever art produced." The Fire led to improvement, but it was a costly way of doing it.

Wren erected fifty parish churches, crowned by the noblest of modern buildings,—St. Paul's Cathedral,—besides a vast number of secular edifices. In the erection of St. Peter's at Rome, which is almost necessarily quoted in comparison with St. Paul's, more than twenty architects had been engaged,—Bramante, Raffaelle, Michelangelo, Fontana, Bernini, Maderno, and others,—while Wren planned and perfected his noble pile alone and unassisted. St. Stephen's, Walbrook, and the steeples of Bow Church and St. Bride's are amongst his finest works. He, too, had persecutions to endure,—his battle of life to fight,—but as Bishop Sprat wrote to him in condolence,—

"Heroic souls a nobler lustre find,
E'en from those griefs which break a vulgar mind:
That frost which cracks the brittle common glass,
Makes crystal into stronger brightness pass."

This great man, who lived "not for himself, but for the public good," fell asleep in his chair after dinner on the 25th of February, 1723, when he was in his 91st year, and did not wake again here!

Sir John Vanbrugh, known also as a dramatist, succeeded Wren as a leading architect, and built Blenheim, and Castle Howard in Yorkshire: he was an original genius, and paid the penalty for that crime by being lampooned and abused in epigrams.

"Lie heavy on him, earth; for he
Laid many a heavy load on thee,—"

wrote one.

"Lo! What huge heaps of littleness around,
The whole a laboured quarry above ground,"—

said Pope. And again,

"How Van wants grace."—

Abuse in rhyme, which can be remembered easily, soon passes current with the crowd as truth. His invention and power of picturesque arrangement were great; but all that he did was ascribed to a frivolous affectation of novelty. His reputation has become greater than himself, "as shadows do at nightfall." Hawksmoor, Gibbs, Lord Burlington, and others followed Vanbrugh in the Italian style; pointed architecture remaining despised. Hawksmoor built, amongst other structures, the church of St. Mary Woolnoth, in Lombard-street, and St. George's, Bloomsbury, the steeple of which is crowned by a statue of King George I. I dare say you have met with the often-quoted epigram this induced :—

"When Henry VIII. left the Pope in the lurch,
The Protestants made him the head of the church;
But George's good subjects, the Bloomsbury people,
Instead of the church, made him head of the steeple."

Lord Burlington (Richard Boyle) did much to encourage the revived style of architecture. The colonnade within the court of Burlington House, Piccadilly, and the Duke of Devonshire's villa at Chiswick, are some of his works. He designed, too, the house in Cork-street, for General Wade, concerning which Lord Chesterfield said, according to Walpole, that the owner "could not live in it, but intended to take the house over against it to look at it."

Pope, addressing Lord Burlington, writes:—

"Yet shall (my lord) your just and noble rules
Fill half the land with imitating fools;
Who random drawings from your sheets shall take,
And of one beauty, many blunders make.
Load some vain church with old theatric state,
Turn arcs of triumph to a garden gate;
Reverse your ornaments and hang them all
On some patch'd dog-hole ek'd with ends of wall;
Then class four slices of pilaster on't,—
That, laced with bits of rustic, makes a front."

The anticipation was literally fulfilled.

Walpole says, speaking of the architects of his time,—"considering how scrupulously our architects confine themselves to antique precedent, perhaps some *deviations into Gothic* may a little relieve them from that servile imitation. I mean that they should study both tastes, not blend them,—that they should dare to invent in the one, since they will hazard nothing in the other. When they have built a pediment and portico, the sibyl's circular temple, and tacked the wings to a house by a colonnade, they seem *au bout de leur Latin*. If half-a-dozen mansions were all that remained of old Rome, instead of half-a-dozen temples, I do not doubt but our churches would resemble the private houses of Roman citizens. Our buildings must be as Vitruvian, as writings in the days of Erasmus were obliged to be Ciceronian."

The writer of the passage quoted, himself, then made an early attempt at Strawberry Hill to revive the use of Gothic architecture, and produced a miserable puerility, which you may still see. The vileness of the result showed how entirely all knowledge of its principles had been

lost. Artists were even unable to delineate Gothic buildings correctly: as late as 1804, in such a book as King's *Munimenta Antiqua*, you will find engravings purporting to be representations of Gothic churches, which, when compared, are seen to be so unlike that it is hard to believe the artist had seen what he pretended to represent. The poets did something to bring the medieval works back to general regard: a school of educated draughtsmen and engravers arose, and carefully set forth every monument of interest: destruction was to some extent stayed; and a desire to maintain them in their integrity was gradually induced. A religious movement aided in the same course, and for some time past, an ecclesiastical structure erected in any other than the Gothic style has been a rarity.

The architecture of our day is for the most part initiative,—representative merely. An architect adopts a particular style, and his building is pronounced successful to the extent only that it accurately represents a work of the period aimed at. A wider view is opening upon us; and there are quick minds in the field striving to destroy the trammels of precedent, so far as precedent makes trammels, and to obtain fair play for common sense, honest building, and creative power. This, however, is travelling out of the record. What I proposed to you was simply to trace with a rapid pen the history of architecture from the earliest times; to show you that its course was continuous, and that in tracing it we trace the onward and downward progress of different parts of the world,—that, in short, the history of Architecture illustrates the history of Civilization. Bolingbroke, when he called for his volumes of history, said, "Bring me my *liars*." Brick and stone records tell no lies: and to those who know how to question these stern enduring witnesses of past time, they speak plainly, and give much information. A mere account, in words, of a people, or of a particular state of society, you may read unimpassioned, unimpressed; but view the buildings which they raised,—see the evidences of that state of society in the structures and arrangements which it led to, and the whole becomes a fixed reality, not easily forgotten.

Here, then, we end our journey; and so, estimable friend, Farewell! We have travelled rather a long road together, but so rapidly that I venture to hope you have not found it very wearisome. If we have not seen the whole of it, and its many sinuous branches, we have stopped where some of the most striking changes of scenery and manners took place. I have given you an index instead of a history,—a bill of fare rather than a dinner. But if what has been said has opened your eyes to the interest of the subject, and has shown you that it may be studied with advantage and without difficulty, my object has been attained. For your kindly companionship accept my thanks, and believe me always,

Very sincerely yours.

George Godwin.

Coating and Ornamenting Zinc.—A patent has been taken out by Mr. F. H. Greenstreet, of Albany-street, for coating and ornamenting zinc surfaces, by means of acids alone, or in combination with other matters. The solution may be applied by sprinkling, dabbing, spreading, or marbling; and the surfaces are capable of further ornamentation by painting. Muriatic acid, diluted with water to about 1·114 specific gravity, gives a light ash colour; chrome yellow, with the same acid, a yellowish grey: Saxony green, mixed gradually with the acid to a paste, and stirred until effervescence ceases, produces greenish iron grey: white lead with the acid, or Kremintz white, gives a grey coating: the acid with sulphur produces a yellowish white. Butter of antimony gives a black colour, but when mixed with the other pigments does not affect them, but makes a good groundwork. The surfaces having been coated, should be protected by a coat of varnish. Copal may be used, but the patentee prefers a preparation of wax, as effectually preventing oxidation.

A VIEW OF VENTILATION.

England has for some time been ringing with talk—talk—talk about the causes of unnecessary disease and mortality, of which *the chief*, as many believe, is foul air in buildings, *i. e.* air retained after it has been once breathed. As it has been known for about eighty years that the same air cannot be breathed a second time with impunity, it seems odd that our dwellings should still be constructed so as to retain it as long as possible, and mix it as thoroughly as possible with all fresh air that enters. But so it is; and if these were the ends proposed, architects might be challenged to contrive any thing better adapted to secure them. Every breath of respired air that leaves us rises, we know, by its own levity,—the only conceivable power by which it could be kept from immediate mixture with what we inhale next—the only power by which it can be removed out of our way, out of doors or in. It rises, then, till it meets with a ceiling, generally an air-tight level horizontal surface. It is instantly spread out into a thin layer,—cooled down to the general temperature (at which it is *heavier* than pure air) as rapidly as possible,—broken up and displaced by the next warm breath that follows it,—and falls back to be breathed again, and circulate again and again in the same round. The openings by which air enters and leaves the place may be abundantly —*always are abundantly—sufficient*, both for the entry of all that is needed, and the exit of all that is fouled, *if we could only get it there*. But how is it to be got there, till it has lost, by cooling, all its natural power to escape of itself, and been mixed throughout all other air in the room? What steam-power, what fan or furnace, or Victoria Tower or Clock Tower draught that Dr. Reid could contrive, is to extract it from this mixture once made? or to give us a single mouthful of unpolluted fresh air in a room provided with this arrangement for instantly polluting all that enters?—with this inverted sump for light fluids—this undrained receptacle for breath, that keeps it safe till it can be kept separate no longer, and then sends it back to mix inseparably throughout the room. What is the use of "ventilators" hanging down like bosses, or with surrounding rims protecting them from all *drainage* of the surrounding surface?—gaping like Tantalus for a layer of fluid that never reaches down to underflow their lips; for ere it accumulate to half an inch deep from any ceiling, it must either have drained off up the slope, or if there be no slope, have cooled and been replaced, and sent back whence it came. What is the use of "ventilators" in one or more divisions or "coffers" of a ceiling? (divided into such receptacles apparently to keep the poison, during its refrigeration, more safely, against all draughts or lateral disturbances). Or what is the use of them at all (except for the persons immediately under them) in level surfaces? from which the light air can no more *run off* than heavy fluid can run off Trafalgar-square, their inverted counterpart.

The foul air, the great self-imposed scourge to be got rid of, has, inherent in it, while still warm (*not longer*) a motive-power providentially lodged in it, sufficient (though only *just* sufficient) to effect its own escape, if not hindered, and of course to draw in fresh air in its room, if *that* also be not hindered (which it never is), for without this replacement of course the light air could not escape. It seems odd, then, that there should be any necessity for "ventil*ation*" (air-*carrying*), when we see that it only awaits permission to carry *itself*, and has all the power to do so, if we would only *let* it—if we would only so build as *not to prevent* its natural escape and replacement. Would it not be better for architects *not to make* the mischief, than for Reids and Faradays to be taxed with the impossible problem of *curing* it? I say impossible, for the laws of nature, as far as at present known, afford literally no remedy. No mechanical power (and no available chemical one, but that of the green forests) can separate fresh and foul air once allowed to mix. A breath which has once knocked at the ceiling for dismissal, and been refused, can never be removed by the ventilation doctors till the whole air of the place has been changed.

As our difficulty, then, is like Mahomet's—as we cannot, against natural laws, get the foul air to the provided outlets, but must bring the outlets *to it*—a roof without a ceiling affords no means of letting this refuse *out* without letting the rain *in*. But a ceiling may be so formed as to let it through without hindrance, and yet prevent its return when cooled; and thus oblige its exit into the open air by *side* openings *between* the two coverings, or between the ceiling and the floor above. Two distinct coverings, then, there *must* be, wherever the two ends of keeping out rain and letting out breath are to be fulfilled. The former is the function of a roof, the latter of a *ceiling*. Thus this member is not, as Dr. Robinson said, "only to keep off dust;" but, if sanitary reform be anything but a canting cry—if unnecessary death and disease be things for which any are to account—if the suppliers of dwellings are answerable for enconomising at the cost of life—if they have any duty, in building for others (as Israel in building for themselves), to "make a battlement for thy roof, that thou bring not blood upon thy house, if any man fall from thence,"—in short, if any man be responsible for human life wasted by human agency—if "at the hand of every man's brother" shall be required "the life of man"—then is this part of every building to be contrived according to whatever our latest science may prove necessary to the free passage of light fluid through it from below, and its retention above when once through.

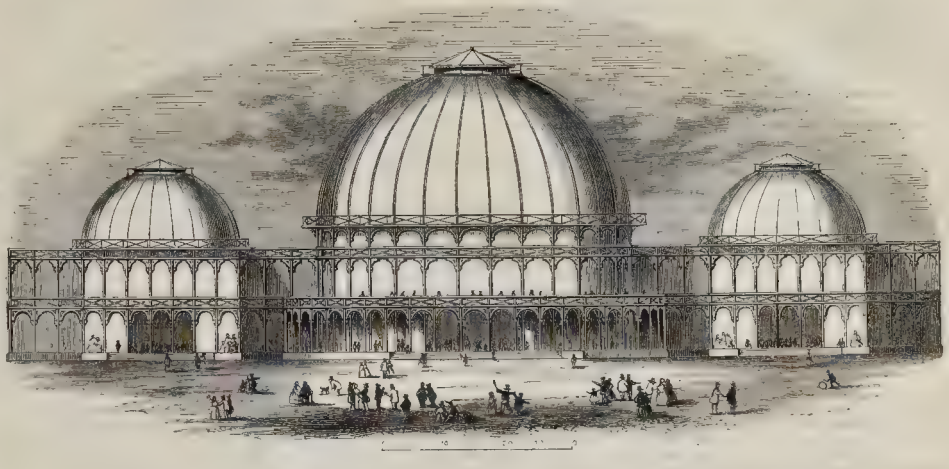
Taking this, then, as the primary function of all ceilings, we see that their form can no longer be lawfully made better of fancy *alone*. (Indeed I cannot see that they have gained much even in an artistic point of view, since being made so.) Their form must, in the first place, be such as to have complete *upward drainage*, so that light air rising to *any* part of their surface may find immediate unobstructed way, by its own levity, to an outlet; in short, so that if the whole were *inverted* and rained into, it would drain itself, and retain no water anywhere; or so that if the room in its actual position, without a floor, were sunk in water like a diving-bell, the water would rise and fill it, to the exclusion of every bubble of air. Next, it can have *no portion whatever of horizontal surface*, or of any approaching within a certain angle to horizontality. But as this and other requirements may be deduced best from a comparison with the analogous case of drainage (which is the same thing to *heavy* fluid refuse as this to *light* fluid refuse), I will enumerate first their resemblances, and then their differences;—first reminding the reader, that as a sump or cesspool is a convicted and sentenced manslayer, because what it receives in a heavy non-elastic form, presently loses the weight that carried it there, and comes back to us light as air, volatile and unmanageable; so the *inverted* sump overhead is equally a manslayer, because what it receives in a form lighter than common air, presently loses the buoyancy that carried it there, and comes back to us as heavy as common air, and thus unmanageable. And this is many thousand times quicker in losing its buoyancy (*i. e.* cooling) than the other refuse in losing its weight (*i. e.* evaporating). Both require *drainage* of their contents; the one to be quickly drained off *downwards*, the other still more quickly *upwards*, before they have time to lose the forces (*weight* in one, *levity* in the other), which, given them for their removal, only serve in misconstructed places to retain them. The resemblances, then, are these:—

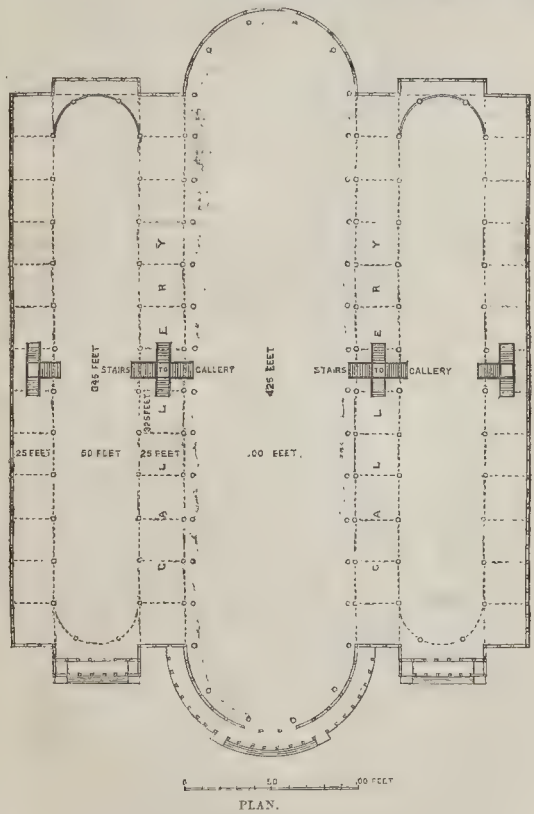
1. In draining a space which is liable to receive descending fluid at every part of its area (as a roof exposed to the rain), the drains and the slopes leading to them must occupy the whole surface, so as to leave no portion horizontal. Similarly, to let out foul air, which rises (or is liable to rise) against every part of a ceiling, the vents and the slopes leading to them must occupy the whole.

2. The slopes and outlets of liquid and aëriform refuse alike call for smoothness, even

BUILDING FOR THE INDUSTRIAL EXHIBITION, 1853, DUBLIN.*

MR. BENSON, ARCHITECT.





PLAN.

polish, if possible, to lessen friction and disturbance of the currents.

3. Drains must not be too large; neither must the entrances to air-outlets—though for a different reason, viz. that the currents collected to them from all around, may, by uniting in a small space, form a sufficiently rapid and steady flow to resist sudden disturbances, and, by well filling up the aperture, leave no room for counter-currents; also that the foul air spread out in the space above the ceiling, and cooled so as to fall back and rest on the ceiling, may have as little as possible of its base unsupported and ready to fall back through the vents, should an interruption of their flow allow it.

4. Roofs or drainage-slopes may diminish in declivity the lower they descend, as rivers do; because the upper waters have only their unaided weight, while the lower are impelled also by those behind: so that, however small the whole descent, it may always be improved by taking steepness from the lower part, and giving it to the upper. And thus the ceiling surfaces must be steepest at places farthest from a vent, and their slope may diminish toward every outlet, where the foul air stratum has its motion aided by impulsion from that behind it.

And the differences will be these:—

1. Of course they do not need the same materials or strength.

2. All the vent slopes require, for equal lengths, a far greater ascent than any drain-slopes require descent. For while the friction is alike on both, the moving powers are very unequal. Equal quantities (*i.e.* weights) of the two fluids are each impelled by the difference between their own weights and that of the air they displace; or rather, *both* the weights together, that of the displacing and the displaced fluid, are moved by their said difference. Now water being 800 times heavier than pure air, the *difference* between the weights of a descending mass of water and the mass of air it displaces, will be to their *sum*, as 799 to 801,—that is, 801 lbs. of matter are here moved by a force of 799 lbs. But supposing the difference of temperature between the pure and foul air to be 20° (which it will hardly equal in hot weather), their difference of weight will be about $\frac{1}{44}$ of either, or $\frac{1}{88}$ of their sum;—so that, here, 48 lbs. of matter are moved by a force of 1 lb. Thus while the breath rises in hot weather (76°), with a buoyancy only equalling $\frac{1}{48}$ of its weight in vacuo, the water runs down with a force of $\frac{799}{800}$ of its weight in vacuo. Whence, whatever descent is needed in a yard of smooth paving that it may well and speedily clear itself of water, forty-eight times that rise *at least* will be needed by every yard of equally smooth ceiling to conduct off the foul air to the nearest vent. So, remembering how far more essential *speed* of removal is in this case than the other, I think we may make it a rule for no ceiling-slope to average a lower gradient than 1 to 1, from its lowest point to the outlet.

3. Though the shape and size of drains be important throughout their length, those of the foul-air passages are quite unimportant after it once leaves the ceiling, because there is nothing here analogous to the viscidity and deposits of sewage.

4. Though drains must have a descent all

* See page 589, in present number.

the way to their outfall, the foul-air ducts need not rise all the way to the open air, as Tredgold recommended (who, in his "Warming and Ventilating," edit. 1836, advocated these identical principles, though not to their full extent). They need not even rise at all, after leaving the ceiling; for the fluid to be got rid of being elastic, and quite filling them, the current entering them will always, whatever their shape, expel an equal current at the final outlet, provided it do not face the wind; which is to be avoided by making them open at both ends through two opposite external walls, so that one outlet may always be to leeward, and effective. Further, there is even an advantage in the foul air cooling and sinking a little, after flowing out of the ceiling vents, as this ensures its not re-entering them.

5. Vents must be much nearer together than the sinks meant to drain water from a roof or terrace, because the water retains its motive power, its gravity, so long that there is no *haste* about getting it away (only provided it have not time to overflow its channels, as at the "Crystal Palace"); but the foul air loses all its upward tendency before many seconds; so that it must not be played with nor have far to go, at least before getting through the ceiling,—after which it ought to be safely prevented from returning. Moreover, in domestic rooms, unless the vents be numerous, so that the slopes may be short, they could not have an ascent proportioned to their length without giving the whole ceiling a wasteful height. By having a vent, say, to every square foot, the base of the longest slope will not exceed 9 inches; so that the slope may be 1 to 1, and yet the extreme difference of level be included in the depth of ordinary joists.

We see, then, that for sanitary *innocence*—all apartments must be ceiled (unless the purpose be such as to admit openings in the roof, as in Moorish baths); that the ceiling must consist of one or more pyramidal (or still better, *domical*) cavities (the reason for a domical slope has been shown above—"Resemblance 3"); and that in domestic rooms these must be so numerous as not generally to exceed a square foot in area each. Of course, we may make them in plastered lath, like our present fever-holders, or in any other material; but I believe they will ultimately be made cheapest in *pottery*, and each in one piece. They may be of any quality, from brick to porcelain; remembering that a glaze to diminish friction, though not imperative, is to have precedence of all ornament; *i. e.* not lawfully to be omitted where there is *any* ornament. To fit between the joists, they must be of a square based dome shape, in section like a pointed arch; and their vent, if single, may rise as near to the flooring above, as half the width of its aperture; indeed, *should* do so, that the outflowing current may be immediately spread laterally, and not return. Hence, where there is no floor above, it would be better (and where there *is* one, it would save a little height) to have four vents, sloping outwards, from *close* to the internal apex; and they should be nostril-shaped; every care being requisite to conduct the light fluid, without the smallest obstruction or lodgment, from its first touching the ceiling anywhere, till its safe passage through it. Any lodging-place for it will retain, cool, and send down, like our present ceilings, a constant supply of the poison. Hence the joists, dividing one row of these pots from another, must have their under face bevelled off each way, like the cut-waters of a bridge; and similar cut-currents must be formed by the bars (of whatever material) laid across from joist to joist, to receive the edges of the pots (and which will also perform the function of our present strutting). A little mortar thrown into the trenches above these junctions will make them tight against the downward return of cooled foul air.

The final outlets (for summer) must be between every two joists, in every wall, external or internal, that receives them; and their collected area must *at least* exceed twice that of all the ceiling vents, because one-half must always be supposed stopped by the wind; and the larger they are the better, because the only available motive power to expel the air through them, is the current through the ceiling vents, produced by the heat generated in the body, and communicated to the breath *for this purpose*. If we economise this heat *to save fuel* (as we do in all present buildings), of course we must use fire-heat (or steam power derived from it) to *ventilate*, *i. e.* to botch up some substitute for the natural action we have prevented (and which I have shown *no* artificial ventilation can replace); so that we pervert both sources of heat to unnatural and forced use; nature having designed the *breath*-heat to carry breath out of our way, and bring us fresh air in its place; and the *fire* to warm us when necessary; which uses our ventilationists contrive to transpose. Moreover, as it is absurd to fancy the masses of mankind ever will, between this and doomsday, have *artificial* (*i. e. forced*) ventilation), the question for them lies simply between the natural ventilation unobstructed, or (as at present) no ventilation; but instead thereof, a saving of as much fuel as the paltry modicum of warmth retained with the foul air may serve instead of. It is simply whether, having obtained *nearly* all the heat we need in winter, by consumption of wood or coal, we will get the remainder also at the expense of wood and coal, or of human flesh and blood.

An innocently constructed place, then, will (*cæteris paribus*) require rather more fuel to warm it (with the same apparatus) than one with a chance or fancy ceiling does; and will need a fire on some days when we do not need it at present. This must not be confounded with the nuisance of cold draught descending through the ceiling vents, which is quite another thing, never necessary, but which will always be liable to happen with any *real* vents (*i.e.* with any whose action is not defeated by some of the many contrivances for quieting sanitary conscience by a sham ventilator,—a demonstrable hole to the open air, but through which nothing can pass). I say it may always happen with effective outlets, if either *they* be too large, or the inlets of fresh air about the floor (which in private buildings will hardly ever need special provision) be smaller in collective area than the vents, so that their deficiency is made up by indraught through the latter. This latter cause, then, may be always provided against; and if, when the architect has done so, the evil should still occur (in summer, for I am not speaking yet of the sanitation of *warmed* rooms),—then the ceiling-vents (not any others) are over large, and must be *each* reduced. Thus a few experiments may be necessary at first to determine the right size of these. But when determined for one case, it will be calculable for all; because one definite *velocity* for the outflowing currents will always be the best, in every building alike; and knowing this velocity, we can, from the known hourly production of foul air (4 or 5 cubic feet per man or candle, and 12 or 15 per foot of lighting gas), reckon the collective area for all the ceiling-vents, and hence the size for each. The final outlets may be as large as we please; and the fresh-air inlets never less than the above area, nor than half a square inch per head, rather more per candle, and about thrice as much per foot of gas, per hour,* that the required quantities may be drawn in never faster than one mile per hour, an imperceptible draught; but it is best greatly to exceed these minima.

In public buildings, the ceiling pyramids or domelets will require neither the small size, large number, level arrangement, nor, in short, the *sameness* in any respect, of these domestic ones. Observe that the more people you have assembled, the *fewer* and *larger* may they be; because the abundance of respired air will give it volume and impetus enough to flow, without cooling, up a much longer slope than where it is in smaller quantity; thus bringing us to the somewhat paradoxical result, that the larger a place be, the fewer vents will it require,—the *fewer*, observe, not the *less* in area. In the Pantheon, *one* suffices, while in the small Alhambra baths there are several; and in the *still smaller* vestibule to them, having no bath, and no vapour to escape, there are many *more*, —no less than sixty-five.

We have, then, in a public assembling-place, seven elements for variety in ceiling design. The compartments may vary in *form*, in *size*, in *level of base*, in *inclination* thereof, in *ornament of their surface*, of their separating members or *ribs*, and of their separating *vertical surfaces*, if in different levels. I mean that, fulfilling all the above sanitary requirements, we may still make each cavity of *any* size (below a certain limit); with its base of *any* regular or pleasing figure; that base horizontal, or inclined at *any* angle, to suit the roof above, or the arched or trussed bearers; or at *any* difference of level from the bases of adjoining cavities; and, if so, separated from them by vertical surfaces with *any* true decoration; or, if not, by ribs or bearers of *any* moulded profile or other decoration not interfering with their action as cut-currents; and, lastly, with *any* true surface decoration in the cavity itself—seven *anys*: whence it appears (to use Mr. Ruskin's mode of reckoning such things) that an infinitude of the seventh order will express the scope for variety that artists have in designing ceilings, without transgressing sanitary innocence,—without economising thought at the cost of their brothers' blood;—and thus I see no more reason why (even when limited by this condition) any two ceilings in Europe should be alike, than the Turks appear to see for making theirs alike.*

* If these minima be startlingly less than the artificial ventilationists require, it must be remembered that with proper ceilings we only require the change of as much air as is *actually used*; while they, to botch up matters with the flat ceilings, or whatever architects have left them, are obliged to allow for not only this amount, but an indefinite quantity, besides, of *good air spoilt* by admixture with foul, and air used for what Dr. Arnott calls "*dilution of the foul air with fresh.*" He might, consistently with this, propose *dilution* of sewage to serve again as drink. [Is not that what we really have in Thames water supplied to the metropolitan public?—ED. B.]

* From "The Student's Guide to the Practice of Designing, Measuring, and Valuing Artificers' Works." Edited by E. L. Garbett. Weale.

NOTES IN THE PROVINCES.

Eton.—In 1850, it may be recollected, a sum exceeding 8,000*l.*—part of a fund subscribed by old Etonians for the improvement of the college,—was expended in repairing the chapel. These repairs and improvements were confined to the choir. It has been resolved by the college authorities to expend between 2,000*l.* and 3,000*l.* more in renovating the ante-chapel. The work has now, according to the *Windsor and Eton Express*, been put into the hands of Mr. Rutter, of Cambridge, builder and carver, and the work begun. All the monuments in this part of the edifice have been removed from the walls, and, with the exception of those of the founder and Dr. Goodall, will be placed on the walls of the west entrance. The walls are to be refaced with Bath-stone, and new tracery panelling will be introduced along the whole of the west side, also new moulded purlins, cornices, and new moulding along the sides of arched principals, with carved angle ornaments to correspond with the new roofing of the choir; the arched beams and all the timbers of the roof to be coloured, the stone floor to be re worked and fixed. The old organ has just been taken away, and a new one placed in the choir.

Winchester.—The improvements at the Grand Jury Chamber, in this city, are progressing. The walls have been stripped of the first layer, or facing, of bricks, which is to be replaced with flints and stones, so as to resemble the County Hall adjoining. The windows and doors are to be converted into Tudor ones. The design is by Mr. O. B. Carter.

Eastnor.—The church at Eastnor, rebuilt by the patron, Earl Somers, except the chancel, erected by the rector, was reopened on Tuesday in last week. The workpeople engaged in the erection of the church, as well as the poor of the parish, were feasted, on the successful close of the work. The church, dedicated to St. John the Baptist, as rebuilt, consists of chancel, nave, tower, north aisle, and north chapel. With the exception of the tower, the whole has been rebuilt from the foundation, and a mortuary chapel added. The material used is a reddish gray sandstone from

Dymock, with which the church is lined throughout. The new work is decorated; the mullions, string courses, jambs, &c. being ornamented with ball-flowers, and the other usual enrichments of the period. The east window is of three lights, with flowing tracery in the head; the internal shafts of Cornish serpentine, which has also been introduced in the other chancel windows, pulpit, and font. The east window is filled with stained-glass, by Wailes. The subjects in the east windows are intended to connect the history of St. John the Baptist with that of our Saviour. The other two windows in the chancel are also by Wailes. The subjects are some of the types of the great sacrifice of our Lord, in the Old Testament. The floor of the entire church is laid with Minton's encaustic tiles, the pavements becoming more enriched as they advance eastward. Between the chancel and north chapel is a light screen of ironwork by Potter. Across the chancel is another screen of carved wood. The benches in the nave and aisles are of oak, all open and free. The font is of Caen stone, supported on four serpentine shafts with carved caps and sculptured sides. The windows in the south side of the nave are filled with stained glass, as is also the window at the east end of the north chapel. This has been executed by an amateur (a lady), and contains subjects illustrative of the history of St. John the Baptist. The architect was Mr. Scott.

Eaton Hall.—The works at this palace of the Marquis of Westminster are now, according to the *Chester Courant*, drawing to a close. The approaches to the building, which were recently encumbered with masonry, are now cleared, and the decorators in the interior and the gardeners outside are busily engaged. Some sculpture has arrived, for the ornament of the garden, from the studio of Mr. Raymond Smith. At the angles of the parterres between the terrace and the river Dee, two groups have been raised on their pedestals. The one represents the departure of the *Gros Veneur*, or head huntsman of the Norman duke, on horseback for the chase, accompanied by four dogs: the other one is the death of the stag, which appears to have been slain with an arrow. In the "pleasance," where the fountain is placed, there are four statues by the same artist, of Odo Episcopus de Bayeux, Sir Robert de Grosvenor, Engulphus de Aquila, and Joan of Eton, through whom the domain came into the possession of the present family. The workmen are actively occupied in laying out the paths, and all, it is said, will be ready for the reception of the family by next summer.

Torquay.—On the 6th inst. the corner-stone of the new Wesleyan Chapel was laid. It is an Early English building, consisting of nave and aisles, covered with three high-pitched open timber roofs, stained oak-colour. It is built with the limestone of the neighbourhood, dressed on the face, and is capable of sitting 500 persons, exclusive of the galleries, which are to contain about 300 more, but will not be erected at present. The pews are of deal, with ornamental bench-ends, stained and varnished. The architect is Mr. Edward Appleton, and the contract was taken by Messrs. Harvey and Henley, at 1,110*l.* exclusive of vestries, pulpit, desk, and communion-rails. It is thought that the excavating of the rock, building boundary walls, railing, vestries, &c. &c. will increase the expense to about 1,500*l.*

Oldbury.—On Monday in last week, the corner-stone of the Wesleyan New School buildings, in this town, was laid by Mr. Samuel Wilkes, of Wolverhampton. The building will contain an infant schoolroom, 45 feet by 30, and 12 feet high; day schoolroom, 65 feet by 30, 18 feet high; three good class-rooms; and playground adjoining, measuring 1,250 yards. The whole will be fitted for training on the Glasgow system. At the conclusion of the service connected with laying the stone, about 200 persons took tea together in the present schoolroom.

Aldridge.—The foundation-stone of the new north aisle of the parish church was laid on Wednesday week by Mrs. J. Finch Smith, wife of the rector. The brass plate, with the inscription, instead of being placed on the top of the foundation-stone, and then covered by another stone, was inserted in the side of the stone which is towards the new aisle, so that the inscription may be read at any time. Besides the addition of this new north aisle, which will be appropriated for ever to the poor of the parish, other improvements are about to be made in the interior of the church. The architect is Mr. Anthony Salvin, and the builder, Mr. Highway, of Walsall.

Lichfield.—At a late meeting of parishioners as to the restoration of St. Mary's Tower, it was unanimously resolved, "That the churchwardens be authorised to procure a faculty to carry out the intended restoration in accordance with the designs of the architect, Mr. Street, of London, with such modifications as the state of the funds at their disposal may require."

Manchester.—The staircase of the Townhall is being redecorated by Mr. Froggort, decorator. The panelled dome is painted in neutral tints of light grey, pale citrine, and cream colour; the ornamental mouldings and beads in white, relieved with a slight introduction of cerise; the cornice of the same colours, with a slight admixture of green. On the frieze the honey-suckle, lotus, and tendrils have been painted in relief, the effect appearing as if they were wrought in projection. The capitals of the columns and pilasters are in statuary white, the shafts of columns in imitation of Brescia marble, the bases in Egyptian black and gold, with the upper torus in statuary. The pilasters are panelled, the style of Brocatilli, the panel brescia, divided in the centre with a circular tablet inlaid of verd antique: the bases are in statuary and black and gold: on the statuary the honeysuckle ornament is after the manner of etching on marble. This, according to the *Manchester Courier*, is a specimen of Mr. Froggort's new process, for which he has a patent. The walls between the pilasters are a tint of warm russet and citrine. The entrance vestibule, columns, &c. have been finished in various shades of granite.

Doncaster.—Active steps, says the *Doncaster Gazette*, are now being taken by the churchwardens, for the removal of the western gallery in the parish church. This gallery has long been a source of objection.—— Premises are now in course of completion by Mr. Arthur Smith, for a brewery in Doncaster. The chimney is of great height. Mr. Henry Worth, of Sheffield, is the builder, and Mr. G. Wilson, the architect.

West Hartlepool.—The new Athenæum for West Hartlepool was formally opened on 7th inst. It has been built by subscription, at a cost of 1,400*l.* for the use of the Literary and Mechanics' Institute there. Mr. H. B. Robson gave his services gratuitously as architect. The site and stone were given by the West Hartlepool Harbour and Dock Company.

Dingwall.—A new Episcopal Chapel was opened here on 22nd ult. It is in the Early English style, and consists of a porch, nave, and chancel. The nave is lighted by two lancet windows in west gable, between which is placed the organ, and over it a trefoil window. The south and north sides of the nave have narrow lancet widows, and over the altar is an early decorated window with three lights, and quatrefoil in the centre. In the apex of the gable is a small trefoil. On the south side of the chancel, is a lancet window of stained glass with emblem, and there are other two in the nave on south side—the gift of a lady. The windows are glazed by Powell, of London. The seats are open, and finished with poppy-heads. The roof is open, with arched principals and varnished, as are also the seats, desks, and pulpit. We have been requested, says the *Inverness Advertiser*, to contradict the statement which has, erroneously, been inserted in the *Courier*, that the design was by Mr. Pearson, of London. The chapel has been built from plans and specifications by Mr. Ross, architect in Inverness: the builders were Mr. Macniel, mason, Dingwall, and Mr. Brand, carpenter, Montrose: the font was cut by Mr. Forsyth, stone-cutter, Inverness.

St. Peter's Port, Guernsey.—A local paper states that the contractors for the Guernsey harbour works have landed from Wisbeach, a steam-engine, mortar-mills, and other machinery, which have been placed on the ground opposite the guard-house, and that another cargo is shortly expected.

SLAUGHTERING IN THE METROPOLIS.

The public cannot believe, that, in order to relieve the dense population of Newgate-ward, the little less crowded district of Copenhagen-villas (formerly Copenhagen-fields) should be visited by the condemned nuisance, Smithfield. This quarter is traversed by one main route, extending a mile from Mother Red Cap's, Hampstead-road, to the Highgate, Holloway; numerous intersecting and collateral ranges of villas have been erected in the interval, and the whole district, which, as being elevated and vicinal to the city, has been laid out for the better class of suburban villas, at a convenient distance for merchants and traders.

It is proposed to mar everything already done for the improvement of this quarter, and the occupants of mansions, with gardens already furnished and beautiful, are to be driven further a-field, if they wish to attain the quiet anticipated when they at first settled in the alluring serenity of the Brecknock Arms' vicinage.

Already symptoms of desertion are visible. Windows with closed shutters are labelled, "This house and pleasant gardens to let"—the boding stillness of some apprehended plague painfully oppresses the visitant who looks after a missing friend, but who finds the banquet-hall deserted, and chamber all lonely as though the loved tenant were "dead."

Now, as to the situation of a great cattle-market, that is of even less importance than the question of abattoirs. Where is the supply for London to be slaughtered? The butchers, who are a thriving class, and well provided with notoriously fast horses and smart market-carts, care little for the additional stretch of a mile or two of a morning to market. The great question is, are we to have ABATTOIRS, or is the pernicious custom to be continued of driving and goading oxen through the crowded thoroughfares?

Paris has long ago condemned the gothish usage which we still maintain: their streets are narrower, but the population is fewer by three-fourths. It is not, however, in the freedom from annoyance, by the exclusion of herds of cattle, flocks of sheep, and droves of pigs, that the French so much profit, as in the superior quality of the viand brought to market and exposed in their shambles. Oxen infuriated by obstructing vehicles, and mercilessly wheeled by drovers, are driven up our lanes and alleys until, heated and maddened, they are forced into the slums and cellars of the slaughtering-butcher, who cuts up the fevered carcass, contused, and so far unwholesome, for the consumer. An inspection of the purlieus of Newgate-street, not to speak of the vile and narrow mews of the low neighbourhoods where slaughtering is performed, would convince any of the impropriety of continuing our old and, perhaps, endeared, because time-honoured system. Look at the livid and tainted lump of waste meat just in the centre of a fine flank of cow beef: it disgusts even the ravenous trencherman: that is a wheal!—a blow from the cudgel of the driver! it is all waste!—nay, more: as a little leaven leaveneth the lump, so it taints the mass. It is the same of mutton and pork: all suffer more or less from the barbarous custom of driving through six or more miles of street, lane, and alley.

But will it be believed that in the town the same evil arises from the same causes? That in the choicest and most aristocratic neighbourhoods, the same revolting system is practised? And yet so it is. Not to nauseate unnecessarily delicate sensibilities, let one example suffice. Here it is. At Knightsbridge, 250 yards from Belgrave-square, there is a stable lane, or rather close, down which, every market-day, oxen and sheep are driven towards a *strait* not six feet wide; through this the stalled ox is forced

down an incline, scarce four feet in width, to a cellar: this cellar is adjacent to a dining-room in Wilton-place: there is a yard 7 feet wide, and perhaps 20 feet long, in connection, part of which (about 10 feet long) is shedded over: into this shamble whole hecatombs are precipitated annually, and skins and offal lie in heaps on the open pavement whole days. Night by night the baleful lowings of the pent-up cattle disturb the vicinal residents. With scarce space to stand, such an endurance is not likely to freshen the fevered and half-maddened bullock, or to render the meat wholesome; nor is the grievance of infra-brutal bellowings less harrowing to the occupant of the next house than the stench which during the hot weather pervades the whole quadrangle between Wilton-place, Knightsbridge, and the next traverses.

QUONDAM.

THE BRITISH ASSOCIATION.

THE reports of the meetings of the British Association, fraught with interest as they must be to men of mental culture and scientific attainments, such as are, doubtless, the majority of your readers, and such as every member of our profession should be, have probably been seen and read by most of us. For my own part the perusal has afforded me gratification of no ordinary kind, though not unmingled. The rapid progress made in scientific research, and the brilliant discoveries on the eve of which we appear to be verging, must fill the heart of every Englishman with inward satisfaction and pride. The fact, also, of the interest taken by Government, and the disposition it seems to manifest for the furtherance of science, is very encouraging, and will assuredly add much to our national reputation.

A systematic scrutiny of the heavens from some favourable spot in the southern hemisphere, and with ample instrumental means, could not fail to add to our laurels, by the production of a valuable catalogue of nebulæ, and the extension of our knowledge amongst the mysterious and remote orbs set by their Creator in latitudes beyond the reach of the generality of observers.

The subject of terrestrial magnetism has been invested during this meeting with peculiar interest, and the response given by Government to an earlier application from the British Association is already productive of abundant results, the apparent complexity of the phenomena are becoming disentangled, the laws of secular and periodic changes established, and solar influence acknowledged.

I will not add more or occupy time by a further review of the interesting matter brought forward during the meeting: I have said enough for my purpose. We are, and with reason, proud of the discoveries, made by our countrymen, of the long-existing laws which govern the material universe. But now, sir, I would speak as an architect, and I feel I shall have the sympathy of my professional brethren: has it not often been the lot of most of us to conduct those who have had some claim on our attention, through public buildings, churches, or other edifices, the erection of which has cost their authors many a long night of toil, study, and calculation? and on such occasions almost invariably it happens that a critique is passed on the merits or demerits of such structure, but no question is asked, no allusion made to the man to whose skill and taste the building is indebted for its symmetry and beauty, its proportion, fitness, and harmony. A slight like this,—a total disregard to the *architect*,—we all must feel, even though we may not have been professionally connected with the building in question. Yet, in comparison, the structure of our earth, the wonders and beauties with which it is encompassed, the sublimity of universal creation, and the works of a still more wonderful ARCHITECT, any building, however gorgeous and magnificent, sinks into insignificance; and still we find no notice taken during this meeting (so far as I can see by the reports) of that great Architect who designed, planned, and executed a mansion for man so beauteous, and a system in completeness surpassing our comprehension, a knowledge of which He permits us gradually to attain, through the appliances of science, in such a measure as He thinks fit. It would, therefore, become us as mortals, whilst receiving his favours, to acknowledge with humility the hand that bestows them, and the wisdom of that WORD by whom all things were made.

PHILOLOGOS.

USE OF PLATE GLASS.

THE improvement which has been observable during the last few years in the appearance of the commercial and other buildings lining the principal streets of our metropolis, and also in the larger towns throughout the kingdom, may be attributed mainly to one cause—the use of plate glass. Those who look back some ten or twenty years and remember the long rows of meaningless (and, in many instances, lop-sided cant-bowed) windows, with a very large proportion of the light-room blinded by gratings of sash bar, and the glass itself very attenuated, and having a blotchy and uneven appearance; and when the facia board was "scooped" out at the ends to give the desired return projection to the incongruous cornice above,—will look with surprise at the costly arrangements which now take their place.

There is yet much to be done in this path. We have in many instances yet to see the upper stories of shopped houses carried by something substantial, and not having the appearance of being supported on glass, which, although it generally projects from the face of the brickwork, has a very unpleasant and unarchitectural appearance. Surely we are advanced enough, and possess means and appliances sufficient to use our new material in a business-like and architectural manner, without losing any of that justly-prized and untaxed article—light; and without loading the lower story so much as to have an appearance of heaviness inconsistent with the purposes of trade.

Architects did not like to fill in the window-openings in their drawings with the usual allowance of cross-bars: where the whole opening is filled with one, or, at most, two large sheets of glass, the improvement and increased breadth are wonderful.

With regard to Gothic buildings, are we bound to stick to lead lights in small diamonds? Why did our forefathers use lead lights? for the same reason that they used tinder-boxes and dip-candles—because they had nothing better. Why all this hindrance to light? If we want subdued light, can we not have the glass tinted, deadened, or ground? But why not have it in large sheets? is there anything particularly good in diamond lights?

We certainly do live in a "mediæval" age, but why not combine the good parts of the mediæval with the present advanced state of the arts and sciences, and adapt the old to the present time, and not keep back and adapt the present time to the old, the crude, and the unfinished?

Would it not be useful and practicable to *corrugate* large sheets of glass for its application to transparent roofing, and for many other purposes requiring great stiffness with a large amount of light? and we have yet to see it made malleable, in order to its adaptation so various purposes to which it is now inapplicable.

T. G.

CHRISTIAN ART.—THE "ASSUMPTION OF THE VIRGIN."

MY attention was drawn the other day to an interesting letter in your columns, headed "The Conception of the Virgin a Misnomer as applied to the Painting by Murillo, from the Soult Gallery." (p. 502, *ante*.)

Every lover of the poetry of Christian Art must feel indebted to the author of that letter for his attempt to enforce a careful application to pictures of their proper and technical titles; but before he requires us to acquiesce in so bold a departure from established nomenclature as the one he proposes, I think we may fairly demand a more extended appeal to facts.

On the hypothesis of Mr. Hendrie all pictures professing to represent the "Conception of the Virgin" must have for their principal figure St. Anne, the mother of the Virgin, but he does not refer us to any examples of such pictures. It is very true that mediæval artists "delighted in the complete development of the history of the mother of Christ;" but though Mr. Hendrie states "that the Conception of the Virgin formed the first of the series in representations of her history," he does not inform us of one instance of such series arranged consecutively, with the "Conception" placed at the commencement.

In the extract from the MS. from Mount Athos, Mr. Hendrie appears to quote from memory, since the passage is not marked with inverted commas. It would be more satisfactory if the exact words and reference were given.

In the catalogue of Murillo's pictures, appended to Mr. Stirling's learned work on Spanish Art, we find no less than twenty-five entitled "Our Lady of the Immaculate Conception," and two entitled the "Assumption." I need hardly say that the twenty-five are pictures of the Virgin, not of St. Anne, and nothing could be more unlikely than that Mr. Stirling should have applied to them a misnomer, since Murillo of course was one of his chiefest studies, and Murillo has been called by pre-eminence the "painter of the 'Conception.'" The popular enthusiasm which rose so high in Murillo's time on the subject of the newly promulgated doctrine of our Lady's "Immaculate Conception" is quite sufficient to account for the frequent repetition of the subject in Murillo's works; and we should bear in mind that the term "Conception of the Virgin" is a contraction of the full title, viz. "Our Lady of the Immaculate Conception;" and pictures so denominated are, I would submit, an attempt to embody and express, so far as pencil can, the highest conceivable perfection of womanly form and character; such perfection as one should ascribe to a being believed, like her own divine offspring, to have been born of spotless purity.

Such, I believe, is the true interpretation of the title "Conception of the Virgin." Should any wish for further information, they may find much valuable and interesting matter at page 904, vol. 2, of Stirling's "Annals of the Artists of Spain."

T. F. C.

Mag. Coll. Oxford.

BATHS AND WASHHOUSES AT BILSTON, NEXT BIRMINGHAM.

THE spread of these establishments is a gratifying feature of the day. On another page we publish a plan and view of the baths and washhouses now in course of erection at Bilston, next Birmingham.

Some of our readers will recollect Bilston as the locality so severely visited by the cholera in 1832 and 1849. In August and September of the former year 3,568 of the inhabitants were attacked and 742 died in less than seven weeks.

We are happy to announce the determination of the inhabitants to erect this useful establishment, so peculiarly necessary in all similar towns; and are informed that this boon to the inhabitants of Bilston is in a great measure to be attributed to the energy and labours of the Rev. J. B. Owen and others, whose active benevolence was apparent at the time of the late fearful visitation.

The designs have been prepared by Messrs. Ashpitel and Whichcord, architects, and the contractor for the building is Mr. Horrebon, of Wolverhampton.

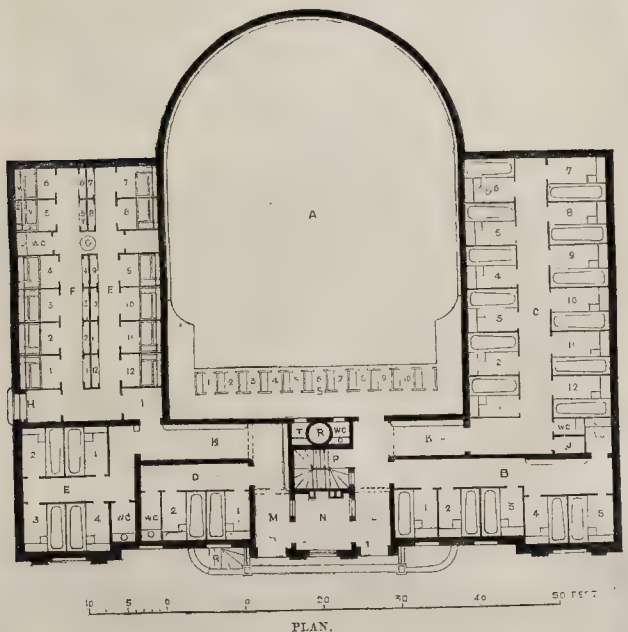
There are in the whole nineteen baths divided into four classes; also vapour and shower baths, a large swimming bath, 37 feet by 24 feet, and a plunging bath. The washhouse has ten washing-stalls, with a separate drying-closet to each, and with wringing machine, &c. There is also a residence on the first floor over the office and entrances.

The contracts for builder and engineer's work have been taken for 2,125*l*.

BATHS AND WASHHOUSES, BILSTON, NEAR BIRMINGHAM.

MESSRS. ASHPITEL AND WHICHCORD, ARCHITECTS.





PLAN.

REFERENCES.

A. Swimming bath.
B. Men's baths—first class.
C. Men's baths—second class.
D. Women's baths—first class.
E. Women's baths—second class.
F, F. Washhouse.
G. Wringing machine.
H. Entrance to washhouse.
I. Office.
J. Soap, &c.
K. Lobby.
L. Men's entrance.
M. Women's entrance.
N. Office.
P. Bath-keeper's entrance.
Q. To the stokery.
R. Chimney-shaft.
S. Dressing-boxes.
T. Urinal.
V. Wash-tub.
W. Boiling-tub.
X. Rinsing-tub.
Y. Drying closet.
Z. Dripping board.

RAILWAY MATTERS.

On Monday last, travelling on the North-western line to Tusmore House, Oxfordshire (a large Ionic stone mansion of the last century, in the midst of a splendid park, with *Hora e Sempre* inscribed on the entablature, and containing, amongst other pictures, portraits of Mrs. Fitzherbert and Miss Arabella Fermor, the heroine of Pope's "Rape of the Lock"), where restorations have been commenced,—we found the road stopped about a mile from Leighton Buzzard, and were delayed about three hours in the journey. A pilot-engine, employed to conduct the down trains safely over a part of the road where the rails are being relayed, in quitting its charge at the crossing, was knocked over by the engine it had lately aided. On the up line laid the pilot-engine, with its tender down the embankment, and across the down line was embedded the guilty engine, knocked up by its own bad doings. Fortunately, and almost miraculously, the personal injuries were very slight. The scene was a curious one: the assemblage of trains, the luggage strewed by the roadside, a large body of labourers with "jacks" striving to move the obstructing engines, and the passengers in groups looking on. The accident must have been the result of carelessness, but the arrangement is itself a dangerous one.——Two railway stations for Brazil have been constructed of corrugated iron at Birmingham, by Mr. J. H. Porter. Each is 200 feet in length and 70 feet in width, and is divided into two compartments. They are for the Rio de Janeiro Railway.——An accident showing the risk of patching locomotive tubes has just occurred on the Midland line, near Nottingham, by an explosion of the boiler at the junction. Fortunately, in this case, the junction could not have been strong, as the explosion was slight; but it is clear that the stronger such a junction, *short of what it ought to be*, the greater the risk of a *dangerous* explosion.——At the sixth half-yearly general meeting of the Railway Passengers' Assurance Company, held on 1st inst. at the offices, Old Broad-street, Sir John Dean Paul, bart. in the chair, the report of the directors was submitted, which showed a very satisfactory increase of the company's transactions, exceeding even the amount of 1851, when the Great Exhibition induced so unusual an increase of travelling. After paying all expenses and claims there remained an available balance of 1,727*l.* 18s. 11d. which enabled the directors to declare a dividend on the half-year at the rate of 4 per cent. per annum, payable on and after 15th inst. The company, it will be remembered, had assured the late Mr. Grainger in 1,000*l.* by a periodical ticket which he held, and the claim of his representatives, it appears, has been adjusted with the company.

THE IRON TRADE.

A portion of the quarterly meeting masters, interested in the return of the puddlers, who struck, to their work, have, with some fear and misgiving as to the general reckoning on quarter-day, agreed to raise the puddlers' wages, and resolved to increase the price of their finished iron 20s. a ton, both rises to take place from 1st October next; and in order to induce the puddlers the more readily to return at once to work, that in the meantime an advance of money be made to them and their previous wages paid them.

The Glasgow pig iron trade is reported rather inactive, but the following prices are quoted:—"Mixed number warrants, 45s. 6d. cash, sellers; buyers shy, and only offer 45s. for shipment, No. 1 may be quoted at 45s. 3d.; No. 3, 44s. 6d.; No. 1 Gartsherrie, 45s. 9d. bars are from 6*l.* 10s. to 6*l.* 15s. and plates 9*l.* to 9*l.* 10s. with great activity in the latter."

Last week, whilst quoting an American paper on the subject of machinery, we took occasion to hint to Jonathan that the Britishers had rather not substitute his "lighter" engine boilers for their own more "cumbersome" ones, unless they wished also to import his grand explosions. But we scarcely anticipated that these very explosions are already charged against ourselves. What have our iron masters to say to the following American complaints of British iron, quoted from the *New York Courier?* The quotation is necessarily much abridged, to adapt it to our pages:—

"We recently stated," says the *Courier*, "that the consumption of iron in the United States amounted to about one million tons per annum, or 100 lbs. to each person. (!) We are informed that four out of five iron establishments in this city *use English plate iron exclusively for steam boilers*, which is obtained at prices much below those demanded for American plate iron. And what are the risks thus entailed upon life and property? Can this plate iron be depended upon? Much English iron is made from impure ores, and sulphureous coal. In some furnaces refuse cinder, which is rich in metal, but highly impregnated with phosphorus, arsenic, sulphur, &c. is employed; and iron so produced is mixed and sold with iron of a better quality without its inferior character being detected. In Philadelphia, within the last two months, while being subjected to tests, a steam-boiler exploded with less than the usual quantity of steam pressed upon its superficies, and in a moment seven persons, who were in the vicinity at the time of the experiment, were hurried into eternity. No visible flaws were found in the ruptured plate, and the iron appeared sound and healthy; *but it was of British manufacture*, and may have been of the refuse cinder quality. Congress has no right, by a policy so pernicious as the Act of 1846, to invite dangers into our midst, causing insecurity to thousands. Late experiments at the Washington Navy-yard demonstrated that English chain cable of a certain thickness of diameter was ruptured by a breaking strain of 716 lbs. less than was required to rupture American chain cable of the same diameter. During the experiments at the Washington Navy-yard the strength of a chain of French manufacture was also tried. It yielded at a breaking strain of 1,080 lbs. while an American chain of the same thickness only yielded to a strain of 1,277 lbs. Similar results followed after over 200 tests. We do not charge that deliberate frauds are perpetrated by the British ironmaster; but brands which he sells at 6*l.* 0s. 8d. per ton, are charged to brands that bring in the market 8*l.* per ton, and the domestic importer is the first to unintentionally palm off the imposition. Congress cannot enact a law to prevent these outrages, but it can pass a law imposing heavy duties on iron, and the consequences will be that American iron will come into general use, and the foreign article will be partially excluded by the superiority of the former."

NOTES ON GAS-LIGHTING.

The chief stone of the new works of the Sheffield Gas Consumers' Company was laid by the mayor on Monday in last week. The company have purchased for their works a piece of land 5½ acres in extent, between Neepsend-lane and the Manchester, Sheffield, and Lincolnshire Railway. For some time past workmen have been engaged converting the clay found in the land into bricks, for the erection of the buildings. The foundations of the retort house, coal store, purifying houses, coke stores, and other portions of the building are already put in. The buildings have been so laid out that coals can be brought from a sliding on the railway, the making of which the Manchester, Sheffield, and Lincolnshire directors have already sanctioned, direct into the works. The excavations for the large tank are also nearly completed. This tank, which is to be 167½ feet in diameter, will, it is said, be the largest in the world, the largest already erected being that at Kennington Oval. The contractors have undertaken to have the buildings completed by 30th November, and the company anticipate being able to supply gas to their customers by February next. A large quantity of mains and pipes are already on the ground.

The first sod of the Guisborough gas-works was turned on Wednesday in last week, and the excavations and other preliminary works were at once commenced.

At a recent meeting of the shareholders of the Maryport Gas Company, a dividend was declared of 6 per cent. out of the net profits, and a considerable sum was likewise carried to the reserve fund to meet the expenses connected with repairs and extension of works at present in operation.

At a late meeting of mechanical engineers in Birmingham, Mr. John E. Clift read a paper on the construction of firebrick gas-retorts, giving the result of several years' experience of their working at the Birmingham and Staffordshire Gasworks, as well as at several other places. These gas-retorts are constructed entirely of firebricks, except the mouth-pieces, which are of cast-iron, in the usual form, and the bricks are set in fireclay, and joined in a simple manner, so as to break each joint, and prevent escape. Two small retorts are placed at the bottom, and one large one above, 5 feet wide; and all of them are 20 feet long, being double the usual length, and having a door at both ends. A number of them are said to have been in constant work for eight years, with very slight expense for repairs, and to be still fit for working several years longer; while the first cost is less than that of cast-iron retorts.

WORKS IN IRELAND.

The Royal Exchange at Dublin has lately undergone various alterations in the interior. A council-room now occupies the position of the old coffee-room, and the fitments will be on a much more "attractive" scale than those in the corresponding apartment of the City Assembly-house, in William-street. As the building is being converted into a town-hall, various offices have been provided throughout for the municipal officers. The amount of expenditure will probably be 3,000*l.* and we understand that the present entrance is to be entirely remodelled, under the direction of Mr. Hugh Byrne, city architect.

The preliminaries as to lockspitting site, &c. for the Exhibition Building at Dublin, have been commenced under the directions of the architect, Mr. Benson.

We are glad to find that the Cork National Exhibition Committee have extended the time for closing the exhibition, inasmuch as the influx of visitors at present is so great as to justify that step. On a recent occasion a large number availed themselves of a cheap excursion train advertised by the Great Southern and Western Railway Company, to convey passengers to Cork and back (a distance of 164 miles) for 8s. second class, and 5s. third class. On some days upwards of 3,000 tickets were issued at the exhibition building, independent of the admission of *season ticket-holders*, and the steamers to Blackrock Passage and Queenstown were literally crammed with strangers.

A new Roman Catholic Church is in progress of erection at Sunday's Well, overlooking the Queen's college. The design is Gothic. Mr. Benson is the architect, and Mr. Murray the builder.

At Queenstown additions have been recently built to the chapel. The chapel at Adare, near Limerick, is undergoing alterations: portions of the old buildings have been thrown down, and a new roof is being put on: the new portions are in the Early English style, and we believe the Earl of Dunraven is the principal contributor.

A beet-sugar manufactory is being established in Waterford by a party of Belgians, who have lately arrived in that city. The Royal Irish Beet Sugar Company were solicited to establish a factory there, and Mr. Sproule, the Irish secretary, attended a public meeting on the part of the company; but it is evident the other parties have determined to be first in the field.

The Craigmore viaduct, on the Dublin and Belfast Junction, has been opened. The portions of this line between the Wellington Inn station and the temporary station at Armagh-road, are nearly finished.

The works between Clonmel and Dunkitt, on the Waterford and Limerick line, a distance of 26½ miles, are nearly complete. The Cahir station-house is finished, and the Admiralty

having approved of the design for the bridge over the Luir, at Fiddown, Mr. Dargan has undertaken the contract, and the works are three parts completed. This bridge, with embankments, will be 800 feet long. Mr. G. W. Hemans is engineer in chief.

ELECTRO-TELEGRAPHIC PROGRESS.

We have already mentioned that the East-India Company are about to introduce the electric telegraph through all the principal districts of their vast possessions: they have entered into a contract with Messrs. Morewood and Rogers for the supply of no less than 3,000 tons of patent galvanised wire for this purpose. The shipment of the wire is to commence in October next, and the whole length of telegraph (about 6,000 miles) is expected to be in action within two years from this time. The posts are to be simple bamboo, placed in iron screw-pile sockets, and well insulated at the top.

A report by the managers of the Submarine Telegraph Company between France and England, presented at a meeting held at No. 10, Place de la Bourse, Paris, on 6th inst. states that the revenue account, after payment of all expenses properly chargeable under that head, gives a net disposable balance of 2,031*l.* 11s. 9d. admitting of the declaration of a dividend, for the six months ending 30th June last, of a sum equal to 5*l.* per cent. per annum on the capital of the society, and leaving a surplus of upwards of 200*l.*;—that earnings of the line have been unduly taxed by payments for the transmission of the society's messages between Dover and London; and that had such payments, during the past six months, been made as by the future agreement, the disposable balance would have been increased by 1,133*l.* 15s.; and the dividend to the 30th June would have been, with precisely the same amount of traffic, at the rate of 8*l.* per cent. per annum in lieu of 5*l.* The amount paid to the South-Eastern Railway Company is said to have been 2,369*l.* 12s. 3d.; and amount that would have been paid under the provisions of the subsequent land agreement, 1,235*l.* 17s. 3d. The managers next advert to a proposed agreement between the society and the "Submarine Telegraph Company between Great Britain and the Continent of Europe," lately established in London under Royal Charter. A provisional agreement had been entered into by the managers with the chartered company, for an equal division of the traffic receipts, and for a joint management of the two undertakings; such agreement to take effect from the opening for the public transmission of messages of the Belgian line, and to continue in force during the existence of the two concessions or of either of them, or until a more complete amalgamation of the companies can be effected. The managers confidently anticipate that a dividend of from 8*l.* to 10*l.* per cent. will be immediately realised on the capital of the two companies. They report that the cable between Dover and Calais is in every respect as perfect as the day on which it was laid down.

Notices of Books.

A History of British Birds, indigenous and migratory; including their Organization, Habits, Relations, &c.; illustrated by numerous Engravings. By William Macgillivray, A.M. LL.D., Professor of Natural History, &c. in Marischal College and University, Aberdeen; Member of the Wernerian Natural History and Royal Physical Societies of Edinburgh, &c. Vols. IV. and V.

The study of natural history, and especially of that beautiful portion of it which relates to the feathered creation,—God's builders, as they may well be denominated,—tribes, as they are, of ever-varied splendour, bearing, to the animal world, much the same relation that the flowers do to the vegetable,—constitutes a recreative interval from the cares and toils of professional life, of the most refreshing description; and especially so with a philosophical and reflective as well as experienced mentor to guide us, such as Dr. Macgillivray is well known to be.

The present volumes complete his elaborate work on British birds, a work without a prototype, and which must constitute the basis on which all future acquisitions to the British ornithologia must be founded.

There is a quaint intermixture of technical lore and reflective sagacity in these volumes, which renders them amusing as well as instructive, whether the reader be a lover of birds or not. An author who is an enthusiast in his work will seldom fail to meet with readers who will feel a sympathetic interest in perusing what he has written. Much of what is here presented is necessarily technical and dry in itself, but it is so mingled with racy thought and curious comment that it all goes down, leaving a relish behind it anything but unpleasant. Here is a slice or two which our readers may "taste and try before they buy:"—

"Some persons have moralized on the cunning of birds. They cannot believe that they should naturally possess any instinct leading them to acts such as in men are accounted evil. But a rational being and an instinctive animal have no moral affinity. Why should not animals use stratagem in defence of themselves or their young? Is cunning a greater crime than murder? And yet who finds fault with an eagle for tearing a lamb to pieces but the shepherd and his master; or with a lion for devouring a Bosjesman or a Dutch Boor, but other Bosjesmen and Boors, who may dread the same fate? If a myrmeleon digs a pit, and lies in wait to seize and devour the unhappy insect that has fallen into it, do not men—moral men—make pits to entrap elephants, hyenas, wolves, and other beasts? Who blames the fisher for his practices, although his whole art is a piece of mean deceit? He lets down into the dark sea a web of cord, and persuades the silly herrings that there is nothing in their way. He busks a pointed and barbed hook, casts it on the water, and says to the trout,—'There's a nice fat fly for you!' He impales a sprawling frog, and, letting it down the stream, pretends to attend to the comfort of the hungry pike, who is not insensible of his good fortune until he feels the steel points thrilling his pneumo-gastric nerves."

Or again, as in dwelling on the habits of the common ring-plover:—

"Were I to describe," he says, "the manners of this gentle creature, under the influence of the delightful emotions which the view of it has often excited in me, I should probably appear to the grave admirer of nature an enthusiast, or an imitator of other men's musings. Well, let him think as he lists; but yet lives there the man, calling himself an ornithologist, who, quietly strolling along the bright sandy beach, just left bare by the retiring tide, and aroused from his pleasing reveries by the mellow whistle of the ring-plover, would not gaze with delight on the pleasant little thing that speeds away before him with twinkling feet, now stops, pipes its clear cry, runs, spreads its beautiful wings, glides close over the sand, and alights on some not distant tuft. What are primaries and secondaries, coecums and duodenums, types and analogies, squares or circles, to him who thus watches the living bird? There is the broad blue sea; on that hand the green pasture; under foot, and around, the pure sand; above, the sunny sky. Frown not upon the cheerfulness of nature: shout aloud, run, leap, make the sand-lark thy playmate. Why mayest thou not be drunk with draughts of pure ether? Are the gambols of a merry naturalist less innocent than the mad freaks, the howlings, the ravings of sapient men assembled to deliberate about corn-laws, or party zealots upholding their creed by palpably demonstrating their total want of charity?"

Who would imagine that at the moment when so seemingly light-hearted a paragraph was written, the author felt the heavy hand of death upon him? Yet knowing the circumstance, it enables us to see even in this paragraph a touching consciousness of the peril which stood between him and the innocent gaiety he so forcibly depicts. The author calmly refers, in other passages, to the near approach of death; and since the preparation of this notice of his last labour, we grieve to have it announced that the author died, at his house in Aberdeen, on Sabbath week. Dr. Macgillivray, as remarked by the *Morning Herald*, "was the author of many works on natural science, besides biographies of men who had succesfully cultivated it. He was an ardent and enthusiastic student of nature, as well as of books, and this probably hastened the event which the scientific world has now to deplore."

Miscellanea.

New Levelling Instrument.—A new instrument has just been patented by Mr. W. Gillespie, of Torbanehill, Bathgate, for the purpose of taking the surface of slopes, railway gradients, the dip or rise of the bottom of water channels, and generally all levelling and sloping operations known in civil engineering. The instrument, which has been denominated "the inclinometer," is one of great simplicity, and may be applied by the ordinary labourer. It is constructed in the form of a parallelogram. The bottom parallel being placed upon any slope, the upper parallel necessarily presents to the eye the amount and direction of that slope. To measure the amount of slope, an additional limb or parallel is hinged, at one end, to the top bar or parallel of the parallelogram. From the other end of this addition depends a plummet by a cord or wire passing vertically down the graduated front of an additional side bar or limb of the parallelogram, fixed at right angles to the moveable parallel above. This moveable limb being raised from the parallel position in which it reposes from the upper bar of the inclinometer, to a position perfectly horizontal according to the plummet, the space intervening betwixt the two top bars, as marked off on the graduated or vertical side, is the rate of slope to be ascertained. The bottom and top parallels being thrown from the due level in trying the slope, and the due level restored in the case of the movespar, its depending or vertical limb thus shows the difference—the two constituting the elements of a rectangle the same as the instrument itself, only applied to the true level, whilst the instrument is applied to the slope. The difference thus evinced must therefore be the exact rate of slope, or deviation from the level; and the instrument is capable of being fixed to that rate of slope by screwing to the immoveable top bar the sector attached to the moveable one.

Town Hall, Chester.—On Friday last the town council met to receive tenders for the complete repair and restoration of the Exchange Building and Town-hall. The following were the tenders received:—

Thomas Hughes	£2,120 0 0
Thomas Dean	2,236 0 0
Poole and Jones	2,307 17 0

The estimate of the corporation surveyor was 2,107*l.* The Hall is not by any means an old one, as it was commenced in the year 1695, and completed in 1699. In 1756, in consequence of some complaints as to its stability, the area underneath being open, and the Town-hall being supported on pillars and arches, it was strengthened by forming shops, &c. at the angles, and by running walls the length of the building on the western sides, which have now been converted into police-office, cells, &c. It is intended to take down the western and part of the north front, which have given way, restore the stonework and brickwork, strengthen the roof, and thoroughly paint and beautify the exterior and interior of the Exchange and Town Hall. The works are expected to occupy eighteen months.

Archæological Researches at Pevensey Castle.—The Earl of Burlington, on the application of Mr. Lower, of Lewes, having given the necessary permission, it is proposed to excavate within the castrum by removing the accumulated soil, by which, it is presumed, many of its architectural features are concealed. Mr. Roach Smith and Mr. Lower have engaged to receive subscriptions, and to report to the subscribers on the progress made. When Mr. Smith was engaged in his researches at Lymne, the South-Eastern Company franked his journeys between that place and London; and we are pleased to learn that the London and Brighton Railway directors have, in a like spirit, granted Mr. Lower a "pass" for six months.

The Works of William Shakespeare, the greatest of artists, concern all artists. Mr. J. O. Halliwell, F.R.S. proposes a new edition in twenty folio volumes, corresponding in size with the convenient first collective edition of 1623. He proposes to give copious archæological illustrations, a life of the poet, &c. There will be numerous illustrations, too, and these will be under the direction of Mr. F. W. Fairholt. The projector says that the preparation of this work has occupied his earnest attention for nearly twelve years. His object is to bring together, from the stores of Elizabethan literature, art, or science, whatever really tends to illustrate the pages of the great poet of the world, in the full conviction there yet remains room for one comprehensive edition which shall answer the requirements of the student and zealous inquirer. "Granting, he says, that the general spirit of Shakespeare may be appreciated without the assistance of lengthened commentary, it cannot be denied there is much which is obscure to the modern reader,—numerous allusions to the literature, manners, and phraseology of the times, which require explanation and careful discussion. This is a labour which has never yet been attempted on a large scale. In the preface to the translation of Karl Simrock's Remarks, 8vo. 1850, I have shown there are upwards of two thousand obsolete words and phrases in Shakespeare left without any explanation in the editions of Mr. Knight and Mr. Collier. Here is, undoubtedly, a field of criticism, which deserves the labour of the student; and without attempting to supply all these deficiencies, it may still be allowed me, without presumption, to promise an extensive advance on what has been accomplished by my predecessors." The impression is to be strictly limited to 150 copies, and each copy will have the printer's autograph certificate that that limit has been preserved. All the plates and woodcuts used for this are to be destroyed, and no separate impressions of any of them will be taken off. Long training, much learning, and large collections bearing on the subject, peculiarly fit Mr. Halliwell for the heavy undertaking he proposes. The list of subscribers will, there is no doubt, soon be more than filled, and public libraries should at once apply. We cordially wish him health to complete the important task he has entered upon.

Industrial Statistics of Paris.—In the statistical section of the British Association at Belfast, one of the secretaries read a paper by the late Mr. G. R. Porter, of the Board of Trade, on the "Productive Industry of Paris," from which it appears that the total number of workmen employed in 1847 was 342,530, — viz. 204,925 men, and 112,891 women, with 24,714 children and young persons—which fell in 1848 to 156,125, being a diminution of 54 per cent. The chief falling off was in furnishing, where the reduction was 73 per cent. and the least was in the preparation of food, which only fell off 19 per cent. The latest value of the productions of Parisian labour in 1847 was 58,545,134*l.* and in 1848 only 27,100,964*l.* The falling off in consumption was very remarkable. The quantity of flesh meat consumed in Paris in 1847 was 150 lbs. per head: in 1848 it fell to 87¾ lbs. per head. After affairs settled down again, it rose in 1849 to 146 lbs. per head, and in 1850 reached 158 lbs. per head. Out of the entire number of workmen, 147,311, or 87 per cent. could read and write. Out of 86,617 women, 68,219, or 79 per cent. could read and write. The rate of weekly wages was given on an average as follows: — Carpenters, 27s. 4d.; cabinetmakers, 20s. 3d.; masons, 18s. 9d.; tailors, 20s. 2d.; butchers, 19s. 7d.; jewellers, 31s. 9d.; bakers, 19s. 7d.; shoemakers, 16s. 6d.; confectioners, 21s. 9d.; milliners, 20s. 3d.; laundresses, 12s. 3d. It was found that 950 women earned less than 6d. per diem; 27,452 males, and 100,050 females, earned 6d. to 2s. 5d.; 157,216 men, and 626 women, earned 2s. 5d. to 4s.; and 10,393 more than 4s. It is the practice of the Paris workmen to work part of the day on Sunday, but they invariably make a holiday on Monday, most of their wages being lavished in enjoying themselves on that day. Those who can earn the most money are found to save the least, as they extend the Monday holiday into other days of the week.

Metropolitan Commission of Sewers.—The following resolution was passed at the last meeting of the Metropolitan Commission of Sewers:—"Resolved, that inasmuch as it appears to the Court that the cholera is rapidly approaching this country and metropolis, and it is urgently necessary for the public health that foul open sewers and ditches should be covered over, and other aggravated nuisances removed; and, inasmuch as the commissioners have failed in their endeavours, under the existing law, to raise the sums required for the execution of such works by loan on the security of the sewer-rates, it is, in the opinion of this court, expedient and necessary that immediate application be made to her Majesty's Government for a temporary advance of such a sum as will enable the commissioners to execute the works of urgent necessity above adverted to; and it is ordered that it be referred to a committee of the entire body of commissioners, to consider and determine the most convenient mode of bringing the subject to the notice of her Majesty's Government, and that such committee be authorised and empowered to communicate with the Government for such purpose; and ordered further, that the committee be summoned for Tuesday next, the 14th inst. at eleven o'clock a.m. at this office, for the consideration of the said matters." The result of this discussion is not yet known.

Commercial Travellers' School Competition.—The observations on this subject in a recent number are correct, but do not go to the full extent in exposing a practice now on the increase amongst architects,—that of attaining, by cunning canvass, or by private interest, the preference which merit only ought to receive. Of the competitors several have not only sent lithographed plans, with letters and commentaries, to the committee, but have also used personal solicitations, not confining their arguments in favour of their own productions, but using, perhaps, a *friendly opportunity* of view afforded them for the condemnation of the designs by others. If such practices are permitted, there is an end to free and fair competition, for the committee which has to decide the selection on intrinsic merits only, ought to receive and open all the plans at the same sitting, without being pre-advised or solicited by any of the competing architects. What will be thought of professional men who have touted every individual on the committee before any plans were sent in? Or of such a proposition as offering to present a coloured and elaborate design which should be worth 40*l.*? There are examples of similar tricks, tried successfully, too, on similar occasions. Many recent competitions illustrate the futility of a selection by anonymous tender, as well as the deceit of using mottoes which are known. Common justice would imply, that when the condition of a proposal is the suppression of the proposer's name, all who might violate that postulate (much less tout and canvass for preference) should be wholly excluded.—Spec.

The late Mr. J. W. Allen, the Artist.—We are glad to find that the subscription for a fund to provide for the widow and eight children of Mr. Allen, whose death we have already mentioned, is progressing favourably. Mr. Allen was born at Paradise-row, Lambeth, in the year 1803. On leaving St. Paul's school, he assumed his father's avocation as an usher at a school at Taunton; but the employment proved unsuitable to the clever and vivacious young man; and his talent for drawing and painting having early developed itself, he returned to London. He had, of course, great difficulties to master, and he did not disdain to paint very humble subjects; he used to say he did not think his most finished landscape ever produced so much fervent admiration as his imitation of a Venetian blind during this period of his probation; and it is said a specimen of this early demonstration of his ability may yet be seen in a coffee-shop at Mile-end. We will not attempt to follow his life. Suffice it that by the force of his talent he made himself recognised as an able depictor of English scenery. His "Vale of Clwd," exhibited a few years since, created a considerable sensation. This picture was purchased by a prizeholder in the Art Union of London for a large sum, at a moment, as we have heard him say, when it was of vital service to him. Mr. Allen took, as is well known, an active part in establishing "The Society of British Artists," and attached himself to it with great devotion. He was also Professor of Drawing at the City of London School from its foundation; and the fact that the School has given fifty guineas to the widow and family, the headmaster, the Rev. Dr. Mortimer, ten guineas, and the other masters twenty guineas, shows the extent to which he was appreciated by them.

Sewage Manure.—On Thursday, in last week, the chairman of the Metropolitan Commission of Sewers, Mr. R. Jebb, with Major Dawson, R.E. Mr. G. Spencer Smith, Mr. J. Redhead, and the secretary, Mr. Woolrych, met Mr. Stothert, of Bath, and other gentlemen interested in sanitary matters, at Richmond, pursuant to appointment, to witness Mr. Stothert's experiments in the deodorizing and precipitation of sewer water. The experiments were performed near the gasworks, at the confluence of two sewers, smells from which have long been complained of as a nuisance. A quantity of the sewage was poured into several glass vessels, into some of which Mr. Stothert put a little of his powder, stirring it for a few seconds. After this, in the course of about four minutes, it is said, a precipitation of solid matter took place, leaving the supernatant liquor clear like spring water, and free from smell. The next experiment was to pour some of the clear water of the former experiment into a quantity of the sewer water in its natural state as taken from the open sewer. By this the sewer water is said to have been instantly deprived of its offensive smell, the fermentation being checked and the gases fixed, the sewage otherwise preserving its previous appearance, and no precipitation taking place. The precipitate, after being dried, is proposed to be applied in a way similar to guano, and to which it is considered equal in value. The clear water containing fertilizing salts is applicable as liquid manure, or for flushing, and at the same time deodorizing, the sewers. The commissioners present are reported to have declared themselves satisfied with the deodorizing and clarifying power of the agents employed, and to have expressed a hope that the process might, with the least possible delay, be carried out on a large scale for the benefit of the metropolis.

Steam Carriage.—Three gentlemen of Newark, N. Y. have associated for the construction of a steam-carriage, calculated to run on common roads, but designed more particularly for the plank road between that city and New York. An average speed of ten miles an hour is expected, with a power as economical as that of horses. An American paper contains a description of a similar vehicle, the floor of which is 14 feet from the ground, and the roof arranged for the accommodation of outside passengers. The machinery is inclosed within the carriage, and the steam is emitted through a small aperture, so that horses will not be frightened. The machine, it is said, will be guided by a man stationed behind.

Manufacture of Mineral Pigments.—Mr. Newton, of Chancery-lane, has taken out a patent, being a communication, for the manufacture of pigments from serpentine and other similar minerals, containing magnesia and oxide of iron in combination with silicic acid, so as to obtain a basis which may be united with other colouring matters. To produce a blue, for instance, the serpentine is finely powdered, and to every 100 lbs. are added 10 lbs. of prussiate of potash, dissolved in 40 lbs. of hot water. When well mixed by stirring, 25 lbs. of sulphuric acid in 25 lbs. of water are added, and after a short time the mass becomes converted to a fine blue pulp. About 50 lbs. of water are added to dissolve out the soluble salts, and the mixture is left to stand thirty-six hours, when the water is drawn off, and the residue washed, dried, and ground with oil.

The Railway Suspension-bridge over the Niagara.—This bridge will form a single span of 800 feet in length. It is to serve as a connecting line between the railways of Canada and the State of New York. It is to be hung on cables of iron wire, as "the best material for the support of loads and concussions, in virtue of its great absolute cohesion, which amounts to from 90,000 to 130,000 lbs. per square inch, according to quality." The bridge will form a straight hollow beam of 20 feet wide and 17 deep, composed of top, bottom, and sides. The upper floor, which supports the railway, is 24 feet wide between the railings, and suspended to two wide cables, assisted by stays. The lower floor is 19 feet wide and 15 high in the clear, connected with the upper one by vertical trusses, forming its sides, and suspended on two other cables, which have 10 feet more deflection than the upper ones. The anchorage will be formed by sinking eight shafts into the rock 25 feet deep. The bottom of each shaft will be enlarged for the reception of cast-iron anchor plates, of 6 feet square. These chambers will have a prismatical section, and be filled with solid masonry. Saddles of cast-iron will support the cables on the top of the towers. They will consist of two parts—the lower one stationary, and the upper one moveable, resting on wrought iron rollers. The saddles will have to support a pressure of 600 tons, whenever the bridge is loaded with a train of maximum weight. The towers are to be 60 feet high, 15 feet square at base, and 8 at top. The limestone used in the masonry of the towers, it is said, will bear a pressure of 500 tons upon every foot square.

WEIGHT OF BRIDGE.

Weight of timber	910,130 lbs.
Wrought iron and suspenders	113,120
Castings	44,332
Rails	66,740
Cables between towers	535,400
	1,669,722

For the cables it is estimated that 15,000 wires of No. 10 will be required. At each end of the upper floor the upper cables will be assisted by 18 wire rope stays, and their strength will be equivalent to 1,440 wires: these deducted leave the number of wires in the four superior cables, 13,560; the number of wires in one cable, 3,390; diameter of cable, 9¼ inches." The railway bridge will be elevated 18 feet on the Canadian, and 28 on the American side, above the present surface of the bank, and above the present struc'ure.

The New House Duty.—A return to Parliament has just been issued, showing the number of houses valued at 20*l.* and upwards, the number of those which pay house-tax at sixpence and ninepence in the pound, with other information on the same subject. In England and Wales there are 179,224 houses charged at sixpence; and in Scotland, 6,377. The amount of duty in England and Wales is 200,182*l.* 19s. 2d.; and in Scotland, 5,288*l.* 11s. 2d.; making 205,417*l.* 10s. 11d. at sixpence; while at ninepence in the pound there are 252,213 houses in England and Wales producing 463,204*l.* 4s. 8d.; and in Scotland, 24,095 houses at 38,340*l.* 17s. 1d.; making the ninepence duty 501,545*l.* 1s. 9d. The total amount of duty is stated at 707,016*l.* 12s. 8d. The return, which was obtained by Mr. Goulburn, contains the number of houses in some of the principal towns rated at 10*l.* and other sums.

Preservation of Archæological Relics.—A petition has been prepared by the Archæological Institute for presentation to Parliament on this subject. The memorial states, "That of late years numerous structures, both religious and civil, of great public interest, have been wantonly destroyed or defaced, owing to the want of some recognised power of interference in extreme cases. At the present moment, the interesting remains of the Roman theatre and ancient town of Verulamium are threatened with destruction by a building company. That, owing to the state of the law of treasure trove, a large number of precious objects of gold and silver, deserving of preservation, not only for the beauty and skill displayed in their workmanship, but on account of their essential interest as illustrations of the arts and habits of former races, are condemned to the melting-pot as soon as discovered. That, in such cases, it is highly desirable that some change of the law should be made, so as to avert this destruction of valuable archæological evidences, without infringing on the sacred rights of property." The petition prays for a committee, to whom these matters may be submitted, or otherwise for relief, as may be deemed expedient.

Stourbridge School of Design.—The Government School of Design at Stourbridge was inaugurated on Monday in last week, by a *conversazione*, held in the School building, and at which the Lord Lieutenant, Lord Lyttelton, presided. There were upwards of 300 ladies and gentlemen present, and the walls were adorned with pictures and works of art supplied by the Government, and also by manufacturers and others residing in the town and neighbourhood. The building comprises a library, supplied by Government, a room for private classes, and a general class room, with other conveniences. In responding to a vote of thanks, Mr. J. H. H. Foley, M.P. as chairman of the council, stated that it was estimated that from 2,000*l.* to 2,500*l.* would be wanted for the erection of a proper building, but that the subscriptions of the town and neighbourhood did not exceed 800*l.* After abandoning two or three sites because they could not afford to pay for them, an opportunity occurred of buying the theatre for 700*l.* and of altering it as it now is for 500*l.* more, including lighting and warming. The inside of the building, it had been pronounced by competent judges, would make one of the best schools in the country. Lord Ward and Lord Lyttelton also addressed the meeting.

Leeds School of Design.—The annual meeting of this school was held on Monday in week before last, when the proposals of the Government department of practical art as to the appointment of masterships of drawing schools from amongst the more advanced students in the local and central schools, as already announced in our columns, were reported to the meeting. A letter was also read from Mr. Deverill, secretary of the department, announcing the establishment of scholarships in the London school. The letter offered to the Leeds committee the privilege of recommending any advanced students who have received medals, and who may be desirous of becoming candidates for a scholarship, which will be given, subject to rules; the holder of it to receive an allowance at the rate of 40*l.* a year, from 1st October, 1852, to 31st March, 1853, when the candidate will be eligible for re-election. Another communication from the Board of Trade enjoined the formation of a permanent collection of drawings by the pupils to be used as a public exhibition. The report stated that there had been 146 pupils in the school during the year. The financial statement contained the following items of receipt. Donations toward paying off the debt, 128*l.* 2s. Subscriptions, 90*l.* 19s. 6d. Government grant, 200*l.* Pupils' fees and sundries, 63*l.* 12s. 8d. The expenditure included the payment of a debt of 179*l.* 5s. 8d. Salaries, rent, &c. 360*l.* 8s. 3d. Balance in hand, 17*l.* 11s. 11d.

Leaning Towers of London.—Time after time, when passing certain *leaning towers* (not of Pisan construction), imminent both to the passengers, not few, and dwellers within,—gravity-tempting tenements,—my wonder is heightened that no authoritative voice command "Take down the threateners." It may be that your province admits of the public and proprietors receiving kind warning from The Builder's *fasciculus*. For specimens, the eye may contemplate the inclination of the wood columns yet bearing the extensive house-wall at the east end of Carey-street, north side; head of Gate-street, Lincoln's-inn-fields, the house that partially barricades Little Turnstile; and the slight iron slanting props to that massive coin of well-built brick forming the south corner of Long-acre's east end.—Apprehension.

The New Palace, Balmoral.—Sir,—perceive by the papers that it has been determined to build a new palace for the Queen a Balmoral, and that it is estimated to cost from 80,000*l.* to 100,000*l.* We have not yet heard th name of the fortunate architect who is to be employed, but no doubt from the feeling evinced both by her Majesty and the Prince to encourag the arts and manufactures, &c. at the presen time, that some distinguished architect will b employed, and as a palace it will vie with suc undertakings as Bridgewater and Dorcheste House, Park-lane, and on which men of emi nence and taste have been engaged.—A Sue

Piccadilly.—To relieve the minds of som of our correspondents we may say that th huge covered enclosure in the road, near St James's Church, is not intended as a perma nent location for the paviors who have for s many weeks diverted the stream of traffi north and south, which ought to be runnin east and west: nor is it for any travellin exhibition, or agricultural association. It is in short, simply to protect a steam-engin which is cutting off the unsound part of th blocks that formed the wooden pavement, tha they may be laid down again one of thes days. When we are again to be permitted t take the straight course no one but "Vates," "Joe Muggins's Dog," or some other of th racing prophets, can possibly tell.

Another Accident with Scaffolding.—It is painful to have occasion, ever an anon, to record such cases, and, indeed, they hav occurred of late oftener than recorded. In th present instance a scaffold, 30 feet in height in front of some new buildings in Grafton place, Kentish Town, gave way on Thursday in last week, carrying the workmen with it smashing the skull of one poor fellow, whos case is hopeless, and also nearly killing another A third was caught by a projection, and, for tunately, rescued. Some better supervisio of scaffolding would appear to be absolutel necessary.

Glass Sashes.—Some years ago I pro posed the employment of glass in the con struction of sashes, and time has in no degre lessened my confidence in the results. Thes sashes of any and all colours would posses great beauty, elegance, and novelty, and think they would bid fair to supersede ever other description for shop fronts, &c. I mak the above suggestion known to all, that som may be led to put it into practice.—J. Clarke

TENDERS

For the Shoreditch Agricultural Schools, to be erecte at Brentwood. The trustees of the parish of St. Leonar Shoreditch, advertised some time since for designs, an stipulated that the cost should not exceed 5,000*l.* Th design of Mr. Knighdley was selected, and he supplie the quantities for the builders:—

G. Myers	£5,690 0 0
E. Carter	5,657 0 0
Pollock and McLennan	5,587 0 0
J. and J. Coleman	5,575 0 0
Keogg	5,494 0 0
Hill	5,456 0 0
Moss	5,426 0 0
H. Smith	5,220 0 0
W. Smith	5,177 0 0
J. Wood and Son (accepted)	4,943 0 0
J. and J. Bishop	4,120 0 0

TO CORRESPONDENTS.

"*Picture Frames.*"—The result of our inquiries is n favourable to the use of "gold varnish," or rather "go paint." It will not last. It may be obtained at the oil-shop The best mode of proceeding is to send the frames to gilder.

"Neemuch" (a needle may be called "a wedge", "J. B." Staffordshire (the previous "publication" of t invention prevents the obtaining of letters patent. An protection, apply to a patent agent), "A. P.," "W. M (can write to the address given if he please. We cann further interfere), "S. L." (received, and will short appear), "A. H. G.," "W. H.," "K. D.," "Mr. M "W. W.," "Dr. McC.," "R. R. G.," "Occasiona Reader," "F. W.," "F. O. W.," "Contractor's Foreman "T. H. W.," "W. N. C.," "J. B.," "J. C. D.," "F. W (it was not stated that the Designers for the Building wou receive a copy of the Jurors' Reports), "J. T. K." (sh appear).

"*Books and Addresses.*"—We have not time to point o books or find addresses.

NOTICE.—All communications respecting *advertisement* should be addressed to the "Publisher," and not to t "Editor:" all other communications should be address to the Editor, and *not* to the Publisher.

ADVERTISEMENTS.

THE Friends of a respectable Youth, aged 16, wish to place him with a Carpenter and Builder as IN-DOOR APPRENTICE for Four Years. A small premium will only be given. Address, A. B. 16, Old Fishmarket, Doctors' Commons.

A PUPIL.—An Architect and Surveyor, who is extensively engaged in large building operations, and also in the various branches of surveying, will take a PUPIL (either in-door or otherwise), who would have every facility of acquiring a sound practical knowledge of the profession. A premium will be required.—Address, "PRACTICE," Office of "The Builder," 1, York-street, Covent-garden.

TO ARCHITECTURAL STUDENTS.

A VACANCY exists in the offices of an Architect in the City, for a young GENTLEMAN anxious to improve himself. He must be a fair draughtsman, write a plain hand, and be of industrious habits. A moderate salary will be given.—Apply to T. J. L. at Mr. Houghton's, 22, Poultry.—A PUPIL also would be received on advantageous terms.

WANTED, by a Builder, a thoroughly competent and efficient CLERK of WORKS.—Apply, by letter, to G. M. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, about TWENTY good CARPENTERS and JOINERS.—Apply, on Monday morning, September 20th, between the hours of Nine and Eleven, to Mr. C. SCOTT, Timber Merchant, 83, Dean-street, Soho. N.B. No society men need apply.

WANTED, in an Engineer and Founder's Office, a CLERK, who has been accustomed to the iron trade. He would be required to take out quantities, and attend to the books.—Apply, by letter only, to B. L. Office of "The Builder," 1, York-street, Covent-garden.

TO JOINERS AND PLASTERERS.

WANTED, immediately, TWENTY good BENCH HANDS and TEN PLASTERERS, for twelve months certain. Good wages will be given, and none but good workmen need apply.—Address, C. C. and A. DENNETT, Builders, Nottingham.

WANTED, a steady and active young MAN, of business habits, in a Stove and Close Range Business in London. He must be a good salesman, and accustomed to work men.—Apply, stating references and salary required, to Mr EVANS, Post-office, Leamington.

WANTED, a good WORKING FOREMAN of CARPENTERS, to take charge of a job a few miles from London. Application to be made, stating age and terms, to N. S. Office of "The Builder," 1, York-street, Covent-garden.—N.B. Good carpenters wanted.

TO BRICKMAKERS.

WANTED, a FOREMAN to undertake the management of a Brickfield near London. Application to be by letter only, stating the fullest particulars as to character and capability, and also the wages required. N.B. Steadiness of conduct and sobriety indispensable.—Address, C. HAMBRIDGE, Esq. Architect, 4, Coleman-street, City.

WANTED, a respectable Married Man, without incumbrances, as RESIDENT YARD CLERK and TIME-KEEPER. He must write a good hand. Unexceptionable references will be required.—Apply, by letter only, to W. X. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, a YOUNG MAN, competent to Measure work, and to take out quantities, also to make designs for ornamental paving.—Apply by letter, stating references and salary required, addressed to O. and A. No. 6, Guildhall-chambers, Basinghall-street.

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WANTED, a Person competent to keep the Accounts, and perform the general business of a Railway Contractor's Office. None need apply who have not had previous experience. References will be required as to sobriety, capability, and integrity. A knowledge of measuring works will lead to higher remuneration. Salary, 75l. to 100l. per annum.—Apply to T. V. B. Box No. 47, Post-office, Cardiff, South Wales.

TO CLERKS OF WORKS, BUILDERS' FOREMEN, AND OTHERS.

WANTED, a thorough efficient and well-qualified PERSON to TAKE the CHARGE of a large quantity of BUILDINGS about being erected in the vicinity of London. He must be in every respect fitted to superintend the various artificers' and other works incidental to the carrying on and completing in every respect; therefore none need apply who cannot produce sufficient evidence of their capability for the situation.—Apply by letter, post paid, addressed to X. Y. Z. Office of "The Builder," 1, York-street, Covent Garden.

TO ARCHITECTS.

WANTED, a SITUATION as Junior Assistant, by a gentleman whose apprenticeship with a London Architect has recently expired. Satisfactory testimonials.—Address, C. M 15, Albert-street, Camden-road.

WANTED, a SITUATION, as CLERK of WORKS or GENERAL FOREMAN, to superintend the erection of buildings. An active, steady man, of industrious habits, and considerable experience. Satisfactory reference.—Address, A. B. Post-office, Moorgate-street, London.

WANTED, by a Young Man, aged 22, son of a Builder, an ENGAGEMENT as CLERK or TIME-KEEPER in a Builder's Office. Satisfactory reference will be given. Address a letter, prepaid, to G. W 2, Leathersellers'-buildings, London-wall.

TO DRAIN-PIPE MANUFACTURERS AND OTHERS.

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TO ARCHITECTS, &c.

AN EXPERIENCED ASSISTANT is desirous of an ENGAGEMENT, either in Office or on Works.—Address, A. B. Mr. Ladd's, Post office, Harrow-road.

TO ARCHITECTS.

A GENTLEMAN, who understands both Classic and Gothic architecture, is fully competent to make finished and working drawings, perspectives, &c. and thoroughly understands the practical part of his profession, wishes for a SITUATION in an architect's office.—Address, D. D. Gostling's Library, 28, Shaftesbury-terrace, Pimlico.

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THE Advertiser (late a Foreman of Engineers), who has a thorough practical knowledge of machinery, is desirous of an ENGAGEMENT to superintend the Works and take charge of the Machine Department. Unexceptionable references.—Address, Z. X. Mr. Coombes's, Post-office, New-street, Vincent-square, Westminster.

J. M. MACEY, Builder, has REMOVED from Drury-lane to MILFORD WHARF, MILFORD-LANE, STRAND.

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REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at the Manufactory, the first of its kind ever established, a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1½ inch thick, planed to a gauge level and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Plank, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

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ENGLISH and FOREIGN TIMBER and DEALS, of any length and scantling.

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SAWING, PLANING, AND MOULDING MILLS,
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THE PERMANENT WAY COMPANY beg to inform Boards of Directors, Engineers, and others, interested in railways, that in order to facilitate negotiations for the use of their patented improvements, now so extensively adopted, they have arranged with Mr. CHARLES MAY, Civil Engineer, 3, Great George-street, Westminster, lately of the firm of Hassmer and May, Ipswich, to manage their transactions. Communications made either to him, or to the undersigned, will meet with prompt attention.

WILLIAM HOWDEN, Secretary.

Offices, 36, Great George-street, Westminster.

THE BEST MATTING and MATS, of Cocoa-nut Fibre.—The Jury of Class 38, Great Exhibition, awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate-hill, London.

OAK STAINING and VARNISHING.—Staining and Varnishing of Churches, Chapels, &c. done for the trade at 5d. per yard by J. OS. WILLSON, High-street, Kingsland.—Oak Stain, 5s. per gallon.

MACHINERY for SAWING, PLANING, and MOULDING WOOD.—WORSSAM and CO. of Eastman Works, King's-road, Chelsea, direct attention to the simplicity and economy of their inventions and improvements in the manufacture of the above. An inspection of their stock on hand is requested.

SIR W. S. HARRIS'S LIGHTNING CONDUCTORS.—The public attention, as well as that of Church Building Committees, and those interested in the preservation of churches and all description of buildings, is called to the very numerous recent disastrous effects of the heavy thunderstorms which have prevailed. THOS. W. GRAY, 79, King William-street, City, London, respectfully announces that he is the only person authorised by Sir W. Harris to apply his Lightning Conductors, and who will not be responsible for their application by any other person. The peculiar form and adaptation of these Conductors is such as to safely carry off any amount of electric fluid, as evinced in many authenticated instances at sea, both in the navy and merchant service as well as in buildings; and to show the importance of these Conductors, it may be stated that the Prize Council Medal of the Great Exhibition was awarded for them.

Mr. T. W. GRAY will be happy to supply any information that may be desired, and to furnish estimates of the cost for fitting the Conductors.

REVOLVING SAFETY WOOD and IRON SHUTTERS.—SNOXELL, Patentee, 86, Regent-street, and at his Steam-works, 135, Old street. These shutters have fully borne out their superiority over other revolving shutters for security, durability, and simplicity. References can be given to noblemen whose mansions are fitted herewith, and numerous large establishments where some are fitted measuring upwards of 400 square feet in one shutter, and which are opened and closed in a few moments with the greatest possible ease, without the use of machinery. The Patentee manufactures Brass Sash Bars, Stall Board Plates, &c.

REVOLVING SHUTTERS IN IRON AND WOOD.

CLARK and CO. 15, GATE-STREET LINCOLN'S-INN-FIELDS, and 31, Chancery-lane, Engineers and Manufacturers of Revolving Iron and Wood Shutters, Brass and Zinc Sash Bars for Shop Fronts, Stall Board and Name Plates. Testimonials and prospectuses forwarded on application. Clark and Co. defy competition.

Revolving Shutters, under Lewis's Patent, 3s. 10d. per foot.

Architects desirous of having their works executed with despatch, and with C and Co.'s newest improvements, are requested to have their names inserted in the specification.

PATENT WROUGHT NAILS.—These NAILS are submitted to the notice of Builders, Contractors, and Ship-builders as being superior to any others, and cheaper. They have the toughness of the best hand made nails, with far greater uniformity of make. The flat-pointed rose nails are particularly recommended wherever oak or other hard wood is used: being perfectly diesel-pointed, they require no boring, and will drive into the hardest wood without splitting it, and their heads, being very strong, do not fly off. The patent wrought nails may be had of all ironmongers. A stock of them is kept at the warehouses of the agents, HIGGS and GEORGE, Wholesale Ironmongers, 179, Borough, London.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c., involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which iron, instead of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late FOX and BARRETT),
12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not repeatedly turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT WORKS, NORTH- FLEET, KENT.—Messrs ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting Cement that requires no colouring.—Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses. These well known hard stuccoes dry quickly, and can be painted upon within a few hours. Made and sold only by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no co ouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILLYER, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT, in Casks of Four Imperial bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

GEORGE and THOMAS EARLE,
CEMENT MANUFACTURERS, HULL.
Light and Dark equal to any made.
Also, Manufacturers of PLASTER, MASTIC, &c.
Importers of MARBLE and PUZZOLANA.
Dealers in Slates, Slabs, Hair, Whiting, &c.

PERMANENT STUCCO WASH,
WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.
As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of their very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic quality; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 23, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

PATENT PORTLAND and ROMAN and ANSTON CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for the above Cements. Many highly respectable references can be given where their cements have been successfully used, both at home and abroad. Orders received and executed either from their works at Greenwich, or their wharfs, Lindsey Wharf, Chelsea; 24 Wharf, Harrow-road, Paddington; Phœnix Wharf, Whitefriars, City; Brine's Wharf, Kingsland; and Messrs. COLWILL Bros. and Co.'s, Bridge st. Covent Garden, opposite the Office of "The Builder." —Agent at Southampton, Mr. GEORGE SHARP, Union Wharf.

NOTICE.—PATENT PORTLAND CEMENT. Mr. W. ASPDIN, the sole manufacturer and first introducer of the Patent Portland Cement, for which he obtained the Prize Medal in Class 37 and the Council Medallion, from the Juries of Engineers, Architects, Contractors, Builders, and others, that he has Dissolved Partnership with the late firm of Robins, Aspdin, and Co. and to call their attention to the following notice from his present firm:—Messrs. ASPDIN, ORD, and Co. having taken extensive premises for the purpose of carrying on the manufacture of Patent Portland Cement, have the pleasure of announcing that the Cement will be had in the course of next month at their Depôt and Offices, NEW WHARF, WESTMINSTER adjoining the Houses of Parliament, on the various qualities as under:—

1st. For casting and running Mouldings.
2nd. For Brickwork or making Concrete Blocks for Sea Walling.
3rd. For Plastering outside of Buildings, and for Paving generally.
4th. For Water works.

The above Cements are all warranted not to blister, crack, or discolour, as is the case with other Cements wrongly called Portland. The particulars of the experiments as tested at the Great Exhibition may be had at the Offices, New Wharf, Westminster.

Great Scotland yard, Whitehall, 2 September, 1852.

THE CO-PARTNERSHIP lately subsisting between ROBINS, ASPDIN, and COX, having been DISSOLVED on the 7th day of November last, by a decree of his Honour the Vice-Chancellor Turner, and an injunction granted, restraining William Aspdin, then of Orme House, Northfleet, Kent, from intermeddling with, or receiving or disposing of any of the moneys, goods, or effects of the said late partnership, and from using or pledging the name thereof for any purpose whatsoever, Messrs. ROBINS and COX, being alone authorised to wind up the affairs of the late Co-partnership, request the Creditors of the late Firm forthwith to render their accounts, that the same may be discharged; and the Debtors to the late firm will be pleased, at their convenience, to pay their accounts, either at the Cement Works, Northfleet, Kent, or at Great Scotland-yard, Whitehall, where Messrs. ROBINS and COX continue to carry on their Manufacture and Trade in Portland Cement, in connection with Messrs. Goodwin and Schmidt, under the style or firm of ROBINS and COMPANY.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg, on a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.
Agent for Southampton, R. L. FLUDER, American Wharf.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Tarras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.
Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth; and Paddington-basin.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, is the above. Is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.

SECONDS, PAVIORS', STOCKS, and other Bricks.
CHARLES RICHARDSON, 6, South Wharf, Paddington.

THOMAS FREEN and CO. LIME BURNERS Wouldham-on-the-Medway, Grey and Chalk Lime supplied by the freight, direct from the kilns, or fresh from their wharfs, viz. Canal road, Kingsland-road; Queen's Wharf, Great Cambridge-street, Haggerstone; or King's Wharf, New Wharf-road, Battlebridge. N.B. Lathes, Tiles, Chimney-pots, Plaster, Hair, Welch Goods, &c. &c. &c.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs (near the West India Docks), and sold at No. 1, Praed-street, Edgware-road, Paddington.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Flooring laid with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, POLONCEAU'S BITUMEN PAVEMENT CO., MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

CHEAP STONE.—Paving, 32s. 38s. and 42s. per 100 feet; York sinks very low price, viz. 1s. 8d. per foot; sills, 7d. to 10d.; coping, 8d. to 11½d. per foot. Chimney-pots, stone pipes, clay ditto, tiles, &c. at reced prices. Country builders will find a decided advantage in making their purchases at this wharf, which is most conveniently situated for carriage by railway or canal. A priced list sent free on application to E. and W. STURGE, Bridge Wharf, City-road.—N.B. Cash prices on the wharf.

BATH STONE OF BEST QUALITY.
RANDELL and SAUNDERS,
QUARRYMEN and STONE-MERCHANTS,
BATH.
DEPOTS.]

Great Western Railway Station.....	PADDINGTON.
Great Western Railway Station.....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Welsh Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Parpaus, inclet on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

BATH WEATHER STONE.—For Combe Down and Box Hill Ground Stone of the best quality, apply to HENRY STONE, Quarryman and Stone Merchant, Wombe. Bath. N.B. Cargoes shipped and delivered to any part round the coast on the most reasonable terms

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELSH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

THE PIMLICO SLATE WORKS. Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE (notwithstanding the vile imitations and infringements of his patent that are attempted) continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble.—Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Pulleys and other Patent Slate Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Malting Floors in Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABIS, Belvedere-road, where terms may be obtained.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established, in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank. Mr. THOS. THOMPSON, Agent.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.
A liberal discount to the Trade.

MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, HOUSES, &c. &c.
Circulars sent on application.
N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

MARBLES, THIRTY-SIX VARIETIES.—Messrs. SANG, GOGEL and Co. have the honour to announce that they are enabled to execute, with unusual facilities, any works with which they may be favoured in the above beautiful materials, introduced into this country for the first time from their own Quarries, at a most moderate and hitherto unprecedented low cost. With these they can produce the most brilliant and artistic effects can be produced, and many of the veneers for the lining of walls in variegated colours can be supplied at seaglola prices. Estimates given for veneered walls, inlaid artists' work, coat of arms, monuments, ornaments, reproductions of sculpture, bases and columns, fountains, entablatures, floors (inlaid and plain), baths, tazzas, trusses, and slettings.—Address to Messrs. SANG, GOGELL and Co. Marble Works, Eaton-lane South, Pimlico, London.

TO SCULPTORS, MARBLE MASONS, AND BUILDERS.
ITALIAN and GALWAY MARBLE QUARRIES.
Depôt, Whitehall Wharf, Parliament-street, Westminster.

Mr. FRANKLIN begs to inform the above that he is now landing at the above depôt, a cargo of very superior BLACK MARBLE, in blocks of very large dimensions, and 10,000 feet in slabs, of various thicknesses, the produce of his own quarries, which, on account of their superiority, have supplied the London market for the last twenty years.

Just arrived, ex *Windermerth* and *Favourite*, Leghorn.
Superior Statuary, Vein, Sicilian, Dove, Black and Gold, new coloured Marbles, and St. Ann's, at reduced rates.
The following vessels are expected from Leghorn:—

Sceptre, *Fencer*, *Merchant*.	150 tons, 80 blocks of Statuary, Dove Vein, Sicilian. (arrived) 38 blocks.

TO ARCHITECTS, BUILDERS, &c.
ALL descriptions of **TERRA COTTA,** CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. SHERBERD and SON, Modellers, &c. 3, Panton-square, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

PAN TILES, 48s.; Plain, 32s. 6d.; superior White Suffolk Facing, Red ditto, Fire Brick, 65s.—Best Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, Tiles, Clay, Windsor Loam, &c. Gas and other shaped Goods, Windsor and Nonsuch Oven Tiles and Bricks, Dutch and English Clinkers, Patent Malting and other Worcestershire Paving Tiles, 12in. and 8in. Paving ditto, unequalled in quality and colour, at WARD'S old-established Honduras Wharf, Bankside, Southwark, London. Thames Sand, Concrete, Gravel, &c. &c.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.

ILLUSTRATED TRADE LISTS, containing much information useful for reference; also unsolicited testimonials respecting a MATERIAL which, from its strength, is probably superior to every other for drains or conduits, for ridges, hips, valleys, and every part of roofs, for plain or ehequered floors, for paving and erection of safe drying and durable rooms, also many other purposes, supplied genuine by THOMAS PEAKE (proprietor of Peake's "Terro-Metallic"), No. 4 WHARF, CITY-ROAD BASIN, LONDON, and at "THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices by number, and approximate cost by measure. It is solicited that letters be prepaid, and state if Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 27, No. 123 (having been at first No. 111).

BRICKS.—H. DODD is enabled to offer his BRICKS, which are of good quality, at the following low prices: and as his fields are only a quarter of an hour's walk from the City, H. is earnestly requested that buyers will favour him with a visit, in order to inspect his stock and to judge for themselves.

Marle place, half-washed stocks, and place bricks, at very low prices. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing.—Apply to H. DODD and CO. at the Countinghouse, Hoxton Brickfields, Grange-walk, near the Rosemary Branch, Hoxton. N.B.—Red pit sand of approved quality constantly on sale, upon reasonable terms; this sand, from its not containing any saline matter, is acknowledged to be preferable to river sand.

WHITE BLUNHAM BRICKS and TILES.—These Goods, so justly celebrated for retaining their colour without contrasting, and combining great strength with a fine face, can now be obtained, in London, in various forms and sizes, and in any quantity. The Paving Tiles, Clunkers, Splays, Bullnoses, and Facings are well worth attention. Sole Agents: PHILIP HARE and CO. 23, Steel-yard Wharf, Upper Thames-street.

THE ALLOA FIRE-CLAY BRICKS, TILES, &c. &c. may now be had of TRAQUAIR and Co. 9, Bankside, Southwark, who take this opportunity of informing the trade and others, that the Alloa Fire Clay approximates in its composition to the Stourbridge Clay; and competent judges have pronounced the Alloa Fire Brick to be quite equal to the Stourbridge, while the prices are not more than those charged for the common Newcastle qualities. Samples and price lists sent free on application to TRAQUAIR and Co. 9, Bankside, Southwark.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LYNE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to the Vulcanized India Rubber Tubing, which is now manufactured from 1-8 inch bore and upwards, in lengths of from 100 feet each, of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.

*** Testimonials may be had on application at the Manufactory.

N.B. VULCANIZED WASHERS and SHEET RUBBER or Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

The Builder.

SATURDAY, SEPTEMBER 25, 1852.

MR. WELBY PUGIN was buried in the church he has founded at Ramsgate, St. Augustine's, on Tuesday last. Part of the service was performed on Monday evening, with all the ceremonials of the Romish Church, and in the morning his body was placed in a vault beneath the south transept. Besides the members of his family and the priesthood, Sir Charles Barry, R.A.; Mr. Herbert, R.A.; Mr. T. Bury, Mr. Hardman, Mr. Crace, Mr. Myers, Mr. Scott Murray, Mr. Knill, the father of Mrs. Pugin, and some other friends, took part in the ceremony. The crowd of strangers in the church in the morning was very great, and the mourners we have named, who carried candles, must have found the pressure for two hours a serious infliction.

The church, which the deceased architect has raised "for the benefit of the faithful residing in Ramsgate, and of the foreign seamen using the harbour," consists of a nave, chancel, tower, Lady chapel, and south transept,—the tower separating the nave and chancel. From the east end of the church, northward, extend a sacristy and school, with bell-turret. Farther east is a pile of dwelling-houses, partaking of the same character; and at the west end stands what was his own residence, the whole forming a large group at the extremity of the West Cliff, the termination of the town, very prominent on entering the harbour. The church and school, externally, are of flint, with plain bands of Whitby stone at short intervals. The tower is carried up ready to receive the spire, and upon it is erected a lofty wooden cradling, or crow's nest, visible a considerable distance at sea. The style throughout is Decorated, and externally the buildings are scarcely remarkable for anything beyond propriety: this itself, however, is not a small thing. The residence is of brick, with a battlemented tower, somewhat prosaic, and wholly without pretence. The pile of dwelling-houses at the east end are large and lofty, with overwhelming roofs (containing two floors), and battlemented chimney-shafts, and completely swamp the church.

Internally the church is wholly of stone, and displays some beautiful detail: the walls are substantial, and give that breadth of reveal in the openings which is so necessary for the proper character of Gothic architecture. The font, with lofty carved canopy, apparently the same that was in the Mediæval Court at the Great Exhibition, the rood screen, altar, stalls, canopied niches, lamps, &c. display the great skill in drawing for which he was justly celebrated. The windows have hood-moulds internally, with carved terminations, and are partially filled with stained glass. Above the windows, small glazed openings throughout the church give the means of ventilation. The south transept was the founder's, chapel, and beneath it, a practice we are hoping to see abandoned, rest the remains of one whose too brief life has been full of strange events and strong excitement.

In early life unsettled and wandering, unstable and perplexed, rendering his parents unhappy with the fear that he "would not settle to anything," he has executed an amount of work which must seem little short of marvellous to those who do not know how much may be done by complete knowledge continuously applied, and has achieved a reputation which will outlast the recollection of his weaknesses and shortcomings. But he overdid it: traded upon his capital instead of the interest of it, and, as a matter of course, came too soon to an end. Although little more than forty years old when he died, he had been married three times, and leaves, with seven other children, a married daughter twenty-two years old. There are few men of whom more contradictory opinions may be obtained. "There is nothing worth living for," we heard him say some years ago, "but Christian Architecture and a boat." These absorbed him. He mixed, therefore, but little in society, made few friends, and the result is, as in many other cases, that those few with whom he was intimate saw only good in him. Our own vanity helps us to think well of one who is friendly with us, while he scoffs at all the world. While on the one side, therefore, we hear of his intolerance, want of respect for the feelings of others, and disregard of Professional courtesies, we find some who can speak only of his ability and his goodness. While a dozen comment on the wholesale abuse he lavished on his brother architects in his "Contrasts," which, nevertheless, did much good, one reminds us how that when a Spanish vessel came ashore with sailors suffering with fever, Pugin took them to his home, and kept them there till they were well. "He gave nothing to our charities," says a member of his own persuasion; but then replies another, he hoarded his means, and spent them all in one great charity!

Of his change of religion (about 1834) we need say nothing. His father was a Romanist, his mother a Protestant, and his early predilections were at all events divided. He was led by the zeal of a convert to display intolerance, for which, it seems probable, he afterwards felt regret. This, however, is a point to which we shall refer but slightly.

Our readers are aware of the sad state of mind into which he fell; and will remember the remarks we were impelled to make on finding that he had been placed in Bethlehem. The manner in which those remarks were met, ostensibly by a member of his family, was neither wise nor honest, and might have provoked us to a reply which would not have been agreeable. Satisfied, however, with the correctness of all we had stated, and unwilling to give pain at such a moment, we remained silent under the reprehension, largely circulated through the newspapers, that we had interfered improperly. The article, however, had the effect intended, and our reward was very complete. Mr. Pugin was immediately removed to private care, and if we are rightly informed, a pension was immediately granted him, on the Civil List.

In appearance he became so much better, that he returned to his home, and it was there that he had an epileptic fit, which terminated his life. Assertions have been made, that the treatment adopted hastened the end, but there seem to be no grounds for them. Epilepsy, like hydrophobia, is an opprobrium to the medical profession. They cannot reach it.

Mr. Pugin did much for the correct revival of Gothic architecture. In his lectures on "The Principles of Pointed or Christian Architecture," he had the merit of setting forth prominently and forcibly two great rules for design; 1st, that there should be no features about a building which are not necessary for convenience, construction, or propriety; and, 2ndly, that all ornament should consist of enrichment of the essential construction of the building. He maintained that the external and internal appearance of an edifice should be illustrative of, and in accordance with, the purpose for which it is destined, and he denounced in unmeasured terms the puerilities, abominations, and deceits of the Gothic imitators of that day. Speaking of houses built in what is called the castellated style, he says,—"What absurdities, what anomalies, what utter contradictions do not the builders of modern castles perpetrate! How many portcullises which will not lower down, and drawbridges which will not draw up! How many loop-holes in turrets so small that the most diminutive sweep could not ascend them! On one side of the house machicolated parapets, embrasures, bastions, and all the show of strong defence, and round the corner of the building a conservatory leading to the principal rooms, through which a whole company of horsemen might penetrate at one smash into the very heart of the mansion! for who would hammer against nailed portals when he could kick his way through the greenhouse?" In such castles we have donjons which are drawing-rooms, watch-towers where the house-maids roost, and a bastion in which the butler cleans his plate!"

A notice of the deceased architect would be incomplete if it contained no reference to the builder who has carried out the greater number of his works, Mr. Myers. Twenty-five years ago, when Mr. Myers worked in Beverley Minster, he made a scaffold for Pugin, who was drawing there. Some time afterwards, hearing the latter was about to build a church at Derby, and recognizing the name, Myers tendered for it, was accepted, and forthwith obtained the confidence of the architect, so that he never afterwards allowed any other person to be employed to carry out his works. Myers built for him no less than thirty-six churches. By a curious coincidence, the last drawing that Mr. Pugin completed for Myers' use was for Beverley Minster, and this was made on the very night, in February last, that he was taken to the private asylum at Kensington.

He was stopping at the Golden Cross, and had spent the whole day in visiting the London churches and public buildings.* At night he became much excited, and attacked Myers, but was ultimately calmed, and the latter, in order to retain his attention, reproached him for keeping the scaffolding up at Beverley, as they were waiting for drawings. "Give me a pencil," said Pugin, and on the back of a large envelop he designed an elegant vane, clear and precise, which has since been placed on the corner pinnacle of St. Mary's, at Beverley.

We might write much more, indeed had written more, but prefer to substitute for it a connected account of his professional career from the pen of an intimate friend of long standing. It is written with the partiality of a friend, but we are not disposed to qualify it.

* His impression during the whole of the day was, we are told, that he was effecting the union of the Roman and the Anglican church.

Before concluding, however, there is one point on which it is but just that we should touch, and that is, as relates to Mr. Pugin's connection with the Houses of Parliament. From some of the statements which have been made, it would be inferred that he should divide with the ostensible architect the whole merit or otherwise of the work, and one writer goes even farther still. Now, no person would more emphatically deny this than the subject of our notice himself, if he were alive. Similar statements were made three or four years ago, when he was first induced, mainly by friendship for Sir Charles, to aid in carrying out the details of decoration, in knowledge of which he had no rival, and he then wrote to us, clearly stating what was the case, that he designed nothing, but simply superintended the correct execution of the architect's designs. Whatever may be the beauties, or the demerits, of the wonderful pile of buildings at Westminster, they belong wholly and solely to Sir Charles Barry. They were to the last warm friends, and Sir Charles held a light at his colleague's grave.

OF all the men whose abilities have served to make this century remarkable, none in their degree have acquired a more general celebrity than the late A. N. W. Pugin, the architect; whose unexpected decease took place on Tuesday, the 14th inst. at his residence at St. Augustine's, Ramsgate.

Augustus Northmore Welby Pugin was born in 1811, and consequently was in his forty-first year. His father, Augustus Pugin, was a native of France, and of good family, but he resided in England from the period of the French Revolution, when he escaped that death which befel his father and brothers, as their position was sufficiently high to make them considered enemies to the lawless spirits who had the ascendancy in that frightful struggle. His mother, Catherine Welby, was a member of the family of the baronets of that name residing at Denton, in Lincolnshire.

The name of Pugin has long been connected with the revival of Gothic architecture in this country: it was first identified with it by the publication of useful and practical works by the elder Pugin: other works illustrating Gothic buildings by views had appeared, but their limits did not permit the geometric elucidation of the details of that style which was so imperfectly understood even by the architects of that time. The first volume of a work entitled "Specimens of Gothic Architecture," appeared in 1820; and, in consequence of its great success, a second volume was published in 1823. The "Architectural Antiquities of Normandy," in two volumes, followed, and were finished in 1827. The "Gothic Ornaments" was the next work of the elder Pugin, and was finished in 1831. During its progress the "Examples of Gothic Architecture" was commenced: the first volume and two parts of the second were finished by him, but his son, the subject of this memoir, completed the volume. The elder Pugin was more engaged in the theory and elucidation of the art and styles of Gothic architecture, than in the professional practice of an architect; although he had previously for some years been engaged in the office of the late John Nash. He was a very skilful draughtsman, and a good architectural painter. He possessed an enthusiastic and lively temperament, and endeavoured to impart to his pupils a "love of the profession," which his son inherited and exhibited in a striking manner.

From circumstances so favourable to the development of the great natural talents of the younger Pugin, he obtained from his early practice a marvellous facility and readiness of drawing years before he was called upon to exercise his ability in any professional shape. His general education was first superintended by his mother, who possessed no ordinary qualifications; but he was for some years a private pupil at Christ's Hospital, London. During the whole of this time he was engaged, though not officially, in the study of Gothic art; he travelled with his father both in England and Normandy, when in search of materials for his publications, and being unrestrained, enthusiastic, and gifted with quick perception, he formed his own conclusions of the peculiarities of those glorious remains of periods of art with which his youthful spirit so much sympathised and held communion. With him the secrets and mysteries of the principles of Gothic art were imperceptibly acquired; they were natural to him from their very early impression on his mind, and his heart was in an inquiry from which it never swerved.

The continued consideration of the majestic buildings of the mediæval periods seemed to have induced a taste for grand scenic effects,—he was fascinated with the fine theatrical scenery of Stanfield, Roberts, and the Grieves,—he assisted the latter occasionally for nearly two years, in designing and painting the most important architectural scenes in the principal pieces which were brought out either at her Majesty's Theatre or Covent Garden. His love for this branch of the arts lasted longer than the opportunity for its gratification; on his leaving London for Ramsgate, in 1833, he was compelled to relinquish it.

The first opportunity which presented itself for the display of his knowledge of the Gothic styles, was in being employed by Messrs. Morel and Seddon to make the designs and working drawings for the whole of the furniture for Windsor Castle, but he has often expressed very unfavourable opinions of these early works. He was likewise engaged at the same period (when he was only sixteen years of age) by the firm of Rundall and Bridge to design and make working drawings for their plate in the style of the middle ages, which gave great satisfaction to every one but the author. These matters, however important in themselves, were wholly insufficient to engage his active mind,—his father's office was "too small a bound," and as the period of his practising as an architect seemed somewhat distant, he embarked, unknown to his family, in a large manufactory for the execution of furniture and works in the Gothic styles; but in consequence of its not being remunerative, he at the end of two years, gave it up. The disappointment resulting from this led him to seek some stirring excitement, and at this period his first partiality for the sea was evinced; it gave occasion for the display of his adventurous spirit and active energy. He could not move in the same quiet track of the generality of men, and seek promotion and position by the same slow degrees: whatever he undertook he went into with his whole heart, but at no period of his eventful life had ambition of notoriety any influence on his acts. The courses of study which he selected and pursued resulted from an ardent love for the objects themselves, and the earnestness which he evinced in the cause of Gothic art was likewise wholly uninfluenced by considerations of the pecuniary gain which might follow.

On the death of his father and mother, in 1833, he left town for Ramsgate, where his aunt, Mrs. Welby, resided. Here he commenced designing those works which first brought his talents before the public, and were the foundation of his after fame. The work on "Gothic Furniture" was published in February, 1835; that on "Iron Work" appeared in the same year. The marked success of the first suggested his motto of *en avant*, which first appears in the second work, and stimulated him to the end of his career. Designs for gold and silver work followed, as well as his "Antient Timber Houses," in 1836. From these works and from this time, his course as a practical architect commenced. His introduction to the Earl of Shrewsbury brought his first professional commission; and other parties, architects included, were not backward in seeking the talents of him who was now generally admitted to be better acquainted with his own peculiar branch of art than any other professional man. About this time he commenced his long-cherished scheme of building a house for himself, which a bequest from his aunt enabled him to accomplish; and he selected the vicinity of Salisbury for the locality. Here, at St. Marie's Grange, he followed his profession enthusiastically, and was incessantly engaged on a multiplicity of works of his own; but he still rendered assistance to two architects who at this time were preparing designs for the new Houses of Parliament, and who have always acknowledged the advantage of his services.

In the year 1836 he commenced his first tilt with the architectural works of the present century, and his feelings on that point were conveyed to the public in a volume called "Contrasts; or, a Parallel between the Noble Edifices of the Fourteenth and Fifteenth Centuries, and similar Buildings of the present Day, showing the present Decay of Taste, accompanied by appropriate Text." This publication took his own profession and the public by surprise by its originality and earnestness. The history of the pillage and destruction of Gothic churches, the remarks on the present degraded state of ecclesiastical buildings, and his reasons for the decline of Gothic art might have received general acquiescence, but the "conclusion," on "the wretched state of architecture at the present period," was expressed in so undisguised and unmistakable a manner, that it irritated the feelings of many by telling "the bluntest and most disagreeable truths in the bluntest possible manner." However, the sentiments he then so plainly expressed have long since been admitted as *truths* by his former opponents. Some of the subjects of the illustrations were objected to as not being fair parallels; but take the work as a whole, it was not out of place at the time it appeared, and convinced the world that Pugin had his convictions, and could fearlessly express them.

His strong advocacy of the buildings erected during the times when the Roman Catholic religion held sole sway in this land, and the opportunity which thereby presented itself for the undisguised expression of his reverence for that faith which fostered the genius of Wykeham and Waynflete, and caused the erection of the noble edifices of the Middle Ages (combined with his being a convert to that church), were the means of directing attention of its members to him, and he was applied to from all parts of England to erect churches, chapels, schools, monuments, &c. &c. His first church was that of St. Mary, at Derby; a chapel at Reading was likewise an early work. He was next engaged on the church of St. Chad, at Birmingham; the schools, a nunnery, and bishop's house were built in the same locality. For the object of this hasty memoir, it will be unnecessary to enumerate his works in the succession of their erection, but the following are the principal structures which were designed and erected under his superintendence:—St. Edward's, St. Mary's, and two other churches at Liverpool; chapel and convent at Edge Hill; St. Wilfred's, Manchester; a church at Kenilworth, Oxford, Cambridge, Stockton-on-Tees, Newcastle-on-Tyne, Preston, Ushaw, Keightley, Yorkshire; Sheepshear, Warwick; Rugby, Northampton, Stoke-upon-Trent, Breewood, Woolwich, Hammersmith, Pontefract, and Fulham; St. John's, Wadham-green; St. Edward's, near Ware; St. Martin's, Buckingham; St. Wilfred, near Alton; St. Barnabas, Nottingham, with a convent and chapel in the same town; St. Bernard's church and monastery, Leicester; the convents of the sisters of mercy at Birmingham, Liverpool, and London; St. Gregory's Priory, Downside, near Bath; colleges at Radcliffe, Rugby, and Maynooth, Ireland (on the latter he was engaged by the Government of the day); the Roman Catholic cathedrals of Killarney, Enniscorthy, and St. George's, Southwark, with the schools, priests' houses, and other buildings connected therewith; and Sibthorpe's Almshouses, Lincoln. His works for the Earl of Shrewsbury, who was very much attached to him, and acted towards him with the greatest kindness, were the extensive additions and alterations to Alton Towers, which had been in hand for years. Chapel, monastery, school-house, St. John's Hospital, Alton, and the richest of his designs

in point of ornament and colour, the church at Cheadle. In this latter building his talent had not the unrestrained scope which many have imagined, as when it was first proposed to him, a church of a very different scale and pretension was designed; this had progressed when his noble patron changed his intentions, and Pugin was instructed not to spare expense on it, and produce a rich composition. This, so far as possible, was accomplished by ornamentation in colour, but the time had passed for the perfect development of his great power of design, or he would have undoubtedly produced a building worthy of his genius and a lasting honour to his patron, his country, and the period of its erection. His last work, which remains unfinished, is a church for Mr. Scott Murray, at Danesfield, Bucks.

He was of late employed on churches unconnected with his faith, as St. Mary's, Beverley, St. Mary's Wymeswold, and some few others; but these he would not have undertaken had he received from his own church a continuation of that support which he had at first experienced, and had a right to, as in his writings on Gothic art, as well as ecclesiastical matters generally, he had rendered immense service to their cause. He for some years declined employment on buildings for the established church. He likewise, on account of his being considered solely a Roman Catholic architect, received but very few commissions for buildings and alterations to mansions. Bilton Grange, Warwick; Lord Dunravon's, at Adaire, Ireland; Mr. Drummond's house; and a few others, on a small scale, were all he was engaged on. He designed the new gateway at Magdalene College, Oxford.

In none of these buildings did he ever have a fair opportunity for the display of his knowledge or ability: he was always fettered by very limited funds in the execution of his churches: he was compelled to enclose large areas with insufficient means, and thereby the solidity of the structures was apparently impoverished, and he seemed to be acting at variance with his own principles. The detail of his interiors was more in accordance with his feelings, and much of the fittings were subscribed by individuals who left it to his judgment. He has often said that he had never but one chance of producing a consistent building, and that was "when he was both architect and paymaster," as at St. Augustine's, at Ramsgate,—a church, schools, &c. erected at his own expense, without any assistance from the members of his own faith. In these buildings it must not be forgotten, that having no private fortune to devote to this purpose, he was much limited in his design; but should ever criticism be brought to bear on this work, it is to be hoped that all the circumstances of its erection will be borne in mind, and the good and noble feelings which actuated its kind-hearted originator will disarm criticism of its severity; and those who came to censure remain to praise. It must ever remain a monument to his honour: he has been the first modern architect who ever built a church from his own funds.

During the time that these works were in progress he found time to supply designs and working drawings for innumerable other matters, such as monuments, screens, pulpits, fonts, &c.; besides, he was extensively employed by Sir Charles Barry on that great national work the Palace of Westminster, in which the value of his assistance has been freely and fully admitted by that distinguished architect. He was associated with Mr. John Hardman, of Birmingham, in the manufactory of Gothic metal-work, for which he stands unrivalled,—as well as in the Mediæval stained glass works likewise at Birmingham. All the designs, working drawings, and cartoons were made by him. It is really extraordinary how he could (unassisted until lately) produce the immense amount of work,—both in designs and working drawings, that was got through. He was indefatigable and unceasing in his work,—from six o'clock in the morning until ten at night were his active mind and pencil at hard work, and whoever was on a visit at his house shared his attention while he was thus engaged. It was wonderful how he could design the most difficult things and carry on a running conversation at the same time: none can understand it but those who knew him well.

While thus engaged on architecture and its details, he practised successfully other branches of the arts,—he was an excellent landscape painter, and would find opportunities for its practice: his coloured sketches in Kent were truthful and fine in effect, and the pleasure resulting from the sight of these drawings was much enhanced by his enthusiastic description of the peculiarities or beauties of the scenes he so ably depicted.

His pen was also incessantly engaged, and he had always some new work or pamphlet in hand; this, doubtless, caused too much excitement for his already overworked mind. He wrote a work on "The true Principles of Pointed or Christian Architecture," published in 1841; "An Apology for the Revival of Christian Architecture," 1843; but his crowning work was, "The Glossary of Ecclesiastical Ornament," which was published in 1844. It doubtless is the finest work which treats on general ornamentation, and the great variety of detail which is therein given is conclusive evidence of his great research and weighty talent in that branch of art to which he devoted his whole life. The letterpress is most useful, and shows the extent of his researches. A work on "Screens" should also be mentioned.

This memoir of my poor departed friend, which he some years since predicted that I should write, has come to its limit in this form; and let me assure those who were unacquainted with him, that the brusqueness of his manner, or the decision of his expressions in writing, were no evidence of an unkind or sour spirit to his brother-professionals or the world; but though frequently unjustly assailed in print, his opinions impugned, his works depreciated, he never published a vindicatory reply: when his powerful pen would have annihilated his adversary, he "bid his wrong stay, and his displeasure fly." All those who knew him, loved him for his very kind spirit, and will long deplore the loss of a most sincere and disinterested friend. He has passed away after an eventful life; but during its existence he experienced more of the varieties of circumstance than much older men.

Kindness and unostentatious benevolence were distinguishing features in his private character, as on many occasions when foreign vessels were cast away on the Goodwin Sands, or lost during tempestuous weather, and the lives of the crews saved, but with nothing belonging to them, his care supplied their immediate necessities and wants, lodgings were provided, and medical assistance obtained,—their wants were attended to until they were well enough to leave, or if their privations and sufferings were beyond recovery by human aid, he gave them a Christian burial,—a grave in his own church-yard, and placed a record above them, and although they died in a foreign land or away from home, they died not unrecorded. These epitaphs and memorials, although only intended for those who could not thank him or speak his praise, stand up as so many blessings to his memory, and are brighter spots to his fame than the church raised by his munificent liberality. These evidences of his goodness of heart were not influenced by a wish to obtain the world's applause, or the approbation of the members of his church. If secret charity cover a multitude of faults, his deeds of kindness will bring their rewards—where mercy and justice are promised to all.

He died at his own house, and was buried in the vault he built in his church. And now

> "That Time has brought him to his end,
> Genius and he fill up one monument."

Talbot Bury.

Stoke Newington.—It is proposed to erect a new church at the corner of Albert-grove, where about 1,000 new houses are now in progress. The plan is in the Italian style, and the cost (estimated at 1,050*l.*) is to be defrayed by public subscription. There is to be seat-room for about 800 people.

HAINAULT FOREST AND THE PEOPLE'S PLEASURES.

At a short distance from London, in the county of Essex, lies one of the most charming forest scenes which England, so noted for verdant glades and undulating landscape, can boast. Being nine miles from the centre to St. Paul's, and approachable by the uninviting causeway of Mile-End, but little is known of the locality to the fashionable dwellers of the West End. It has, however, for ages been a favourite place of resort for citizens, and being but a Sabbath-day's journey for the careworn mechanic and artizan, "when toil relenting took its turn to play," on Sundays and holidays, picnics and junketing parties find a refreshing solace in an annual visit to the secluded dells, the thickets, the majestic oaks, or the sinking vistas of this enchanting wilderness.

The forest remains where and as it was, save that invasions on the waste, and encroachments, have from time to time greatly restricted its extent; not so the city, for that has advanced, and meets the old liberty at half way. Now the metropolis reaches to Bow, or nearly to Stratford, where the forest commences, and there the road divides, one branch leading northward to Chigwell, the other eastward to Romford. In extent it reaches five miles from Ilford on the south, nearly to Abridge on the north, by four miles from Woodford-bridge on the west, to Havering-at-Bower on the east. Were the whole area of this scope one continuous chase, there would be some 12,000 acres, but from the numberless excisions from, and appropriations of, the liberty, the contents of the whole do not at present amount to 4,000 acres.

At one period the feudal possession of Waltham Forest embraced in its compass both Hainault and Epping Forests, which latter is even now vastly more extensive. Both are beautiful, wild, and most picturesque; that of Epping being somewhat nearer, commencing at Snaresbrook, and extending twelve miles to Epping.

It appears that an Act of Parliament was passed (the 14th and 15th Vict.) for the disafforesting and inclosure of Hainault Forest; that on the 24th August, 1851, a commission was formed for the purpose; and that in April last, summary execution was done upon 14,000 oak trees, which had stood unmolested for centuries. This is preliminary to the utter clearance, parcelling out, and selling off of the whole domain.

No part of the country presents more varied or more beautiful woodland scenes, nor richer landscapes than Hainault, and there is none so much frequented by the humbler classes, and particularly by the dense population of the busy lines of Hackney, Shoreditch, Limehouse, &c. &c. Long and often have they enjoyed it in peace and silence; nor should we hear on their part of any murmurings, even although Epping, Hainault, and all the rest of nature's fair countenance were veiled from their view, and withdrawn. Yesterday (Sunday) hundreds of happy parties were in various guises enjoying their festive and healthful recreation: perhaps still, for these, Epping may be open; if not, no plaintive remonstrant amongst *them* will mourn in prose or verse, such as the "dulcia linquimus arva." Any one wishing to test the value of such rural resources to the trading classes of the metropolis need but visit on a Sunday,—or, indeed, on most fine days in summer,—the "brewery" and the exquisite oaken forest arbours, where our host Smith, of Chigwell-row, spreads his awnings, at the Bald Hind, and he may often see hundreds of persons innocently enjoying the prospect, the shade, and the green sward; and now the distance is eased off by the railroads, the curtailment of such healthful and humanizing pastimes would be still more baneful as the population increases and as the vital air which they breathe at home becomes more tainted.

It is several years since The Builder first noticed the subject of inclosures, and particularly the disafforestment of the distant *wastes* of the New Forest, Whichwood, the Forest of Dean, &c. &c. These are vast tracts capable

of great improvement, and which ought not to continue unproductive, whilst such large quantities of grain are imported into the country, particularly as the value of so much space was worse than lost to the community,—for these wilds are, as they always have been, only a source of idle support in salaries to favourites, or of plunder to the freebooter and poacher. Enough has already been said of the tolerated spoils by officials.

Something has, it is true, been mooted about the disafforestment of the New Forest: the utility of that region for growing ship timber has been given up, since it was proven that the wooden walls of Britain owe little to the oaks of Hampshire,—as, in fact, they were sold to any dealer without reference to the dockyards! So the 14,000 oaks, lately cut at Hainault, which (*if the biddings be true*) realized 23,000*l.* may, for aught we know, be now in preparation to build *Le Foudroyant*, at Brest. So much for our heart of oak.

There is a heart, however, that is of more value, and that is the heart of "the metropolis," and its teeming population: to keep this heart in proper tone, there should be no limitation of the few privileges and liberties available for them within reach of their hearths and homes. If money be wanted to pay *extra commissioners*, let them be busied or sinecured at a respectful distance from the national dwelling-place. The land, as being vicinal to London, may be more valuable (and Hainault is undoubtedly rich in soil), but is becoming also more valuable, nay indispensable, to the people. The body of the metropolis is much too pursy and too large for the iron-bound lungs (called the parks) which remain in its mature age just the same that they were in its infancy.

In the inclosure of Hainault it is true that private rights have been respected, for the copyholders (having common right) have had 800 acres. Sir C. Hulse has had a good slice; and the poor—that is the poor widows of the vicinage who were entitled to a load of firewood at Easter—have had 500*l.* awarded to them to be invested in Three per Cent. Consols! These are Christian times, for the poor still have the Gospel *preached* to them.

The whole management of the Woods and Forests has been changed: each of the two old commissioners has got a department to himself, under his own peculiar management; and to them has been added a third, who formerly a Scotch M.P.—was then niched into 1,000*l.* a year in Ireland,—and is now the manager of the forest *new* department, in which of course each is "Monarch of all he surveys." It is to be hoped that this arbitrary mode of government may prove more advantageous to the exchequer, but above all more beneficial to the country. QUONDAM.

SANITARY MATTERS.

THE board of health at Tottenham have carried out works there under the advice of the central Board of Health, with a view of obtaining a combined system of constant water supply, at a pressure adequate to throw the water up, whether for domestic use or in cases of fire, to the top of every house, with sewerage and drainage through smooth tubular pipes of comparatively small calibre, along which the force of the current, it is calculated, will sweep at once away out of the inhabited district everything noxious, instead of lodging it in wide and sluggish sewers to accumulate and rot.

From a report made to the local board, it appears that the works comprehend 8 3-10 miles of sewer mains and sub-mains, and 10 miles of water mains and branches, furnished with 170 hydrants, together with two steam engines and pumps, and an upper and a lower reservoir, both covered. The whole have been executed at a cost of 7,500*l.* The number of inhabited houses in the district is about 1,500. The charge for water supply will be regulated with a view to defray merely the current expenses, and probably will not exceed 2d. per week per house upon the average. Of the glazed stoneware tubular drains, the largest do not exceed eighteen inches, with curved bends and oblique joinings for all the branches; laid upon the plan termed "back drainage." For the water supply that construction has been adopted by which the water is wholly protected from exposure to the sun and the atmosphere. The water is obtained by boring through the chalk to a depth of 120 feet. There are two engines of eight-horse power, and from a well of 18 feet 6 in. deep, the water is pumped by steam through pipes to the highest point, about 80 feet above this level, and about two miles distant, where a reservoir is erected. At Tottenham-green a portable fountain with a great many jets has been supplied by Mr. Freeman Roe. Some model cottages have been fitted up.

Personally, we cannot speak of the success of the arrangement. The cost of obtaining the necessary legal powers, under the Public Health Act, was very little, compared with the sum which a Local Act might have cost, besides loss of time: the whole cost, we are told, was only about 60*l.*

On the general question of health, a district surveyor writes to us,—The progress of Sanitary Reform, as evinced by the conduct of two successive Governments, with reference to the interment of the dead among the living, namely, the Burials Bill and the sewers question, would lead one to the somewhat unwelcome conclusion, that the importance of these questions is but very imperfectly appreciated in "high places." In confirmation of this, the proposed and accepted proposal for the establishment of a New Smithfield in Copenhagen Fields, has but to be adduced, to be added to the long list of sins of omission and commission.

As you have well observed, the Burials Act is simply permissive, and leaves all the evils suffered in the old state of things untouched and in full force.

With regard to the Smithfield question, every one that I am acquainted with had conceived this *vexata questio* finally disposed of; the nuisance to be abated, and not permitted to be or exist within seven miles of the city of London. Imagine our consternation on finding that Copenhagen-fields, distant some two miles and a quarter, is to be the favoured locality. To what a lame and impotent conclusion have we come at last!

With regard to the sewers question, I can only add my testimony to what has been so often and so forcibly expounded in your pages. That until the abolition of all cesspools shall have been accomplished, and landlords will ascertain with their own eyes, and not leave, as is too frequently the case, these matters to agents, that proper drainage is provided, and proper flushing by water supply had, and these fertile sources of mischief (cesspools) filled up, it is impossible that the houses of their tenants can ever be free from disease, low fever, and the debilitating effects produced by the breathing of an atmosphere charged with impurities, and a soil saturated with cesspools.

Another correspondent, "G. R. F." writes,—The excellent article in the last week's BUILDER, by "Quondam," on "Slaughtering in the Metropolis," induces me to trouble you with a few lines on the revived subject of the Metropolitan Cattle-market, and it is gratifying to find that an almost unanimous feeling prevails against its being placed in Copenhagen-fields. The site which was mentioned by me, and of which I thought in June twelvemonth, opposite Woolwich, has had your approval, and I proceed to point out how the abattoir system may be carried out as part of a comprehensive scheme in conjunction with a market, if established in that locality. The river Thames should be made the medium of communication from the market pier to landing-places at certain intervals on both sides of the river, from Woolwich to Battersea, and a sufficient number of abattoirs established at, or close to, these landing-places, to which the animals would be conveyed in barges or ferry-boats made for the express purpose, and no beast should be allowed to be driven through the streets of London or its suburbs, unless under certain and strict regulations.

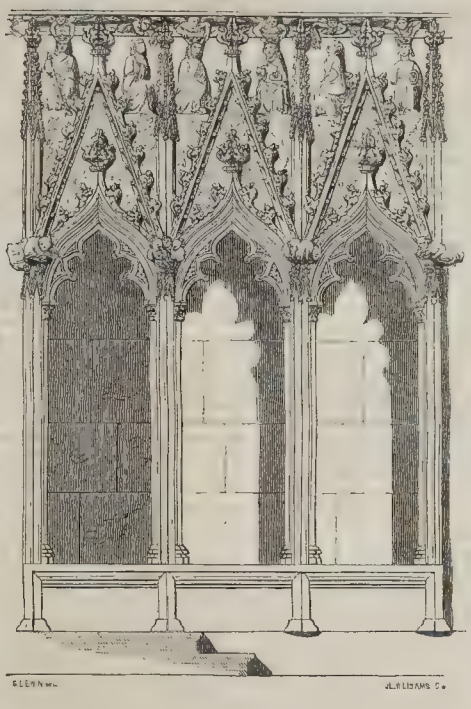
In addition to these local abattoirs there should be one on a grand scale in the market, from which the carcases would be conveyed by the railway lines. The saving in the quality of the meat, where animals can be spared the cruel inflictions to which they are now subject, would alone amount to a considerable value, and no mode of conveyance can be more easy to animals than water carriage, of which the expense would find an adequate compensation in the improved and wholesome state of the meat. On the £. s. d. principle, as well as on the score of humanity and health, it would be very desirable if some such system as I have advocated in mere outline could be carried into practice. I am glad to find that others, besides myself, point to the same neighbourhood as suited to the purposes of a cattle-market, and I trust that the corporation will, at all events, take into their consideration a site which enjoys advantages of singularly happy combination, which are actually still on the increase, since the proposed Victoria Dock, and the intended branch railway to Tilbury, may be made to serve the purposes of the market. The distance from Brunswick Pier to Roff's Pier, could be easily performed in ten minutes by steamers laid on for the purpose, and from Brunswick Pier to Fenchurch-street by express trains in another ten minutes: thus a butcher from Leadenhall Market could reach the new market in less than half an hour, and the respective abattoirs would be at no great distance from tradesmen in any one quarter.

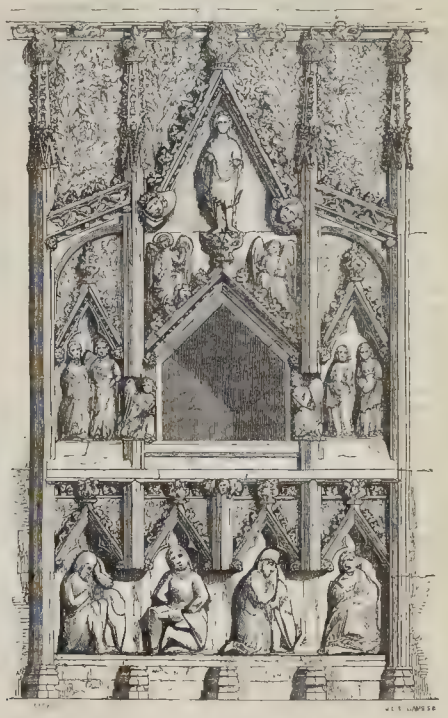
The dread of cholera already begins to influence the country as a stimulus to sanitary progress. At Huddersfield the ratepayers have been taking measures to promote sanitary reform in the outer hamlets of the township and adjoining districts. In Welshpool the sanitary state of the town has been under formal consideration, and a cleansing committee has been appointed, with power to consider and report on the advantage of applying the Health of Towns Act to the town or otherwise. There is some commotion at Derby as to the state of the graveyards in the town, which is said to be quite appalling. Five of them are in the very centre of the most populous locality in the town. The local clergy, to their honour, have taken an active part in the movement for their suppression, but there are difficulties in the way here as elsewhere. The Banbury local Board of Health are contracting with Messrs. Davis and Saunders for a survey of the district, and they have appointed Mr. Davids, the manager of the business of the contractors, as their surveyor and inspector of nuisances, at a salary of 100*l.* a year, to be increased if he be also appointed to act as clerk of works in contemplation. At Worcester, the first stone of public baths was laid on Monday week. The brick walls are already 3 feet up. There will be eight bath-rooms at the ends, and four waiting and other rooms in the centre. A swimming bath is also contemplated either here or at the Severn. Mr. Joseph Wood is the builder of the baths, which are to be opened in about three months. At Arbroath there is an outcry for water, as there also is at Forfar, where, however, measures are being taken to remedy the defect.

DISFIGUREMENT OF THE NEW ROYAL EXCHANGE.—The Gresham Committee have declined either to suspend the works or to alter the avowed determination. The report of this result has been received with disappointment and regret by those who feel an interest in the character of our national buildings.

ACCIDENT WITH MELTED LEAD.—While filling a hole drilled in the granite block at the base of the Nelson column for a bolt of the casting to be fixed on it, one of the plumbers was much injured, by water, or steam rather, suddenly expelling a large quantity of melted lead into his face. We mention the circumstance in order to express our surprise that so well-known a risk was not obviated, as usual, by the ascertainment, beforehand, that the hole was perfectly dry. Such circumstances occur perhaps oftener from carelessness than from ignorance.

SEDILIA AND "SEPULCHRE," HECKINGTON CHURCH.





ST. ANDREW'S, HECKINGTON.

St. Andrew's, Heckington, a fine specimen of the Decorated period, and one of the most beautiful of our many beautiful village churches, has been often illustrated and is universally known. It has, nevertheless, afforded matter to Mr. Lewin for the first and second parts of a new work recently commenced by him on Lincolnshire Churches, which contains an interesting, though not complete, account and description of the building, and various illustrations carefully executed.* Here, for example, are two of them, namely, a view of the Sedilia in the Chancel, and a view of the Holy Sepulchre, both of them presenting a large amount of sculpture.

The "sepulchre" is in the north wall of chancel opposite the sedilia, and is about 10 feet in height, and 5 feet 6 inches in breadth. "Under the centre pediment," says Gough, "is the figure of Christ rising from the tomb, and at his feet on the sides of the pediments below him, two angels looking up and worshipping him. Under a pediment, beneath a flying buttress at his right hand, is a woman holding something in her hand, perhaps Mary Magdalene bringing the spices for the purpose of embalming his body; and under the left hand pediment and flying buttress is another woman, representing those who accompanied her. With her is an angel, and two more angels crouching support the pediment over which our Lord rises. The cornice above is charged with grotesque figures blowing single and double flutes. Under four pediments below, divided from the upper by a fillet or fascia, perhaps representing the ledge of the tomb, are four soldiers in reclining postures." Mr. Gough likewise describes the sedilia. "In the south wall of this chancel, opposite the sepulchre, are three beautiful stone stalls, with purfled pediments and finials, and in the spandrels the figures of St. Margaret and the dragon, St. Catharine holding her wheel, the Deity and Virgin, all crowned; also two men in curled hair, one kneeling, the other sitting, looking up to the pattern of a tower or steeple coming down from heaven; over which is a monk or religious holding a bowl and something with a handle in it."

The author says, "there appears to have been in the construction and design of this church some wish to preserve the number five in many of its parts: thus we find pentagonal pinnacles to the tower—the same to the chancel, and likewise to the sedilia and sepulchre, windows of five lights in transepts, five sided windows to the chancel, and five arches and five clerestory windows each side of the nave: it is, however, a question what exact ecclesiological reason can be given why this peculiar number should have been the ruling geometrical figure in so many parts."

By a printer's error, the "total exterior length of *chancel*" is called 172 feet. It must mean total length of *church*, the *interior* length of chancel being given as 51 feet 6 inches.

* "Selections from Lincolnshire Churches," by Stephen Lewin, Architect. Parts 1 and 2. Boston: Published by the Author, Custom House-quay, London: Whittaker and Co.

The Smell of New Paint.—A bundle of old dry hay, wetted and spread about, presents a multifarious absorbing surface for this, especially if not on the floor only, but over pieces of furniture which allow circulation of air, as chairs laid upon their faces, &c. Large vessels of water, as trays and pans, are not uncommonly used, with good effect; but the multiplied surfaces of the loose hay give it great advantage. It must be kept wet, however, or at least damp, for the oily vapour does not seem to be readily absorbed unless the air is kept moist by evaporation.

J. Prideaux.

THE ARCHITECTURE OF BURGOS AND ITS NEIGHBOURHOOD.

Not long ago we gave some illustrations of the ancient architecture of Spain, and some papers descriptive of it. The writer of the latter, Mr. Waring, has now published a large and elaborate set of views illustrative of the antiquities of Burgos and its neighbourhood.* It contains forty-two drawings boldly executed on stone, but has no letterpress beyond a brief description of the plates in the shape of a loose prospectus, probably to evade the unjust tax on the producers of costly illustrated *books*, to which we have often had occasion to allude. This is the more to be regretted since the author has shown in our pages that he has the pen of a ready writer, and could give us fresh information. In Mr. Ford's capital "Hand-Book for Travellers in Spain,"† many particulars of Burgos are given, and those who desire to know more of its history may consult Coronel's *Historia de Castilla* (Madrid, 1785). Burgos means "a fortified eminence," and is akin to our burgh and borough. It is the capital of Old Castille, and, apart from its historical claims, is remarkable for the number of its fine Gothic buildings, its cathedral, and the neighbouring antiquities of Miraflores and the Huelgas. The cathedral was commenced under the auspices of an English bishop, Maurizio, A.D. 1221; a great part of the old work has, however, been either destroyed or grievously injured, and the more remarkable features are of a late Gothic character, of about the close of the fifteenth century; to the illustration of which, as it flourished signally in the north of Spain, Mr. Waring's attention has been more especially turned. The examples show, without par-

* Architectural, Sculptural, and Picturesque Studies in Burgos and its Neighbourhood. By J. B. Waring, author of "Architectural Art in Italy and Spain." London: Thos. M'Lean, Haymarket.

† Murray, Albemarle-street.

tiality, both its faults and beauties in the Constable's Chapel and the tombs at Miraflores. "The date of each may be put down as *circa* A.D. 1485," says the author. "The sculptor of the tombs was Gil de Burgos, father of the celebrated sculptor, Gil de Siloe. The name of the architect who designed the chapel I could not discover with certainty. The monuments of Miraflores are to the memory of Juan II. and his wife, and to his son the Infante Alonzo. Little relating to these personages, beyond armorial bearings, is to be found on their elaborate sculptures, so rich and fanciful as to be rather fitted as shrines for some Shakspeare or Cervantes than for the glorification of those whose only claim on art was the accident of birth."

The Constable's Chapel is as large as some churches, and is very rich in florid sculpture, ironwork, and paintings. It was founded by Pedro Hernandez de Velasco, constable of Castille, and one of its noblest families: it was finished at the close of the fifteenth century; and there is every appearance that the sculptor of the tombs of Miraflores, if not its builder, was at least much occupied in its abundant sculpture. The wretched Churrigueresque altar-piece is but one instance of the bad taste which has destroyed, in Spain, the old and valuable, to make room for the new and worthless. Mr. Waring gives several views and portions of it. Some of the drawings are rather coarsely executed, but all are very effective.

These subjects have never been illustrated, our author thinks, with the exception of some few in Villa Amil's large work on Spain, and of these he says,—"That anything more false and unworthy of a great work, such as his purports to be, cannot be imagined, putting aside the entire incorrectness of the representation through an overloading of work, existing only through the lithographer's crayon: there is a general system of imaginary make-up about them, which becomes comprehensible when we find that the artist, in order to excite admiration, has joined the large and small Cloisters of the Huelgas into one view, with the salient points of each, thinking himself in this case probably secure, from the fact, that only by a royal order, of the utmost difficulty to be obtained, can the public enter there."

A great similarity runs throughout all the buildings in the north of Spain belonging to the last half of the fifteenth century, which leads to the belief that they are works emanating from the teachings of one master-mind; and this is more probable when we find such a very German character about them, and know that John of Cologne settled here about A.D. 1440 To him Mr. Waring thinks most likely is due the honour of being the great teacher during the period named.

The last view in the series represents the Constable's House, and La Trinidad, the first a curious specimen of the old Gothic palace, and made striking by great monsters, and coats of arms, and perforated balconies. It is now used as a barrack, or rather for military bureaux, in this garrison town. To such base purposes has it come at last, and the very name of Velasco strikes dully on the ear, whilst that of Velasquez brings to mind a nobility and distinction which neither costly palaces nor mausoleums can raise. The ruined Chapel of La Trinidad, says Mr. Waring, may well close this series of drawings, for it is emblematic of the land itself, ruined and neglected: "its past glory is gone; and where Calderon and Cervantes, Velasquez and Murillo, once wrote and painted, only so much lumber fills up the place in this dust-covered and forgotten chapel." For the enterprise which stimulated the work, and the ability with which it is carried out, Mr. Waring richly deserves support.

Irish Stone.—A vessel just arrived from Galway has brought an entire cargo of marble, amounting to 160 tons weight, the produce of that part of the sister island; and another vessel arrived in the river on the same day from Arklow, and brought 100 tons weight of pyrites, the produce of that district of Ireland.

ON THE EVIDENCES OF SAXON ARCHITECTURE IN THE COUNTY OF DURHAM.

The following is part of a paper read by Mr. W. Hylton Longstaffe at the late meeting of the Archæological Institute:*—

You will nearly all, I suppose, be familiar with the great questions which have so long occupied the antiquarian circle respecting the nature and existence of Saxon architecture; and as the stream of history which will be pursued in this paper affects churches with some of the characteristics of presumedly Saxon work only, it is unnecessary to go into the generalities of the subject with any minuteness. You are aware that the technicology of the old writers, who made the Saxon style include all our Norman buildings, and thus tacitly assumed the architectural character of the structures before and after the Conquest to be of a similar design, was swept away by Rickman. And then it was conceived that we had no ante-Conquestum churches, and the Norman style was dubbed the first. It was, however, soon found that churches existed which were totally distinct from that style; and as we had others whose ascertained date came within a very narrow space of time from the Conquest—in Durham Cathedral, for instance, which was built about thirty years afterwards (1093)—and these examples were in a fully developed though plain Norman fashion, these anomalous examples were necessarily thrown back into the Saxon period. That long period of course includes sub-styles. Many of the buildings included in it have an arrangement sinking into Norman and forming the transition to it. And yet we find persons going back to the unlikely theory that we have no Saxon buildings, and stating that stone was only occasionally used by the Saxons, and that their buildings were very inferior in size to those erected by the Normans. Now we shall see that these latter statements clash with the Saxon records; and Mr. Wright has properly observed, that when William of Malmesbury, a late authority at the best, speaks of the Saxons wasting their substance in small and abject houses, unlike the Normans, who lived moderately in ample and superb edifices, he indefinitely states a well-known fact. The Saxons had not vast feudal castles. He also states another incontrovertible fact, that the Norman churches were raised *novæ edificandi genere*. But it is not shown that this change of style was consequent upon the Conquest, nor why the new style might not rise out of the preceding one, like all its successors, in the manner of the corresponding, but rather earlier change on the Continent. Isolated resemblances to the Saxon edifices would occur long after their style was obsolete. We saw a triangular arch over a Norman door at Warkworth Church; but such instances as little prove for or against the Saxon date of churches, where each peculiarity is in harmony with the rest, as the herring-bone masonry in a Roman station proves that such station is of Norman date.

The history of the Anglo-Saxon buildings, and probably the style of the buildings themselves, falls into three divisions.

The First or Anglo-Saxon Period is the period (about 670) before Wilfred brought the foreign mode of building from the Continent, of stone, *more Romanorum*, which forms the second period. Now, in this early period we might expect a number of wooden churches, yet the contrary seems to be the fact; and little more appears to gratify such an expectation than that temporary wooden oratories were raised. Such a cell at Tynemouth, erected between 617 and 633, speedily gave way, before 642, to a small monastery of stone. (Monk of St. Albans, xii. cent. Lel. Coll. iv. iii. 42.)

The first bishops of Lindisfarne were Scotchmen. At their departure in 664, on account of the disputes about Easter with the Romish Church, they left behind them houses of the smallest size, save the church. It was not, says the chronicler, necessary to provide houses to receive the powers that were, or money. The former never came to the church save to pray and hear the Word, and the King, with his five or six servants, departed as soon as service was over. (Simeon.) The cathedral had been built in 651, fit, says Bede, for an episcopal seat; yet *more Scotorum*, not of stone, but of split oak only, and thatched with reed.

That this architecture, *more Scotorum*, was not usual in England at the period, is evident from Bede's own words, even if we had not evidence of the existence of stone churches. Had it prevailed in England, we should have had *more indigenorum* or *more Anglorum*, or some such expressions, in opposition to *more Romanorum*. And against any objection that the English style had become confined to Scotland in Bede's time, and that Bede's expression was not prospective, but alluded to his own period, we have his declaration that, in 710, Naiton, King of the Scots, had sent to Ceolfrid, one of the introducers of the second Saxon style, begging him to despatch architects who might make a stone church after the manner of the Romans in that nation also; and despatched they were.

As the walls of the building of this first period were strong enough to stand after the very cause of the loss of their roof was forgotten, I see no improbability in the supposition that some of them may be built in with later masonry, although I cannot point out an example in this district. They were, doubtless, very rude in the manner of joining the stones, and very inferior to the structures of the next sub-style. Some have supposed that the strips on the walls of such towers as Earl's Barton were in imitation of an earlier timber style, and that the verb "to timber" alludes to the circumstance. But occurring as strips do in what appear to be buildings in a transition to Norman, such as Stanton Lacy, and being wanting in what appear to be the earlier examples, I am disposed to consider them as rather late in the period, when greater ornament was wanted on the walls, and as leading to the flat buttresses and other rough decorations of Norman date.

The Second or Romano-Saxon Period extends from the introduction of an improved and Continental masonry to the destruction of monasteries by the Danes, say to about 880. A practice now prevailed of English ecclesiastics visiting Rome. In 654, two individuals were at Rome, and they were destined to effectuate a revolution in the architecture of their native country. One was the turbulent Wilfrid; the other, Biscop, of noble blood—he who afterwards received the prænomen of Benedict. Wilfrid was first in architecural order. On his being made Archbishop of Northumberland, in 669, he found the early stone cathedral so demolished by Penda, the pagan King of Mercia, that it was only fit for birds to build their nests in. He repaired the walls, roofed them with lead, and glazed the windows. Between 670 and 678 he erected the monasteries of Hexham and Ripon.

In 673, Benedict Biscop founded a monastery at Wearmouth, upon or close to a Roman site. Its material is unknown, but scarce had twelve months elapsed from its foundation when Biscop again crossed the ocean, for masons who might make a stone church after the manner of the Romans—a style he always loved—(*cæmentarios qui lapideam sibi ecclesiam juxta Romanorum, quem semper amabat, morem facerent*). They prosecuted the work with such diligence, that, within a year after the foundation had been laid, the spacious edifice was roofed and mass celebrated. When it was nearly finished, he obtained glassmakers from France, who glazed the windows of the church, the porches, and the refectories, and taught the mystery of their trade to the natives, who at that time were ignorant of it. Wilfrid had previously used glass, but it had been imported.

Jarrow was founded in 682, on a further donation by King Ecgfrid of a strong peninsula overlooking marsh and stream and Ecgfrid's port. Ceolfrid was despatched to the new possession, on which a suitable convent had been raised for his reception, under the patronage of St. Paul. The establishments of Wearmouth and Jarrow were properly one mo-

* The paper at greater length will be found in the *Gateshead Observer*.

nastery, founded at two places: they acted in concert, and often under one head. In Bede and Simeon they are called "the monastery of the Apostles Peter and Paul, which is at Wiramuth and in Gyruu." At Wearmouth, Bede, who was born in the monastic lands, entered on his sacred vocation. At Jarrow he wrote his great works and died. Jarrow Church was dedicated, as we learn from the Saxon inscription in the church, in the fourth year of Ceolfrid's abbacy. The inscription was known to Leland, and, being a through-stone, seems undoubtedly genuine.

The first and most striking characteristic of these works is the skilful masonry of which they are composed. The stones are of cubical form, and set in very regular courses. The church of Ripon was of polished stone from the foundations in the earth to the summit. The masonry of Wilfrid's crypt at Hexham is a fine example of the period; and the regularity and Roman-like appearance of the Saxon remains of the monastic buildings at Jarrow must strike every observer. For this mode of building, of course, stones which the Romans themselves had used were extremely convenient. At Hexham, most (perhaps all) of the stones in the crypt are Roman. Jarrow, also, is on a Roman site; and probably most of the stones of the Saxon remains there are filched from the Roman ruins. Wearmouth was on or close to Roman buildings. So situated, also, were York and Ripon. Great intricacy appears in the arrangements, and for these the crypt of Hexham again stands in good stead. That monastery is chronicled as having secret cells and subterranean oratories below, and walls of three distinct stories, and supported by well-polished columns, above; thus in no material respect differing from the later cathedral arrangement of crypt, arches, triforium, and clerestory. The walls, the capitals of the columns, and the arch of the sanctuary, were decorated with historical, fanciful, and unknown figures in relief, besides surface paintings. The body of the church was everywhere surrounded with aisles and porches or transepts, which, by incommunicable art, were distinguished with walls and spires above and below, meaning probably that each part was characterized, exteriorly as well as interiorly, as separate from the rest of the building by roofs of different level and other circumstances. As in the later triforia, various galleries artfully communicated with the whole building, so that crowds could stand around in the spires and galleries unseen by those within. Secret oratories with altars were cautiously erected in these towers and porches. A high wall surrounded the buildings, and they were supplied with water by aqueducts of stone running through the town. They were said to be unequalled on this side of the Alps, and the description would almost apply to later monasteries; but a greater number of porches and galleries, and some sort of towers opening to the interior of the church, are hinted at. The monasteries had more churches than one. The principal one at Wearmouth had probably no aisles; for a painting was placed in the central vault extending from wall to wall, and others covered the north and south walls, by which arrangement, Bede says, the whole interior presented instruction. It possessed nave and choir, a galilee or entrance porch, and another porch *east of the altar*, and dedicated to *St. Peter*. So, also, at Wilfrid's church of Hexham, Bishop Alcmund wished to be translated into the church as well as Acca, and he was deposited *in St. Peter's aisle, in the east of the church at Hexham*. In process of time they were removed *nearer the altar*, and laid *in a secret part* of the church,—Acca in a vault near the right side of the altar, and Alcmund in another on the left side. Afterwards they were honourably deposited *behind the altar*, and *very near to it*. Now, I think we may identify these arrangements. In the crypts of Hexham and Ripon there is a demivaulted space at the west end of the main room or chapel, apparently to support the steps of the altar. We thus have the chapel underneath the high altar. At each side of the chapel are passages which would each contain a sepulchre very well. The place to which the bodies were honourably transferred, above ground, would be in the extremity of the apse behind the altar, in a similar situation to that of St. Cuthbert's shrine at Durham; and St. Peter's aisle, their first position, would, no doubt, run round the apse; and this also was the Durham arrangement.

There is greater difficulty in determining the form of the lesser churches of these monasteries; but at both Wearmouth and Hexham were circular churches dedicated to St. Mary, like towers; and the Hexham one had four porches or small transepts attached, forming a sort of Greek cross. The abundance of transeptal chapels and burial-places is remarkable in the Saxon churches. At Jarrow there was a north porch dedicated to the honour of Bede.

Parish churches seldom occur at this period, and it seems probable that one of the churches of a monastery was used instead. At Ripon and Hexham, I believe, this fact is certain; and there is evidence that a priest for parochial services was appointed at Tynemouth, and that churches of some sort arose on or near the sites of the monasteries of Wearmouth, Jarrow, and Gateshead, while they lay waste during the next period.

Coming to actual remains, the crypt of Hexham exhibits plain circular arches, with triangular roofs. The triangle is found at Jarrow in a doorway, with the stones singularly joined. At Norton there is a very curious central tower, where triangular windows occur above good arches, as will again be mentioned. The Earl's Barton tower has the triangle abundant in the stripwork which covers it, yet the balustered windows and good arched doorway do not look early. As, in these and other instances, as well in stone as on vellum, the triangle is only used in secondary and generally ornamental work, I look upon it as an importation with other Romanesque improvements. In the portico at Lorsch, the great principle of the strip decoration is seen—that is, the propensity to run through, and irrespective of other members of the design—and the comparatively useless character of the main columns. In the example from Earl's Barton it will be seen giving considerable richness by running through a double arcade of triangles. At Sompting, the same idea is carried out, and a rough attempt is made to copy the foreign capitals. Generally, the Saxon capitals and bases are little made of, ornamental pillars in the form of balusters being preferred. These form another proof that Wearmouth and Earl's Barton churches are coeval. Again, in the portico it is shown that the triangle is by no means the characteristic of rude design; and, not to urge the improbability of the Saxons being ignorant of the arch, for the small purposes in which the triangle was used, a square head, such as is found in every countrified church doorway, would have been the much easier plan. Again, in the portico is seen a peculiar ornamentation of the pilasters supporting the triangles; and here at Deerhurst, in England, it is exactly copied. Once more;—The rage for the triangular decoration in this Romano-Saxon period led, I think, to the Norman chevron, by placing the lines of the triangle between instead of on the pillars or balusters. The specimen of Saxon *zigzag* at Hexham, is perhaps unique.

Malmesbury uses the words *lapidei tabulatus* in his description of Biscop's churches. They probably refer to the broad strings dividing the Saxon towers into stages. At Wearmouth one of these is divided by balusters something like the Hexham zigzag; but the intervals are filled with figures.

The cathedral at Lindisfarne was still of wood; but about 690, Bishop Eadbert must have given it a very odd appearance. In consequence, one may suppose, of the architectural alacrity about him, he took off the thatch and covered both roof and *walls* with sheets of lead.

St. Cuthbert begged at first to be buried in his mansion near his oratory, to the south, at the east side of a cross he had erected there. And here a certain class of Saxon remains may be briefly alluded to. On Saxon sites, it is usual to meet with the remains of crosses, elaborately adorned with knotwork and figures of various descriptions. I believe there was a custom, at later periods, of having a cross in every cemetery; but more Saxon crosses than one are frequently, as at Gainford, for instance, found to have existed. The two fine examples at Aycliffe have been supposed to have been erected in commemoration of two synods held in 782 and 789. There are, however, strong reasons for doubting the assertion that the Aclea at which these assemblies were held was our Aycliffe or Acley. It rather seems to have been in the south, at Ockley, in Surrey. Leland, when he saw three of these crosses at Ripon, standing in row, considered them to be "things antiquissimi operis," and to commemorate "sum notable men buried ther." Leland would know all the various uses of crosses, and his idea is borne out by a record concerning a celebrated cross at Lindisfarne and Durham, which Eadfrid, the next successor of Eadbert, made. He caused it to be of stone, in cunning work, to the memory of St. Cuthbert, with his name sculptured upon it; and it was carried about with St. Cuthbert's body, and settling in the cemetery of Durham, afforded, in Simeon's time, a monument of both bishops. It may further be noted that on the original burial of Bishop Acca, of Hexham, in the cemetery to the east of the church, two stone crosses, wrought with wondrous art, were placed—one at his feet, another at his head—the latter inscribed "Here lies Acca." (John of Hexham, per Wright.)

With the destructive ravages of the Danes commenced the Third or Dano-Saxon Period.

The Durham monasteries fell in 867, the marauders leaving nothing but roofless walls. Christianity itself decayed; so much so, that for the 200 years which forms this third period scarcely any churches were re-edified, and these "of wattles, and covered with straw;" but no monasteries. Simeon's words may bear the construction of referring to the roofs only, as distinguished from the old leaden ones; but anyhow, he only speaks of rebuilding. I don't know that masonry such as Wilfrid's or Biscop's will be found in this epoch, but it does not appear that the churches degenerated in size. In the south, monasteries were still erected. The celebrated one at Winchester is well known, and, like Acca's corpse in Hexham, the body of its famous Bishop Æthelwold was at first buried in the crypt on the south side of the altar, and afterwards translated to the choir of the church. In the north, building operations were, as might be expected from Simeon's remark, very scanty. A wooden cathedral was hastily thrown up in the Roman camp at Chester-le-street for the wandering see. It was renewed, after its cathedral character had ceased, in stone, about 1045, having stood about 162 years in timber. At Durham, too, a little church of boughs, a small stone structure, and a stone cathedral, rapidly succeeded each other. I cannot *fix* any northern remain to this period; but no doubt any existing would show some inclination to a transition which took place in the reign of Edward the Confessor.

BRITISH MUSEUM.—The statement by a contemporary that a new reading-room is to be erected, is premature. The necessity for one has been repeatedly urged on the trustees by the librarian, and by readers, and Mr. Panizzi quite lately brought forward a definite proposal for one, but nothing is settled on.—We have had repeated complaints of the inconvenience felt by visitors at the British Museum from the want of anything whatever in the shape of a retiring room, except for ladies, which, it ought to be generally known, has been supplied up-stairs. The library behind is well provided, at least for gentlemen attending the reading-rooms, and we cannot understand why the like accommodation has not been arranged for the museum department of the building. We wish the attention of the proper authorities to be drawn to this matter, as an urgent requisite, since few visitors remain for a shorter time than several hours, if not for the greater part of the day, at the Museum.

NOTES IN THE PROVINCES.

Newark.—On Friday week the church restoration committee received tenders for the works as follows:—Mr. Cooper, of Derby, 4,191*l.*; Mr. Broadbent, of Leicester, 4,823*l.*; Mr. Rattee, of Cambridge, in conjunction with Mr. John Cooper, Mr. Edwin Marshall, and Mr. Spreckley, 6,221*l.*; Mr. Rattee, of Cambridge, 5,910*l.*; Mr. Ruddle, of Peterborough, 6,215*l.* These contracts exclude some extras. A sub-committee was appointed to examine the tenders and report.

Ulceby.—The church here was re-opened on Tuesday in last week, after being about twelve months under repair and restoration. The western gallery has been taken down, and the tower arch and masonry of the interior of the tower thus opened to the church. The decayed plastering has been removed from the walls of nave, aisles, and clearstory, exposing the ancient stonework laid in regular courses, cleansed and pointed at the jointings. All the stone work of the piers and arches of nave, as well as of jambs, of windows, of aisles, and clearstory, have been cleansed of whitewash, and jointings pointed. The nave and aisles have been fitted up with square-ended benches of oak, and stalls with poppy-heads, added to the chancel. Oak screens separate the north aisle of nave and chancel from the chantry chapel, to be used as a vestry. The aisles of the nave and a great portion of chancel have been laid with Minton's encaustic tiles. A stained glass memorial window has been placed at the east end of chantry chapel. The several works have been executed by Messrs. Wm. Blanchard, of Ulceby, joiner and carpenter; Wm. West, of Wooton, bricklayer; and Binks and Son, of Hull, painters and decorators. The ornamental ironwork was done by the village blacksmith. The architect is Mr. W. D. Keyworth, of Hull.

Oxford.—The board of guardians held a meeting on Thursday in last week, to decide on a site for the erection of a new workhouse.

Brixton Deverill.—The Rev. W. Barnes, the rector, has within the last few weeks, at his own expense, placed a spire on the steeple of the parish church of St. Michael. Messrs. Hale and Harris, of Warminster, were the contractors, and Mr. Wyatt, the architect. On Thursday in last week all the artisans employed in the erection were invited by the rector to a good substantial English supper in the school-room. The chancel is said to require enlargement.

Bristol.—The outer dock-gate adjoining the river at Clifton gave way last week, with the pressure of the tide, and canted right over. One of the hinges had become loosened, and the gate had started out of its position. Some men were in the act of drawing it back to its place by machinery when the accident occurred.

High Rochester.—It is understood that some further important discoveries in Roman antiquities have been made at High Rochester, in Redesdale (the ancient Bremenium), by the gentlemen engaged by his Grace the Duke of Northumberland in making excavations at that celebrated Roman station.

Blaydon.—The opening of a building for the Mechanics' Institution of this place, was celebrated on Monday in last week. The building is composed of a hall 39 feet by 25 feet, with a gallery 25 feet by 13; a large room for a news-room and library; a dwelling-house, and a large yard. The hall will be used as a public school during the day, and for lectures and classes in the evening. It is let on Sundays to the Wesleyan Reformers. The members have a benefit society established consisting of 91 members, in addition to the ordinary advantages contemplated by such institutions. The building has been erected by Messrs. Marsh and Robinson. By the exertions of Mr. Joseph Cowan, jun. and the intelligent working men of the village, about 200*l.* have been raised; but the structure, with the usual fittings, will cost about 500*l.* "Mr. Thomas Emmerson," says the *Shields Gazette*, "has enlarged the play-ground for the boys; Mr. James Clephen, the warm-hearted editor of the *Gateshead Observer*, has sent the members a present of books, and the working men at Mr. Hawdon's foundry, in addition to a subscription of 5*l.* cast the metal rails forming the balustrades to the platform, Mr. Hawdon furnishing the metal." Money subscriptions are also coming in.

Inverness.—There is at present here, according to the *Inverness Advertiser*, an active movement in favour of cheap and good gas. As in so many other places, monopoly has induced a state of things, as regards both price and purity, which the inhabitants seem to have determined at length to get rid of. A meeting in the town hall, crowded to excess, was held on Tuesday in last week, and resolutions were passed in favour of the establishment of a new company, and of inquiries as to the real merits of Whyte's hydro-carbon gas, with which Dunkeld has been recently lighted.——The purchase of the old Free Church at Inverness, it is said, has been all but completed by Mr. Roualeyn Cumming, the African traveller, to be converted into a museum or depository for the curiosities, &c. collected by him in his excursions through the African deserts and wilds of Caffraria. The price agreed upon is said to be 300*l.*

Nairn.—For several years past, says a local paper, the lower part of the town of Nairn has been in course of improvement by the building of a useful, class of dwelling-houses. Of late the "West-end" appears to have received an impulse in the building spirit, by the erection of the Seceder Kirk in that quarter. This is now to be followed by the building of several cottages in the same vicinity, according to plans by Messrs. Mackenzie and Matthews, architects, Elgin.

THE CRYSTAL PALACE AT NEW YORK.

THE plans, by the successful competitors, Messrs. Carstensen and Gildemiester, of New York, having been shown to the editor of the *New York Herald*, he gives a full account of them, from which we glean the following particulars. The building is to be erected in Reservoir-square.

The general idea of the edifice is a Greek cross, surmounted by a dome at the intersection. Each diameter of the cross will be 365 feet 5 inches long. There will be three similar entrances—one on the Sixth avenue, one on the Fortieth, and one on Forty-second-street. Each entrance will be 47 feet wide, and that on the Sixth avenue will be approached by a flight of eight steps. Each arm of the cross is, on the ground-plan, 149 feet broad. This is divided into a central nave and two aisles, one on each side; the nave 41 feet wide; each aisle 54 feet wide. On each front is a large semi-circular fanlight, 41 feet broad and 21 feet high, answering to the arch of the nave. The central portion, or nave, is carried up to the height of 67 feet, and the semi-circular arch by which it is spanned is 41 feet broad. There are thus, in effect, two arched naves, crossing each other at right angles, 41 feet broad, 67 feet high, to the crown of the arch, and 365 feet long; and on each side of these naves is an aisle, 54 feet broad, and 45 feet high. The exterior of the ridgeway of the nave is 71 feet. The central dome is 100 feet in diameter—68 feet inside from floor to spring of arch, and 118 feet to the crown; and on the outside, with the lantern, 149 feet. The exterior angles of the building are filled up with a sort of lean-to, 24 feet high, which gives the ground-plan an octagonal shape, each side or face being 149 feet wide. At each angle is an octagonal tower, 8 feet in diameter, and 75 feet high. Each aisle is covered by a gallery of its own width, and 24 feet from the floor. The building contains, on its ground floor, 111,000 square feet of space, and in its galleries, which are 54 feet wide, 62,000 square feet more, making a total area of 173,000 square feet for the purposes of exhibition. There are thus in the ground floor two acres and a-half, or exactly 2·52·100; in the galleries, one acre and 44·100; total, within an inconsiderable fraction of four acres. There are on the ground floor 190 columns, 21 feet above the floor, 8 inches diameter, cast hollow, of different thicknesses, from half an inch to one inch thick: on the gallery floor there are 122 columns.

The *Herald*, in order to show the extent of the building, makes a great many comparisons with others extant in New York and elsewhere, and at last comes to "the true rival, which," says he, "will probably be thought to be the Hyde-park Paxton Building, now erecting at Sydenham. That building was 1,848 long by 408 feet broad, thus giving, on the ground floor, 753,984 square feet; and, with the transept, 18 acres. Our building covers only one-eighth of the ground occupied by the Hyde Park monster: the available space, with the galleries, is about one-fifth or one-sixth. But it would be very absurd to erect one here of such gigantic dimensions. Besides, the English building was very far from being filled with anything that any body desired to see. There were a great many two-penny matters in it, and a good deal of unoccupied space." Now, the less Jonathan says on that point, we think, the better. On this side the Atlantic, at least, it only reminds one of his own ludicrous ambition, and of the immense space which he filled with—nothing—not even "twopenny matters." "As to the architectural effect and beauty of the building," he adds, "there will be no sort of comparison. In fact, saving the transept, which was a mere matter of accident, imagined by Mr. Henderson (?) to save the elms, the Hyde-park building was nothing more nor less than a large box, and had just as much architecture about it as might have been expected from a people so devoid of taste as are the English. This was perfectly well understood there then and now." Whatever were the merits of the *departed*, certainly those of its American rival do not excel it on the score of originality. We have only to cut away the long ends of the "large box," and add them to its sides, to arrive at that idea. Much may be made of it, however, in detail, and we only hope that it will square with the advanced taste which, by implication, must prevail on the other side of the Atlantic. Nevertheless, the *Herald* thinks that "the directors have been *fortunate* in selecting a plan from this side of the water, and in not going to England for one." "Mr. Gildemiester," it adds, in speaking of the architects, "has been some time settled among us, and is evidently, from the drawings, not only an architect, but an artist. Mr. Carstensen is the designer of the Tivoli and Casino of Copenhagen, the principal public grounds of that city."

THE PALAZZO AGOSTINO, AT PISA.

THE front of the Palazzo Agostino, which is on the Lung Arno, at Pisa, is wholly of moulded brick, or terra cotta, and was executed in the fifteenth century. Our engraving is made from a clever sketch on the spot, by Mr. Robinson, and in an ensuing number we shall give at large the details, some of which are very elegant.

EFFECT OF METALS ON STONE.—The effect of iron upon stone when exposed to the air and other influences is strikingly shown in the stone coping which receives the railing of Hyde Park from Knightsbridge to the "Corner." The standards, large in size, are let into the stone and *run with lead*, together with the end of the bottom-rail, which is turned down into the coping. Two or three years ago the damage which had been done by this arrangement was repaired, but the cause being left in operation the same results are following, and it may be seen that at many of these points a large piece of stone has been forced out by the oxidation and expansion of the metals.

PEEL MONUMENT.—On Thursday week another monument to the late Sir Robert Peel was inaugurated in Lancashire. This monument consists of a square tower, built of stone, on Holcombe-hill, at the cost of Mr. Joshua Knowles. The tower is 300 feet high, with spiral staircase to its summit, which commands an extensive view.



THE PALAZZO AGOSTINO, AT PISA.

THE MAUSOLEUM AT HAMILTON PALACE.

In the chapel of the mausoleum at the palace of the Dukes of Hamilton, near Glasgow, the remains of the founder of this somewhat remarkable edifice were lately deposited. The body was enshrined in an ancient Egyptian sarcophagus, which may yet serve to confound some remotely future archæologists in their attempt to fathom the origin of the mausoleum and its incongruous and second-hand contents. No expense appears to have been spared in raising the mausoleum itself, and although doubtless the sarcophagus was a costly article, we should have preferred seeing the money expended on a more original production,—one of the present age, and a worthy specimen of British skill (stone coffins are strictly *British* no less than Egyptian), much rather than to have had the body of one of our highest nobles resting in a coffin designed for, and declaring the body to be that of, another person, of another age and country altogether, and, in fact, a female Egyptian!

"The sarcophagus," says the *Glasgow Herald*, "is one of the most beautiful and valuable which has ever been brought from the ancient land of Egypt. It consists of two ponderous pieces of imperishable basalt, most exquisitely formed and carved. The top of the upper portion or lid presents a lovely and noble female face looking upwards; and from head to foot this portion is literally covered with human figures, the figures of birds, beasts, serpents, galleys, and an endless succession of hieroglyphics, which, no doubt, *tell an interesting story*, if we had only the wit to read them. These carvings, after being simply washed, stand out as white and sharply from the dark smooth stone, as they did a week after they were executed by the most cunning workmen of the Pharoahs; and yet the hand which traced these lines and figures must have been withered ere antiquity itself began. This most exquisite relic was originally intended for the British Museum, we believe; but some difference having arisen as to its price, the late Duke acquired it some thirty years since, as a rare and precious article of vertu, which he was loth to see sent out of the kingdom. Since the commencement of the mausoleum, his Grace adopted the resolution of using the sarcophagus for his own tomb. It is situated in a recess on the floor of the chapel immediately opposite the entrance, and rests upon two majestic blocks of black marble—the under being a plain square and the upper beautifully bevelled on the front surface. The latter bears the following inscription, which had been prepared by the orders of his Grace before his demise:—

ALEXANDER
HAMILTONII, BRANDONII, ET CASTELLEROTTII,
DUX.
NAT. D. III. OCT. A. MDCCLXVII.

The plinth contains a space for the date of the Duke's demise."

The mausoleum itself is thus described:—

"It is of the purest and most dignified class of the Roman order of architecture; and although it has been fully four years in the course of construction, it is not yet entirely completed. It is situated about 300 yards from the Palace, and as it will rise to a height of about 120 feet from the ground, it already towers far above the old ancestral trees of the Hamilton policies. Indeed, it is the most prominent object in a wide, varied, and lovely landscape. The base, covering an area of 110 feet, is formed by a plinth of perpendicular rise of 7 feet, and after a further rise, made up of colossal steps, the main building ascends to a great height. It consists of a square tower, the sides of which are finely panelled, and the whole elaborately finished. The various panels are composed of single stones of immense weight and magnitude. From this square building or façade, shoots up a beautiful circular tower of 40 feet in height, and 47 in diameter, the whole surmounted by a dome which rises 15 feet above the tower. The ground story, so to speak, consists of the vaults or catacombs, in the shape of separate stone niches or recesses, which are placed all around. From the centre of the stone floor springs an immense column which serves the purpose of supporting the imposing structure above it. The front of the building is to be in connection with the vault, and it will consist of a piazza, constructed of stupendous pillars in rock work, 19 feet in height, and the whole stretching nearly 90 feet in length. These will be terminated by pedestals surmounted by colossal sleeping lions, which are at present in course of preparation by Mr. Handyside Ritchie. The remaining and principal part of the interior of the building consists of the chapel, which rises from the roof of the vault to an immense elevation. It is entirely composed of stone, and from top to bottom there are numerous niches and wreaths, the latter surmounted with carved cherubs' heads, and bearing separately eight Latin inscriptions. Over the principal recess in the chapel, in which is placed the sarcophagus of the late Duke, is sculptured the Hamilton arms. The only ray of sunshine which will reach the chapel is through a single opening in the dome, of 14 feet in diameter, which is to be filled up with a sheet of plate glass, which will be perhaps the largest casting of the kind ever made in the kingdom. The 'dim religious light,' streaming down through this single aperture, coupled with the altitude of the chapel, will impart to it a character of great dignity and solemnity. The floor will be in the highest degree ornate, being laid in mosaic, with costly jasper and the finest marbles."

THE TEMPERANCE MOVEMENT.

A variety of small books and pamphlets published by Mr. Tweedie, of the Strand, have been laid before us for our general approval, which we most cordially give to all such instruments in so good a cause. The leaders of the movement appear to be well aware that the songs of a nation have often more moral force, for good or evil, than its laws, and we are glad to see poetry, too long wedded to wine now quite as hilariously and as sentimentally wedded to water. It is full time the Bacchanalian were superseded by the Aquanalian in the poetry of the people. True poetry elevates the soul: drink, in all its forms, degrades it. Even that dread substitute opium does not degrade and brutalise the man as alcohol does. True, it is said to sear the soul, as it were, and render it callous, at least ultimately, and in its moral and hence its higher faculties; but we believe that "the English Opium Eater," Mr. De Quincy, is right in declaring that while opium (at an awful sacrifice, we must add, both moral and physical) tends, in small quantities, primarily to concentrate and exalt the soul, and only secondarily and by reaction to drag it down to the lowest depths of degradation and infamy, alcohol has no such primary redeeming quality, but from the first moment tends to undermine the royal seat of cool reason—to unman the resolution—to inflame, to relax, to distort and intensify the mere imagination, and finally to accomplish its dire work by plunging the reason—the virility—the manhood—the intellectual and moral eye of the soul into that abyss of confusion and of false and evil spirits whose portals it has opened. In fact, it seems to us that alcohol and opium are direct *antitheses*, instead of being akin; but note this, that as extremes meet, so both are perilously evil in their tendencies; though of two great evils it does appear to us that alcohol is by far the worst—the most directly and completely debasing, brutalizing; and as such it ought to be at least classed *with* opium, under the like restrictions of sale, and not made, on the contrary, in all its phases, an immense and polluted source of Government emolument based on the degradation of the million. What would right-thinking people say were Government to foster, and benefit by, the sale of opium as of alcohol? Yet, as we have endeavoured to show, the use of alcohol is far more immediately degrading—brutalizing—in its influence on the people than the use of opium would be. Even beer or porter and ale are held in a false and erroneous estimation, especially in London. Liebig declares that there is no more real nourishment than there is in a four-pound loaf, in as much stout as is ordinarily used throughout a whole year by a moderate drinker. There is much more stimulus doubtless, but that is a source of false and temporary strength, and not of real and permanent vigour.

Among the useful little publications under notice are, "The Temperance Offering, consisting of Essays, Tales, and Poetry, furnished gratuitously by eminent temperance writers, edited by Mr. James Silk Buckingham, President of the League," "The Poetry of Childhood, by Goodwyn Barmby," "The Triumph of Temperance, or the Destruction of the British Upas Tree; a Poem, by J. O'Neill," "Rhymed Convictions, and Songs, Hymns, and Recitations for Social Meetings and Firesides, by Walneerg" (a Converse of Greenlaw, is it?); "The Throne of Iniquity; or Sustaining Evil by Law; a Discourse in behalf of a Law prohibiting the Traffic in intoxicating Drinks, by the Rev. A Barnes, of Philadelphia;" and lastly, *The National Temperance Chronicle*, edited by the Rev. Thomas Spencer, M.A. late Fellow of St. John's College, Cambridge. No. 15 of this last, for September 1852, contains an appeal against the use of intoxicating liquors in the New Crystal Palace, which has our sincere approval.

THE GENIUS OF TURNER.

In common with many, it was long before I could distinguish, in the works of our great artist, Turner, anything besides confusion. They appeared a *rudis indigestaque moles* of distances, forms, and colours. I laughed at the excellently correct parody upon his operations by a Turner-scorning friend, who protested that he "must have thrown all his colours in a lump on the centre of his canvas, and then sitting down upon it, turned himself round and round."

At last—what should have been at first,—on a day marked with a white line, as I stood for the twentieth time before the "Golden Bough" (at Marlborough House), I raised my hand as a tube to one eye, closing the other, the only fair mode of viewing any drawing (except scene-painting). The effect was "Turner" as I had heard of him from his devotees. Byron or Shelly might paint in words what then I saw, that Turner had daguerreotyped in colours and in shapes. I felt that the great Humboldt had not overrated the high position of the landscape painter, when coupling his aid with that of the loftiest poets in inspiring a fervid love and reverence for the "Aspects of Nature."

Having *realised* and *enjoyed*, I began to *reason*. Why had I never before seen Turner? Wherein, too, lay that marvellous truthfulness which now I saw so pre-eminently bodied forth? Wheatstone's stereoscope had just come out, and seemed to suggest the proper answer.

We see all real objects in a compound perspective—resulting from *two* points of sight. But all representations of objects on plane surfaces are drawn to *one* point of sight: from one point of sight then only should we view them. Yet how is it that I see other paintings fall into their proper arrangement whilst looking with both eyes—and can never see Turner's but with one? Because no man besides him has so exactly carried out in its intricate niceties that *monocular perspective* upon which all *drawings* must be based. He is *so* exact that only by becoming his one point of vision can you discern him. But then his result is as much before all others, as his means to it are more profound! *He* knew the full value of the Greek optical corrections, and of all artists has alone followed their scrupulous example.

James T. Knowles, Jun.

RAILWAY CARRIAGES, &c.—PURE AIR.

The new first-class carriages on the London and Dover line are singularly uncomfortable and ill-arranged, — straight-backed, narrow, and unventilated. Travelling the other day with obstinate occupants of the end-seats, who dreaded fresh air, were ignorant of physics, and would close both the windows, we found a ride of some hours in a vitiated atmosphere an infliction of no ordinary weight. These carriages have not a crevice for the admission of air unless the window be open. It is marvellous that educated people, scrupulously *nice* people, who would not drink out of another man's glass, or off another man's plate, will respire without a thought, over and over again, the air from another man's lungs, which they ought to know,—must know,—has been entirely destroyed by the process, and not merely made useless, but rendered positively poisonous. By this blind and dangerous course, resulting from gross and wilful ignorance, the seeds of diseases are sown which afterwards spring up, and quietly growing and growing, provide fruit for the graveyard.

We have always innocently imagined, that

when a Railway Company professed to give a return ticket they meant some advantage to the passengers, who, by taking it, bound themselves to come back at a given time, or to lose the money they had paid. Those who manage the South-Eastern line, and who seem to delight in a little trickery, will undeceive the travellers who have this natural impression. The first-class fare to Ramsgate, by the half-past twelve o'clock train is 10s.; and when we went to Ramsgate on Saturday to see poor Pugin's church, we were told a return ticket could be had, available for a fast train at half-past seven the next night, and paid 17s. 6d. for it, thinking the allowance sufficiently small. Behold, however, on reaching Ramsgate we found the fare *to* London by the aforesaid train was 8s. ("10 feet from the head to the tail, and 8 feet from the tail to the head"); so that by risking 7s. 6d. and putting an obstacle in the way of another day's stay, we had saved *sixpence!* The secretary may think this a good joke: to our minds it seems a silly insult to common sense.

BUILDERS, LAWYERS, AND MORTGAGEES.

IN the Lambeth County Court, recently, an action was brought by a solicitor of the name of Grattan, against a speculative builder of the name of Topping, residing at Peckham. The sum sought to be recovered was 50*l.* and a very important question to builders arose, as to whether a builder borrowing money on mortgage was bound to pay the solicitor's charges or the mortgagee.

Mr. Grattan said his bill against defendant was 64*l.* 7s. 2d.; and he had abandoned 14*l.* 7s. 2d. to bring the action in the County Court. In May 1846, he became acquainted with the defendant through Mr. Milstead, a builder, of Bromley, who borrowed money of defendant on mortgage of some houses in the Old Kent-road. After this defendant sent for him, and told him Milstead was going to build some houses on a plot of ground he had bought at St. Mary's Cray, and he had so arranged it, that he, defendant, was to advance the money and take the mortgage as security, at the same time instructing witness to act as attorney in the matter. Milstead said Mr. Latter, of Bromley, was his attorney, when Mr. Topping wished Milstead to withdraw his retainer from Messrs. Latter, and give the business to witness. He did the necessary work for the completion of the purchase of the Cray property, Mr. Topping holding him responsible for the securities. He afterwards prepared the deeds for an equitable mortgage, and defendant gave him 243*l.* to complete the purchase of the Cray property. Defendant requested him not to make out his account until the close of the business. He looked to Topping, and to no one else, for payment.

By Mr. Parry.—Mr. Turner acted as defendant's solicitor. Cannot say if he made out a bill to Milstead for the same service as Mr. Topping's. Milstead, in 1847, became a bankrupt. Milstead's bill was 55*l.* His bill does not include any item in Topping's account. There is one item I see the same.

Mr. Parry said it was an ordinary transaction in the building world—and half London had been built through the process—for builders to buy the ground and go to capitalists and borrow money on the security of the ground, and keep on borrowing until the houses were built, the lender keeping the houses as further security; the borrower bearing all legal expenses of conveyancing and mortgaging, the lender stopping the solicitor's costs out of the advance. He denied that plaintiff was ever employed as attorney to defendant, and said this was a speculative action on the part of plaintiff.

Mr. Topping said he never employed plaintiff as his attorney: he always treated him as Milstead's agent.

By Mr. Gibson.—Gave plaintiff 280*l.* to take up the deed. It was certainly a dangerous thing to entrust it to Milstead's attorney.

The judge (Moody) said the action was for business done by an attorney, not of the usual sort, for it stood on another footing from a solicitor's legitimate business. It was an attorney intervening between a borrower and a lender of money; and in cases of this nature it was generally understood that the lawyer's expenses should be paid by the borrower; and the business was mostly done by one attorney to save expense. The attorney, however, apparently and ostensibly the lender's solicitor, looked to the borrower for his bill out of the funds lent before it got into the borrower's hands. It was for the jury to say whether they thought plaintiff was employed as attorney for defendant or for Milstead.

The jury, after some deliberation, gave a verdict for the defendant.

RAPID IMPROVEMENTS.

"CAN you tell me where is Victoria Park?" This is not an unfrequent question to the footpad in the neighbourhood of Hackney-road and Bethnal-green. The East-enders have good cause of complaint for the delay in forming the approaches to this park. Do, pray, Mr. Editor, use your pen to help us to get these approaches formed. The *Consumption Hospital* is in a forward state, but if you want to get to it, the *route* is circuitous, unless you are prepared to plunge through Spitalfields and Bethnal-green! The extension of Hackney-road has been promised for seven years past, at least. The new street from London Docks to Shoreditch has been in hand for ten years: one would suppose the property near Shoreditch was *very valuable*, from the protracted delay that has taken place in completing the outlet. Whenever the street *is* completed it will be a great advantage to the East end of the metropolis. The buildings recently set up on the South-east corner of Red Lion-street, part of the main street, are not very creditable to the Office of Woods. The buildings at the opposite corner of Commercial-street promised very differently, and the parties who set up these buildings have very reasonable ground of complaint.

Among the various statistics that the Office of Woods publish in their annual accounts, they do not furnish information as to interest of money or lost rents on land lying vacant year after year: this would be a sorry and a large item! V. P.

RAILWAY MATTERS.

THE Mickleton Tunnel, on the Oxford, Worcester, and Wolverhampton Railway, has been completed. This work has become celebrated for the difficulty experienced in its construction. It had baffled the exertions of two contractors, and had become the cause and scene of an extraordinary contest between the officers of the company and the last of the unsuccessful contractors, in which the company's officers, at the head of nearly 2,000 navvies, collected from all parts of the works on the line, marched by night on the tunnel, and took forcible possession. The work has been since prosecuted with energy, and brought to a successful completion. The obstructions arose from the nature of the strata to be penetrated, and were continual and harassing. The tunnel is situated about a mile and a half from Chipping Camden. Within five miles, between Mickleton and Evesham, the "merry andrewing" Avon is three times crossed by the railway.——While the question of railway amalgamation is engrossing the attention of the public, its originator and promoter, Mr. Glyn, is announced as having retired from the presidency of the London and North-Western Railway Company. This unexpected event was immediately felt in the share market, where London and North-Western Stock fell nearly two per cent. The state of his health is assigned as the cause of resignation.——Sir G. A. H. Boswell, of Blackadder, bart. last week recovered in the Edinburgh Small Debt Court, from the Edinburgh and Glasgow Railway Company, 5*l.* 14s. 8d. the cost of a special train which he was compelled to incur in consequence of a delay of half an hour in a passenger train on their line by which he had travelled. The company had not exhibited at the Edinburgh station a notice which they had published elsewhere to the effect that they would not hold themselves responsible for delay. But what although they had? Railway companies are not to be allowed to take the law into their own hands in this way. They have absorbed the public conveyance—old roads have gone to wreck—with all their inns, post-horse arrangements, coaches, carriers,—and it will be a curious state of affairs, if the only public conveyance now available, is to be subject to delays beyond the public control, while companies causing such obstructions in the public highway are to have it in their power, by a few strokes of a pen, to declare themselves "not responsible!" If such really were the fact the sooner it were put an end to the better.——At the Belfast meeting of the British Association, a paper by Mr. W. F. Ainsworth, F.R.S. on the subject of a "Railroad through Asia Minor" was read. The paper proposed to connect Constantinople with its Asiatic suburbs by means of a floating viaduct, or tunnel, such as they have in Wales at present. The author considered that the better route through Asia Minor would be along the coast of the Sea of Marmora, rather than through the mountains of the interior of Anatolia. The Turks, just now are engaged in opening a great commercial road from a port on the Black Sea to Sivaze,—a town in the centre of Asia Minor; and Mr. Ainsworth considered that the completion of this undertaking would be one of the greatest inducements to the commencement of the projected railway. Throughout the land route, only in one instance was it necessary to allude to a tunnel, and that was where the Fawnes mountain crossed the route, and this, there was reason to hope, would be passed without a tunnel. Taking the matter all in all, the author pronounced it difficult to imagine any country better adapted for colonisation or improvement. The road from London to Bombay is 5,500 miles: for 2,600 miles of this distance there is already a railway, and works could be carried on cheaply in Asia Minor from the facility of procuring labour. The capital required he calculated at 22,000,000*l.* In 1846 alone the railways undertaken amounted to 96,000,000*l.*

PATENT LAW AMENDMENT ACT, 1852.

THE first set of rules and regulations have been issued under the authority of the commissioners appointed, and prescribe as follows:—

1. An office is to be provided by the Crown for the transaction of the business of the commission.
2. Prescribes the size of paper on which specifications are to be written.
3. Provides that all applications for patents are to be advertised.
4. The charge for copying documents is to be after the rate of two-pence for every ninety words.
5. The fees on opposing the grant of letters patent are to be 3*l.* 10s. and on hearing the matter, 3*l.* 10s.
6. Two sets of drawings will be required to be lodged with each specification when drawings are referred to; and four copies on complete protection being obtained.

SMOKE CONSUMPTION.

IN treating of the subject of smoke consumption, and its desirability, we have often recurred to the necessity of considering its results as regards one of the very objects in view,—the health of the community; for, however injurious to the health smoke may in itself be, assuredly carbonic acid gas, the result of "smoke consumption," is a still more deadly evil, unless special and efficient means be at same time taken to get finally rid of so dense and dangerous a gas, which, though it ascends while heated, falls as it cools, and will run, nearly as water does, into every cavity, deluging streets and cellars, displacing the lighter air we breathe, and doing deadly mischief, if in such superabundant quantity as "smoke consumption," extensively carried out in towns, *added* to the vital production of it, necessarily, from the lungs of the population, could not but produce. As for the law of the mutual diffusion or solution of gases, doubtless, wherever there is time afforded for such mutual diffusion, the mischief must be mitigated, but so long as we know that a pailful of carbonic acid gas can actually be poured out of one pail into another, and be thus made to completely displace the air in the empty pail and to fill it just as water would, we confess that we have not sufficient confidence in the alleged universal law of the mutual diffusion or solution of gases, to believe that dozens of furnace chimneys (keeping out of the question any further extension of the principle) vomiting forth continued streams of carbonic acid gas are a safe adjunct to a town, far less a sanitary improvement.

Observe, we do not therefore advocate the suppression of the "smoke consumption" movement: far from it. What we merely desire to point out is the absolute necessity of at same time considering and adopting some special and efficient means of finally getting rid of so dangerous a commodity as the carbonic acid gas thus to be manufactured by wholesale,—some direct and proper issue of it into the common sewers, *after being cooled*; or at all events some proper drainage or disposal of it away altogether from the vicinity of human abodes and human lungs.

The more immediate occasion of our present remarks, however, is the allegation of another mischief which it is now regarded as likely to produce. Of the probability or improbability of this new mischief, we shall not at present express any opinion; but at all events there are both reflection and ingenuity in the suggestion of it, and it reminds us strongly of some speculations by a correspondent of our own on electricity, if, indeed, it be not based on these and on our own general warnings as to the risk of an unlimited production of carbonic acid gas in towns.

C. I. S. a correspondent of the *Sheffield and Rotherham Independent*, in reference to some previous discussion on the subject of Smoke Consumption, states the following propositions:—

"1. The earth and all projections from its surface are endowed with negative electricity; the atmosphere, with all its contents (excepting perhaps a few clouds), with positive electricity. The intensities of these vary during the day and night; the greatest intensity occurring at this time of the year at about 8 a.m. and 11 p.m.; the least about 4 a.m. and 4 p.m. (Schubler, of Stuttgard.)

2. During the combustion of coal, coke, charcoal, and other substances used as fuel, the latter becomes negatively electrified; the emanations from it positively electrified. (Pouillet.)

3. The ascending current of air caused by the heat of our towns has a rapidity which is the mean of two forces: A. That of the pressure of the column of air of equal height and area outside the town, minus the pressure of the column within the town. B. That of the attraction of the town (negatively electrified), for the column of ascending air above the town (positively electrified). Make A a minimum, and the ascending current is arrested; and the converse: make B a minimum, and the ascending current is unimpeded; and the converse.

4. Watery vapours absorb largely malarious poisons (Copland, Laucisi, Brocchi, Annesley, M'Culloch). These vapours are carried with their poisonous contents into towns from the country by the current of air always passing in that direction. When force A prevails, these pass through and above the town, and become disseminated in the upper regions of the atmosphere. When B prevails they are retained above the town from a stagnant condition of the air; and by the authority of Rush, Chisholm, Bancroft, Clark, Copland, Annesley, and other eminent writers on malarious diseases, such a condition is highly conducive to the propagation of these diseases.

5. In accordance with the law of opposite electric forces, "That the mutual attraction of two oppositely electrified bodies is directly proportional to the quality of electricity on the one, multiplied by that on the other; and inversely proportional to the squares of distance between them," the force B is increased in towns; and by sec. 2, increased in proportion to the combustion in them; and as smoke prevention is now carried out by an increased combustion of carbon, it will be directly inferred that the deleterious result described in sec. 4 is produced.

6. I do not speak in favour of smoke, but I wish it to be destroyed without any injurious result; and what I state is merely the result of private inquiry into its probable operation on health."

AWARD OF GREAT EXHIBITION MEDALS.—There appears to be some irregularity in regard to the distribution of reports with medals. We have complaints from local commissioners that copies of the jurors' reports were given to others along with their medals, but not to them; and also from some of those who received medals for their designs for the building to a similar effect. There is some mistake as to this, and we have no doubt, if rightly represented to the committee, the error will be rectified, or the discrepancy explained.

Miscellanea.

ROYAL PRINCESS'S THEATRE.—For the "Prima Donna," a neatly-constructed comedietta, two very excellent scenes have been painted,—both interiors,—a wooden room in the country, with the construction shown, the whole having a very nice tone, and a drawing-room scene, quite perfect of its class. The latter is Italian in style, with fire-place, looking-glasses, and elaborate furniture. The piece is made noticeable by the acting of a *debutante*, Miss Heath, who promises to be a great acquisition to Mr. Kean's good working company. Mr. Walter Lacy and Miss Robertson aid in producing the success which attends it. Mr. Lambert, late of the Lyceum, who, for his courtesy, deserves the notice of the press, has been made treasurer here.

SEA BATHING IN LONDON.—In the early development of the railway system, it will be remembered, more than one proposal was made for bringing sea water from the coast by pipes. We have now before us a prospectus of the London Sea Water Company, formed for carrying out a somewhat similar enterprise. It is proposed to construct a sea wall, engine-house, reservoir, and offices at Middlewick, on the eastern coast of Essex, and to lay down a cast-iron main conduit thence through Southminster, Althorn, Latchington, Runwell, Wickford, East Horndon Hall, Upminster, Hornchurch, Langtons, Havering Well, Beacon Tree Heath, Great Ilford, Stratford, Old Ford-road, Ford-lane, Hackney Wick, and Homerton, to Clapton, terminating in a reservoir formerly used by the East London Water-Works Company, extending over an area of two acres, in Powell's-field. It is intended, in the first instance, to construct two bathing establishments—one in the neighbourhood of Finsbury-square for the east, and the other near Cavendish-square for the western districts of London; and, it is believed that the erection of the establishments at Middlewick and London, laying the mains, preliminary, legal, and every other outlay, will not exceed 90,000*l*. The capital is, therefore, fixed at 100,000*l*. in 10,000 shares of 10*l*. each, and a profitable return for the money invested is calculated on, though we will not guarantee it.

STRIKES.—The large body of masons in the employ of the contractors for the enlargement and repairs of the Bute Docks, at Cardiff (Messrs. Hemingway and Pearson), have struck work for an advance of wages. As it is necessary that the works should be pushed on with as little delay as possible, it is apprehended that the workmen have taken advantage of this state of things, and struck at a time when it would be most inconvenient and injurious to have a stoppage in the progress of the works, which are very extensive. Large quarries, for the purpose of supplying the requisite amount of stone, have been established in the neighbourhood.——A great number of the nailers at Rowley Regis, those who make a description of nails at present in great demand, are gone into work, after having been out on strike for about ten weeks, the masters having conceded, wholly or in part, the claims of the men. An agreement, it is said, is come to amongst the men in work to allow those out on strike a portion of their wages (10 per cent.) so long as they remain out of work from non-compliance of their masters with their demands.

NORWICH SCHOOL OF DESIGN.—On Monday in last week, the students of this school assembled to witness a distribution of medals from the department of practical art, and rewards by the master for drawings. Sir J. P. Boileau, bart. presided, and addressed the students on the establishment of the department of practical art at Marlborough House. From that department two medals had been sent to students in this school, who had excelled in drawing. Miss Charlotte Cartwright and Zephaniah King received the medals, which were of bronze. Both recipients had previously gained prizes. The master's prizes were then given. The president read the report to the department of practical art respecting the progress of the schools.

EXTENSION OF THE METROPOLIS TO THE NORTH-WEST.—The metropolis is rapidly increasing in extent in a north-west direction. Primrose-hill is nearly encircled by houses, and St. John's Wood appears as if it would soon be joined to the West End. In a few years, it is believed, the village of Willesden will be included within the metropolis. The low fares by the omnibuses which run from the City, by Holborn and Oxford-street, to Kilburn, and the establishment of a station on the London and North-Western Railway at this village, with the facility of reaching it now by railway from the City, has caused a great demand for residences, to meet which the freeholders of the Kilburn Park estate have devoted fifty acres of land for building purposes, and will, it is said, immediately commence making the necessary roads and sewers.

A JACK OF ALL TRADES.—The necessity, in a new country like America, of tinkering away for one's self at all sorts of trades, except in towns and other settled districts, has certainly done much towards the raising of so universal a genius as the following, described in the *New York Tribune*:—In course of talk with a partial acquaintance the other day, I casually asked him his occupation. He replied that he did not know what it was. He was brought up a farmer till nineteen, and then kept district school days, and writing school nights three years. From that he taught a select school two terms, grammar school one, and speaking one. He then hired out at 10 dollars a month and board, to work in a carriage-shop, and continued till they raised his wages to 20 dollars, at which time he was a member of the Eastern Christian Conference, and went to preaching. In 1848 was elected delegate to a State Convention at Utica. Has just completed a carriage worth 125 dollars, having done the woodwork, ironing, and painting himself. Preaches regular to a church once a week, and lectures on temperance, slavery, and other subjects other Sabbaths. "And now, sir," said he, "as I work at any or all of these as they come in my way, you can tell as well as I what my occupation is, or whether I really have any. I have had wages and passed muster at all of them, and on 2nd of November last was just thirty years old."

SMOLLET'S MONUMENT.—Near the right of the river Leven, a monument was erected by a cousin of Smollet's to his memory. A village has since grown up around this monument as a centre; but notwithstanding this implied honour to the man, his monument, according to the *Scotsman*, is fast going to wreck. The tablet attached to the column became loosened and has ultimately disappeared altogether. It is said that private right, of persons unwilling either to act or to allow others to do so, interferes with its repair, and that the children at a school in the quadrangle of houses surrounding it are allowed to destroy it piecemeal. This is a lamentable state of things. Surely the public odium might be brought to bear on those dogs in the manger who will neither do what is requisite themselves nor allow it to be done by others. A sum of 20*l*. to 30*l*. it is said would do all that is necessary for its repair and its future safety.

REMAINS OF ROMAN LONDON.—We are glad to hear that the stones which were removed, as we stated, from the London-wall, near the Tower, to Spitalfields, have been sent to the British Museum. It is to be hoped that these remains of Roman London will not be allowed, as many curious things connected with our national antiquities are, to rest in the cellars.

ARCHITECTURAL ASSOCIATION.—The first conversazione of this Association will be held at their rooms, Lyon's-Inn Hall, on Friday, 1st October, when we hope there will be a good muster of members and friends.

VENTNOR COMPETITION.—Sixteen designs were submitted in competition for the new Independent Chapel of this place. The committee have selected one by Mr. Raffles Brown. It is Early Decorated in character, and will be built with the local stone, with Bath stone dressings, and is to seat 300 on the ground floor, at a cost of 1,200*l*.

LIVERPOOL FREE PUBLIC LIBRARY AND MUSEUM.—This library will be opened on 18th October, without any public demonstration. The museum will not be opened for some months. From 9,000 to 10,000 volumes have already been received into the library and shelved. The workmen are busily engaged in fitting up the glass cases for Lord Derby's museum. In one of the rooms the exhibition model of Liverpool is to be placed.

MEETING OF THE LINCOLNSHIRE AND YORKSHIRE ARCHITECTURAL SOCIETIES.—On Wednesday in last week, this meeting was held at Thornton Abbey. After the ruins were investigated, upwards of seventy ladies and gentlemen had a collation in the dilapidated refectory of the Abbey. The Hon. and Rev. Mr. Howard presided. The honorary secretary, the Rev. F. P. Lowe, of Louth, read the society's report, which was moved and adopted, after which papers were read on "The Churches of Norway," by Sir C. Anderson, bart.; "The Excavations recently made at Sawley Abbey," by Mr. J. R. Walbran; "On Thornton Abbey," by the Rev. F. P. Lowe. On Thursday, the members and their friends visited Barton, Winteringham, Auxborough, and Burton Stather.

TO CORRESPONDENTS.

"G. L.," "E. C.," "Fire Spaniel" (gas stoves have been found to answer in such a situation), "W. B. A.," "Trying Plane," "Broad Axe," "N. R. B.," "Pipe Layer," "F. W.," "M. S.," "Q. E. D." (we will inquire about Pons), "R. P. P." (send us address that proof may be forwarded), "J. D." (shall see us), "F. M." (shall have notice), "Argus" (we cannot afford to let the writer have the use of our pages simply to exhibit malevolence), "A. C." "G. B." "A. B. C.," "H. M." (has appeared), "B. B. G.," "I. U."

"Books and Addresses."—We have not time to point out books or find addresses.

ADVERTISEMENTS.

LYON'S-INN HALL, Newcastle-street, Strand.

ARCHITECTURAL ASSOCIATION.—Members are required to take notice that the opening CONVERSAZIONE of the SESSION 1852-53, will be held on the evening of FRIDAY, the 1st of OCTOBER, at Lyon's-Inn Hall. Members may obtain tickets for their friends on application to ARTHUR CATES, Honorary Secretary, 38, Alfred-street, Bedford-square.

BUILDERS' BENEVOLENT INSTITUTION. The FIFTH ANNIVERSARY DINNER will be held at the LONDON TAVERN, Bishopsgate-street, on THURSDAY 14th OCTOBER, 1852.

SAMUEL MORTON PETO, Esq. M.P. President, in the Chair.

STEWARDS.

Angell, Samuel, esq	Grissell, T. esq. F.S.A.	Piper, T. jun. esq
District Surveyor.	Gardiner, W. J. esq.	Penuethorne, J. esq.
Bird, Stephen, esq.	Gough, Benj. esq.	Parker, T. R. esq.
Bird, Mr. G. T.	Greaves, Robt. esq.	Phillips, F. H. esq
Bird, Mr. Joseph.	Grayson, Mr. George	Potter & Co Messrs. G.
Bird, Mr. Edward.	Herbert, Wm esq.	Richardson, R. esq.
Bird, Mr. John.	Hunt and Stephenson.	Rainbird and Saun-
Brown, Mr. Edward.	Messrs.	ders, Messrs Bath
Burstall, R. K. esq.	Higes, Mr Joshua.	Smith, C. S. esq.
Blashfield, John, esq.	Hutchens, Mr Wm	Smith, Mr. Thomas.
Belletti, Mr. A.	Head. Mr. George.	Sapwell, Mr. J.
Burt, George, esq.	Helling, Mr. J. N.	Stirling, Mr. Thos.
Cubitt, Mr. Alfd. M.P	Harding, Mr. Wm.	Seward, Mr. J. jun.
Cozen, Mr Thomas.	Harding, Mr W jun	Simkin, Mr William
Clowser, Mr T	Jackson, Thos. esq.	Sanders, Mr. F.
Carter, Mr. Edward.	James, Mr. Jabez.	Stephens, Mr. S. J.
Collins & Stanbury,	Jackson, Mr. H. W.	Tyerman, J. esq.
Messrs. Birming-	Lee, William, esq	Tillott, J. esq
ham.	Myers, George, esq.	Turnbull, Mr. Thos.
Dunnage, Wm. esq.	Mowlem, John, esq.	Vigers, Mr. E
Day, Mr Ebenezer	Nesbit, Thos. esq.	Wanstall, James, esq.
Eales, Mr. William.	Norris, Mr. William.	Wyld, William, esq.
Eldred, Mr. J. H.	Newson, Mr. J. jun.	Watkins, Mr. S.
Freeman, Jos. esq.	Oldfield, Charles, esq	Watts, Mr. R. jun.
Forest, Robert, esq.	Outhwaite, Mr. J.	

Gentlemen desirous of promoting the interests of the Institution by becoming stewards, will be pleased to forward their names to the Secretary, Mr. A. G. HARRIS, at the Office, 476, New Oxford-street, Bloomsbury.

THE GREAT INDUSTRIAL EXHIBITION of 1853. Exhibitors are respectfully informed, that it is the intention of her Majesty's Government to introduce, in the ensuing session of Parliament, a Bill, similar in its provisions to the Designs Act 5 & 14 Vict cap. 8, to protect from Piracy persons Exhibiting New Inventions. The London Office of the Exhibition will henceforth be at the Society of Arts, Adelphi, the council of that body having kindly placed a portion of their house at the disposal of the committee for this purpose. Communications can be addressed either to Mr. G. F. DUNCOMBE, the London Agent of the Exhibition, or to the undersigned.—By Order of the Committee,

3, Upper Merrion-street, Dublin, C. P. RONEY, Sec.
22nd September, 1852.

LEONARD SUGDEN, Manufacturer of Doors, Sashes, and Frames to the Trade, 59, Grange-road Bermondsey-wall, Lambeth Marshes, begs to inform the Trade that he has always on Sale a large Assortment of DOORS, SASHES, and FRAMES of the best quality, at greatly reduced prices. Well-seasoned four panel 1¼ inch square doors, 3l. 5s. per dozen; 1¼ in. sashes and frames complete, with nosings and mouldings, sashes double hung, fitted in and primed, 8 guineas per dozen.—P.S. A full list of prices may be had on application.

TO ARCHITECTS, BUILDERS, &c.

STEPHENS'S LIQUID OAK MAHOGANY, and SATIN WOOD STAINS, for staining various sorts of Inferior Woods, so as to give them the appearance and character of the more costly and ornamental kinds. In the BUILDING and DECORATIVE BRANCHES, wherever it is desirable to give to the cheaper kind of woods the appearance of antique Oak, or to make Deal assume the character of Oak Panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these Stains will be found most effective: as any mechanic hitherto employed. For the execution of Trail-work of the Style of the Books of Chartres they are brushed them over with the Stain, who it operation is very rapidly, and from one common calls effected, the appearance of an oaken roof will be produced. For colouring the backs of the seats, pews, the fronts of galleries, the pulpit, &c. it is equally advantageous. Prepared by HENRY STEPHENS, and may be obtained at 58, Stamford-street, and at the office of "The Builder," at both which places may be had the proper Varnish and Size, with directions for use.

TO PARENTS AND GUARDIANS.

THERE is a VACANCY in the Office of an ARCHITECT and SURVEYOR, of good practice in the City, for a Pupil. A moderate premium required. Apply by letter to C. M. at Smith and Reeves, Builders, Roberts place, Bruswick-street, Dover-road.

TO ARCHITECTURAL STUDENTS.

A VACANCY exists in the offices of an Architect in the City, for a young GENTLEMAN anxious to improve himself. He must be a fair draughtsman, write a plain hand, and be of industrious habits. A moderate salary will be given.—Apply to T. J. L. at Mr. Houghton's, 30, Poultry.—A PUPIL also would be received on liberal conditions.

FOREMAN.—Wood Sawing and Planing Mills. WANTED a steady, active, and sober man as FOREMAN, accustomed to mill sawing, hard wood in particular. If acquirements satisfactory, constant employment. Address by letter, stating age, where last employed, and wages expected to G. W. K. Office of "The Builder," 1, York-street, Covent Garden. Some good FRAME HANDS could have employment if used to hard wood cutting.

CLERK.—Wanted, in a Slate Merchant's Counting-house, an intelligent respectable YOUNG MAN, as a responsible CLERK. He must be a good accountant, and practically acquainted with the various branches of the slate business. Unexceptionable references will be required. Apply by letter, addressed I. Potter's fields, Tooley-street, Southwark.

BUILDER'S CLERK.—WANTED, a person thoroughly conversant with the duties of a BUILDER'S OFFICE; he must be a good writer, quick at figures, and attend at early hours. A practical man preferred.—Apply by letter, stating age, where last employed, and how long, and salary required, to A. Hunt Mr. Miland's, Chapel-street, Belgrave-square.

WANTED, a CLERK of WORKS for two or three months, to superintend the erection of two small houses. Address prepaid, stating references and salary required, to W. S. STEVENS and HALL, Architects, Tunbridge Wells.

WANTED, in the country, a general BUILDER'S CLERK and BOOKKEEPER, fully conversant with the duties of the office. He must be able to make out working drawings, &c. State age and salary. Satisfactory references required.—Address, A. M. Office of "The Builder," 1, York-street, Covent Garden.

WANTED, to conduct the general routine of an Office, a first-class practical DRAUGHTSMAN and DESIGNER. Must also have a thorough knowledge of measuring and taking out quantities. Address, Box R. 49, Post-office, Liverpool, stating qualifications and terms.

TO ARCHITECTS, SURVEYORS, AND BUILDERS.

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CLERKS of WORKS who may have applied to me for the situation at the LEEDS and YORKSHIRE ASSURANCE BUILDINGS are hereby informed in answer to their applications, that Mr. H. W. CHANTRELL has been appointed Clerk of the Works.

WILLIAM BRUCE GINGELL, Architect.
Saint Werburgh's Chambers, Bristol.

ARCHITECTURAL PUBLICATION SOCIETY.—Part II. for the year 1851-52, containing AQUEDUCT, &c is ready for delivery. Members are reminded that the subscription (one guinea) became due on the 1st May last.

WYATT PAPWORTH, Hon. Secretary
11a, Great Marlborough-street, Sept. 23, 1852.

THE BRITISH ALMANAC and COMPANION to the ALMANAC, or Year Book of General Information, for 1853, will be published on Thursday, November 18th.

*** It is particularly requested that all Advertisements or Bills be sent to the publisher, or Advertisers, on or before the 16th of October next.

London: CHARLES KNIGHT, 90, Fleet-street.

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"They have been taught Arithmetic on its first principles of which Mr. Tate's little work gives a simple and clear exposition; and they apply them to complicated arithmetical questions with great readiness and accuracy. The advantage of this method is, that each operation of numbers in the solution of arithmetical questions becomes a demonstration, and that arithmetic is made by it—for educational purposes—the logic of the people."—*From the Rev. H. Moseley's Report of the Kneller Hall Training Schools for 1851.*

London: LONGMAN, BROWN, GREEN and LONGMANS. Of whom may be had a List of Mr. Tate's Elementary Mathematical Works.

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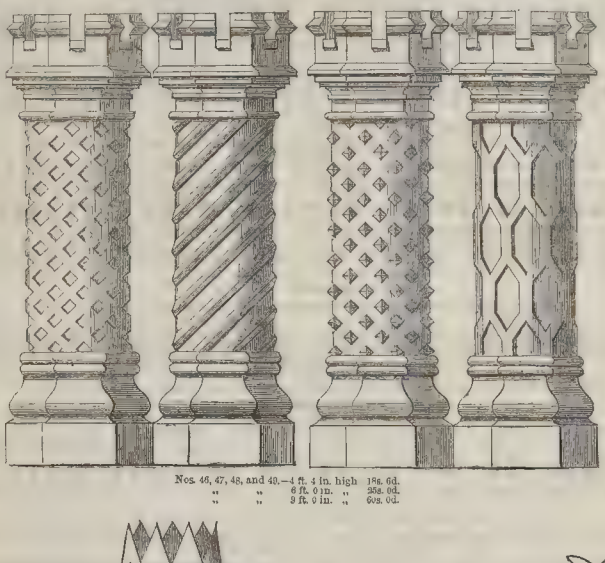
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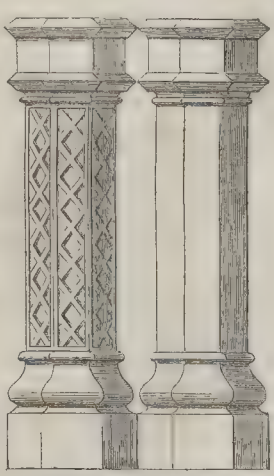
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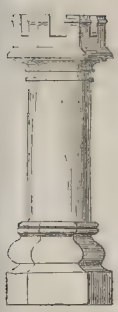


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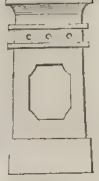




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The Builder.

[SATURDAY, OCTOBER 2, 1852.

PEOPLE are again *talking* about arrangements for the protection of the public health,—the improvement of the material condition of the community,—and it may be hoped that something, at all events, is being really done, and that the spread of information is gradually lessening the number of those who, as *Punch* sings, pooh-pooh,

"And laugh to scorn doctors and drainers,—
Who self-government call
Not to govern at all—
Of the great cause of dirt stout maintainers;
Who, when orders come down
For cleansing the town,
Wish to know by what right they're dictated to:
Talk of drain-pipes and hose,
And they turn up their nose,
And declare they don't want to be prated to."

The rapid approach of the cholera has led to movement in various quarters, which unfortunately will subside, as it did last year, when the enemy has carried off his thousands, and left our shores. At Manchester, last week, an influential meeting resolved,—"That, in the opinion of this meeting, it is desirable that special means be adopted to promote, among the labouring and poorer classes of this district, a due attention to temperance, personal and domestic cleanliness, and to the laws of health generally; and also to induce them to co-operate with the boards of health in giving effect to their regulations for sanitary improvement;" and a committee was appointed to recommend the means to be adopted to carry out the resolution. The meeting fully recognised the fact, that efforts to diffuse a knowledge of the sanitary laws, and inducing attention to improved principles of domestic and social economy (having, of course, due regard to the numerous other agencies at work to benefit the poor), would also effectually help forward that religious, moral, and intellectual elevation of the labouring and poorer classes of society, which the interests of this country most emphatically demand.

In Edinburgh the Corporation show a desire to take some useful steps. From Liverpool we hear of the arrangement of a model lodging-house by the Rev. C. Wray, capable of accommodating forty men, which, it is to be hoped, will lead to the improvement of some of the crowded, ill-ventilated, and miserable dens which disfigure that city, and rob it of life and money. In no part of the kingdom, however, are there more fearful pest-houses, manufactories of fever, with its concomitant destitution, and crime, and sorrow, than there are in London. When examining some of these places, knowing the evidence of medical men that typhus fever is simply the result of dirt, crowding, and foul air,—that the poisonous atmosphere from human contamination is competent *to produce fever at any time*,—

"Subtle and still,
Sure and slow,
Certain to kill
With an unheard blow,"—

seemed miraculous that the average health of the metropolis was not lower than it is.

A short time ago, Mons. Emile Chevalier, a commissioner from the French Government, applied to the General Board of Health for information as to model dwellings and improvements of the habitations of the labouring classes. Ten millions of francs (400,000*l.*) have been voted for the erection of model dwellings by that Government, and they were desirous of availing themselves of the best experience on this subject. He was shown Prince Albert's cottages, and he was also shown the various other improved dwellings erected by the Labourers' Friends Society, the Metropolitan Buildings Society, and the various new model lodging-houses. But that he might see and appreciate more fully the extent of the improvement, he was taken to some of the unimproved dwellings in the worst-conditioned districts, and he was shown some of the unregulated common lodging-houses at night. The Count Cavour, who was Minister of Public Works, &c. at Sardinia, had applied for similar information, and he was taken on the same inspection, accompanied by an officer of the General Board, a superintendent of police. We are not surprised to learn that both the foreign visitors, whilst they stated their satisfaction at the improvements which they had witnessed in the construction and keeping of the model lodging-houses and dwellings, could not withhold their expressions of horror at some of the scenes in the common lodging-houses to which they were taken. They were astonished and shocked, — and well they might be,—to find that, in the metropolis of the British Empire, on the outside so imposing in appearance, the condition of large masses of the labouring classes who lived in its bye streets should present such a contrast, so much filth, such neglect, and extreme disorder. They did not believe that such scenes as they had witnessed could exist in any civilised community. They hoped and believed that nothing of these extreme horrors could exist in their own capital, where there was, nevertheless, great need of such improvements as those of which they had ir spected examples. The visitors examined, too, baths and washhouses, the Sailors' Home, and other works with the same objects, and were gratified.

A previous visit of the same kind had been made by two architects commissioned by the Belgian Government, who also reported favourably upon it. The example which has been set in London is being followed in various foreign towns. At Berlin a voluntary association for the improvement of dwellings for the labouring classes is in satisfactory progress, the provisions of which, as they are in some respects peculiar, we give on another page. We must notice that Prince Albert's model cottages have been pulled down in consequence of some preceding arrangements. This is to be regretted, as they contained points of construction, such as the rooms lined with glazed bricks, found in no other; and though they may not have been perfect as models, they served their object in the spread of improvements, and which it seems they have done to a great extent both at home and abroad.

For the promotion of the cause we are advocating a congress has been held in Brussels, in which representatives from England, France, Italy, Germany, Spain, Denmark, Sweden, Holland, Norway, Switzerland, and other countries took part. At the first meeting, held on the 20th September, there were about 250 persons present, and M. Charles Rogier, the minister of the interior, presided. England was represented by Lord Ebrington, Dr. Arnott, Mr. H. Roberts, Mr. Ward, Mr. Charles Cochrane, and others. There seems to have been a little want of agreement between one of our countrymen, who was present, and the others, which was not fortunate. The meeting appears to have been conducted with much ability, and cannot fail to produce good. As M. Vleminckx observed, the congress did not pretend to originate ideas: its object was to bring them into the light and popularize them. "This popularization of which I speak," said he, "is it not the first step toward success? However decided the resistance may be to improvements, it yields and falls when their necessity becomes apparent to all, and there are calls on all sides for their realization."

The members of the congress divided themselves into four sections, each taking charge of certain questions, and discussing them previously to bringing them before the general meeting. The first section took cognisance of workmen's dwellings, baths and washhouses, lodging-houses, &c. The second of sewers and drains, the distribution of water, and ventilation. The third, the superintendence of public health, burials, cemeteries, &c.; and the fourth, the adulteration of commodities, infant labour, and the government of workshops. At the third meeting the King of the Belgians "assisted."

On each of the subjects apportioned to the various sections, specific sets of rules were discussed and agreed to by the general body. The fourth meeting was particularly noticeable for an able and comprehensive speech by Dr. Boudin, of Paris, on the question, What are the essential rules which should govern the ventilation of public buildings and private houses, and what are the methods which appear worthy of being specially recommended?

Of course the members of the congress dined together, at which Lord Ebrington made a very successful speech in proposing the health of M. Rogier, the minister of the interior; and, amongst other toasts, M. Cluysenaar proposed the health of the foreign architects who had taken part in the proceedings.

One who went into Belgium on this occasion recalls to us the observation which we made some time ago on the walking grounds and open *places* of continental towns.

In the majority of our large towns, there is a great want of places for walking and for recreation. Abroad, the demolished walls or fortifications formerly around the city offer in many cases an admirable walking ground, such as we have at Chester, and they have moreover many open *places*, with seats and trees common to all, and which serve to lessen the causes for repining and discontent on the part of the less affluent portion of the community. We have urged this again and again: nevertheless, the agitation of the subject is more needed now than it ever was, the tendency being to cover with bricks and mortar every foot of available ground, and to enclose instead of open "common land." Apart from the sanitary view of the question, it is the bounden duty no less than the wisest policy of all who have it in their power, to aid in lightening the labours and providing for the recreation of the toiling multitudes. To *work* is the first necessity: we must all work in one way or another, if we would live happily; but work is not our end: we must work, but it is in

order that we may *live*,—live a real life, and develop the powers and the affections, which have been bestowed upon us by a wise Creator. It ought not to be, and will not be, that any who properly discharge their duties to society, should be condemned to constant and unvaried drudgery. To make life universally longer, and happier, and more useful, is a noble object to aim at, and it is, moreover, so practicable, that every one who earnestly and wisely tries to do this may feel perfectly certain that he will to a certain extent succeed. Thousands condemn *themselves* to unnecessary illness, days without enjoyment, and premature death. If we can make these sensible of their obligations to others and to themselves, make them understand and believe the laws which regulate the human economy, and convince them that there are advantages to be had which would be cheaply purchased even by a "twopenny rate" (dirt cheap, some would say, but we happen to know how dear dirt is), a great step forward will have been made.

CHRISTIAN ART.—THE ASSUMPTION OF THE VIRGIN.

All students of iconography must feel indebted to Mr. Hendrie, for his able and lucid correction of the strange mistake that prevailed with regard to the name of the Murillo, lately in Marshal Soult's collection. It might naturally have been supposed that his communication would have enlightened the public mind, and have set the matter at rest for ever. Such, however, seems not to have been the case, for your correspondent, "J. F. C." comes boldly forward as the champion of the misnomer, and demands further facts. His letter bears a fallacy on the face of it. Unless your readers can be induced to accept his somewhat hasty and illogical conclusion, that "The Conception of the Virgin" is a contraction of "Our Lady of the Immaculate Conception;" unless they will adopt the opinion that the terms, "Our Lady of the Immaculate Conception," and "The Immaculate Conception of Our Lady" mean the same thing, and may be applied indiscriminately to the same picture, they will still believe that there is some meaning in words, and that St. Anne, and not the Virgin must be the person who figures chiefly in a representation of "The Conception of the Virgin." Murillo painted twenty-five pictures of "Our Lady;" therefore they were not pictures of "The Conception of Our Lady;" but it is quite possible that many a one of these may have been termed "The Conception," under the idea that it had reference to the passage, "Spiritus Sanctus superveniet te, et virtus Altissimi obumbrabit tibi." Hence, Murillo may have obtained his distinctive title.

All iconologists are aware that the description given of the Murillo in question, is an accurate one of the conventional Assumption which they so frequently meet with in the works of the middle ages; and they *should* know that the extract given from the Mount Athos MS. is an exact specification of the orthodox mode of depicting "The Conception of the Blessed Virgin," as practised by Father Joasaph and his contemporaries, his predecessors, and their contemporaries, in the east and in the west, from the earliest times of iconographic art.

As no doubt many amongst us would willingly behold in these representations of the Assumption something beyond the traditionary meaning attached to them by the Church of Rome, I venture to add for their use a few of the interpretations of which these really beautiful objects are capable, according to the authority of various divines.

"Mulier sole amicta." "The Church clad with the rays of the Sun of Righteousness."

It is generally rendered by radiations surrounding the body of the Virgin taking the external form of the vesica. We find it, amongst other numerous examples, in an exquisite little boss in the groining of the centre arch of the rood-screen, York Minster.

"Luna sub pedibus ejus."

This may mean—

1. The Mosaic dispensation, the chief festivals of which took place at lunar periods, at Noviluna Pascha Pentecoste; Festa Tabernaculorum: "He appointed the moon for certain seasons."—Ps. civ. 19. Or,

2. The minor light of the Law and the Prophets subordinate to the light of the Gospel. Or,

3. The light of Truth and Scripture: "Thy word is a lantern unto my feet, and a light unto my paths."—Ps. cxix. 105. Or,

4. The Worship of Satan and his Angels (symbolised by "the Power of Darkness") trodden under foot.

"Et in capite ejus corona stellarum duodecim."

What but "the Twelve," the Holy Apostles? We often find a figure of our Saviour seated on one throne beside that of the Virgin on another, in the act of crowning her, as in the north porch of St. Jacques, Liege, in allusion to the lines in the Romish office,—"Maria Virgo assumpta est ad ethereum thalamum, in quo Rex Regum stellato sedet solis;" but they may be called, for distinction's sake, "The Coronation of the Virgin." R. P. Pullan.

The study of iconology possesses a lively interest apart from the attraction which it offers as a matter of taste, but it has been treated by many with a carelessness inconsistent with the importance due to the pictorial history of Christian faith, or of fluctuating dogma or legend. It is valuable as a means of ascertaining, by "writings" on the wall, various phases of theological history, as of marking the rise and progress of certain heresies and superstitions which have been intruded at particular periods. The science would be stripped of all utility were not careful and dispassionate watch instituted over the errors, which design on the one hand and ignorance and carelessness on the other may have allowed to creep in, so that they may be eradicated as soon as seen, otherwise confusion is soon made, error flourishes, and, like a baneful weed, so scatters its seed around, that an attempt to return to a prior state of simplicity, even as regards a legendary and unimportant superstition, becomes characterised as a "bold departure" from established custom. That which must give pictorial Christian art a permanent and peculiar interest, is the fact that, at an early period, the dogmas of the Roman Church have been attacked through it, and this also has taken place at various periods of their progress. Christian art is nothing less than theology figured. The person charged by the Archbishop of Paris to review the proofs of Mons. Didron's "*Iconographie de Dieu*," attached but a slight importance to the figures which M. Didron sought to explain; "but," writes that gentleman, "he perceived, when it was too late, that iconography was nothing less than theology translated by figures, and that the work of an antiquary merited an attention as serious as that of the book of any other writer." The ecclesiastic found, in some cases, that it formed a weapon rather than a plaything. An anxiety to correct one of these heresies caused me to address you a short time ago. I was desirous to recal to view the proper subject intended to be illustrated by means of the personification of the mysterious woman of the Apocalypse of John, in established use from a very early period in the portrayal of the assumption of the Virgin; for the Greeks, always prone to symbol, immediately seized upon and applied to the Virgin all the attributes which distinguished this figure. My desire was to restore this design to its prior and (pictorially considered) legitimate use, that of the "Assumption" of Mary, and to show how the "Conception of the Virgin" had always been portrayed; yet your correspondent "T. F. C." (p. 596) ventures to characterize this as a "bold departure from established nomenclature." "T.F.C." also calls upon me for a consecutive arrangement of a series of pictures representing the history of the Virgin, with the "Conception" placed at the commencement, and presupposes that an extract from the Athos Manuscript, given in my communication to you, is quoted from memory. Setting aside Murillo for the present, I have now lying before me various designs, dating from the time of Giotto to that of Guido, in which, although ordinarily faithful enough to the text, the Italian artists have yet recognised this symbolism, but in many instances the symbolic application is entirely left to the observer, as may be seen in the "Assumption," by Poussin, engraved for the *Musée Français*. In the Catalogue of the Collection of Charles the First (p. 156), a picture is given of the school of Raphael: it came from Mantua, and represents the Assumption. The Virgin is in the clouds, accompanied by four angels. St. John is kneeling on the earth below, stretching forth his hands upwards, and thus identifying the subject. In an Assumption by Guido, it is again the mysterious woman of St. John, surrounded by angels, the moon under her feet, with a corona of twelve stars, the aureole surrounding the body, which is clothed in the usual blue and white mantle. There is a picture by Capanna, a pupil of Giotto, representing the enthronement, or rather assumption. The Virgin carries Christ in her arms; is surrounded by angels above, with saints below; the moon under her feet. Two angels envelop her in a mantle of honour: Eastern taste here betrays itself. In fact, these pictures swarm, and there is no difficulty here in appealing to established custom. But although it would perhaps not be difficult to find such a consecutive arrangement as your correspondent wishes (and with a little more leisure I may be able to satisfy him), such a series would no more advance my position than does its absence injure it. I have afforded "T. F. C." a more conclusive authority than one, or even half-a-dozen, such series; namely, an extract from one of those ancient manuals, and the most complete, which not only formed the guide, but also the directions, to the Christian painter, in which the subjects are arranged "according to the order of their anniversaries (or rather *feasts*)." "The Feasts of the Mother of God" (it was at the third general council, that of Ephesus, that Mary was declared, A.D. 431, the Mother of God) stand in the order I have given in my communication to you (p. 502), and in which they are to be delineated, with directions for portrayal: the series commences with the "Conception of the Virgin," and although I abridged in making the extract, which is the reason why "inverted commas" were not used, I did not quote from memory. The Assumption was, however, also treated by the Greek Church, by representing the incredulity of Thomas, who, wanting faith in the resurrection of Christ, is portrayed also as an unbeliever, in this instance; to him the Virgin casts her girdle, which he receives in token of the truth.

One point only remains to be noticed in the letter of your correspondent. He says, "We should bear in mind that the term 'Conception of the Virgin,' is a contraction of the full title, viz. 'Our Lady of the Immaculate Conception;'" a singular argument, which would make contraction no less than a transposition, and therefore other—very other—than contraction: the word "conception" has, in all languages, a passive sense: the conception of Christ was figured by the annunciation to the Virgin, and is the first of the series in the history of the Saviour: so is the conception of the Virgin the first in the history of Mary, and is marked by the annunciation to Anna. Of an early period in the iconography of the Western Church, during the teaching and influence of the Greek school, there are several "Conceptions of the Virgin," some of which have been confounded with the "Annunciation," or the conception of Christ. Gabriel is present in both instances, but I have remarked the spirit descending in the latter only: no logical mind can therefore accept this "contraction," proposed by "T. F. C." as "the true interpretation of the title of 'Conception of the Virgin.'"

Mr. Stirling, in his work, very properly

enumerates the pictures of the miraculous woman of the Apocalypse, according to the nomenclature of the catalogues at present existing in Spain, and which he did not purpose to amend; but while he, therefore, calls these productions, in many instances, "Our Lady of the Immaculate Conception," he never transposes them into the "Conception of the Virgin," which forms quite another subject: he speaks of the "Virgin of the Conception" at Grenada; but Mr. Stirling does not enter into iconographical criticism.

The insane worship of the Virgin by the church in Spain, which was carried to a pitch inconceivable to those who breathe in a purer atmosphere of faith and freedom of thought, under our true English branch of the church catholic, demanded and procured a bull from the Pope, about the year 1617,* which, at this late period, yielded the doctrine of the immaculate conception of the Virgin, commanded it to be taught, and forbade a contrary teaching in Spain. The clergy seized upon the portraiture of the assumption, in use from the Byzantine period, and misappropriated it, transferring it to the newly enjoined doctrine of the Lady of the Immaculate Conception. Hence the origin of this error in iconography, and which it is of importance to signalise and correct. This doctrine was, and is now, always an open question in the Roman Church elsewhere. Those who uphold that doctrine in France are known by the name of "Conceptionnaires." Pacheco, who wrote about 1630, and who was of course subject to the influence of the instigators of this misappropriation, gives the old portraiture of the assumption and the mysterious woman of the Apocalypse as the design to be observed in our Lady of the most pure Conception,† which form the second of the series in her history given by him. The positive injunction which has evidently been laid upon him has, however, placed poor Pacheco in a dilemma with regard to the nomenclature of the first of this series, which is still the old subject of the conception of the Virgin. He is forced to degrade it, giving the common-place title of "The Painting of San Joachim and Sta. Anna of the Gilded Gate." Compare his directions with those quoted by me from the Athos Manuscript. Saint Joachim and the glorious Anna, one in the field, the other in her house, receive a revelation from heaven, by means of the Archangel Gabriel, of the most pure conception of our Lady and of the most holy name which they were enjoined to give her. There is here little, if any, variation from the early directions of the Byzantine school: it is in fact the "Conception of the Virgin," and this in the time of Murillo. From the time of Pacheco the error grew apace, and virgins of the conception were multiplied upon the old portraiture for the assumption. Iconology is either useful or of little account: if a mere matter for the indulgence of taste, little will it signify should we follow the nomenclature of indigenous compilers of catalogues in various countries, but if it be a science of the rank which I claim for it, we must not lack the courage nor the effort necessary to expose errors, which, if allowed to flourish, will ultimately leave Christian Art a "rudis indigestaque moles,"—"that undigested heap and fry,"—unserviceable or hurtful to all who may encounter it.

RT. HENDRIE.

GLASS SASHES.—Since the recommendation was given in our pages to adopt sashes of glass, we have been informed that a Birmingham firm have a patent for flint-glass sash bars, specimens of which were at the Great Exhibition, class 24.

* "T. F. C." is in error when he supposes the doctrine of the immaculate conception was newly promulgated at this time. It was newly enjoined by the Pope, but the promulgation is as ancient, at least, as the tenth century: it is probably of the fifth.—R. H.

† We seem here to have laid our finger upon the nucleus of this difficulty. Pacheco, whether designedly or not, has written, "Painting of the most pure Conception of Our Lady:"—here lies the mistake. But perhaps Pacheco wrote under the fear of "pressure from without:" there existed another kind of "virgin" in the dungeons of the Inquisition, whose breast was armed with knives.—R. H.

REFORM OF EPITAPHS.

As the subject of epitaphs has recently been brought before the public in your columns, I venture to send the following, which I discovered on an old tombstone in Fulham church-yard, bearing date 1686, and erected to the memory of a fond husband and loving wife, if my interpretation of the superscription, which *appears* to be in the Welsh language, be correct:—

"He died in March,
She in November:
All ye that pass by
Pray them remember."

I was recently in Grasmere churchyard, Cumberland, where Wordsworth lies buried: the simple inscription, "William Wordsworth," is recorded upon his tomb. This is a step in the right direction. Let us hope that what St. Pierre terms the "bronze and marble monumentary virtues," are becoming incompatible with the more refined spirit of the age. He must, indeed, judge highly of human nature who takes the generality of tombstones as reference for the character and worth of the departed. Let us trust that something of more unimpeachable veracity may transmit our merits to posterity. W. M. B.

In the churchyard at Prestbury a stone records that

"Here resteth the body of Edward Green, of Adlington, who departed this life 1750, aged 28 years.

"Beneath this stone lyes Edward Green,
Who for cutting stone famous was seen;
But he was sent to apprehend
One Joseph Clarke, of Kerridge End,
For stealing deer of Esquire Downs,
Where he was shot, and dy'd o' th' wounds."

This Clarke was a noted robber and deer-stealer, and a terror to the surrounding country. M.

Having seen some curious epitaphs in your journal, I send you this, which I copied from a tomb-stone in Stockbridge churchyard:—

"In memory of John Buckett, many years landlord of the King's Head Inn, in this borough, who departed this life November 25th, 1842, aged 67 years.

"And is, alas! poor Buckett gone?
Farewell, convivial, honest John.
Oft at the well, by fatal stroke,
Buckets, like pitchers, must be broke.
How various have thy fortunes been!
Now lifted high, now sinking low,—
To-day thy brim would overflow:
Thy bounty then would all supply,
To fill and drink and leave thee dry;
To-morrow must, as in a well,
Content unseen with truth to dwell.
But high or low, or wet or dry,
No rotten stave could malice spy.
Then rise, immortal Buckett! rise!
And claim thy station in the skies:
'Twixt Amphora and Pisces shine,
Still guarding Stockbridge with thy sign."

F. D. W.

OF THOMAS SPRAGG
THE BODY HERE
WAS IN HEALTH
AT NOON. BY NIGHT
DID DYE. A SHIPRIGHT
CAREFVLL HONEST
TRVE AND JVST.
WITH HIS TWOE
BABES WAS LOVERED
IN THE DUST.
MAY 17 ÆTAT 51
1672.

The above was copied from a churchyard in Rochester, last week; and I forward it to you, having read several in your paper. H. M.

The following epitaph is copied from a tombstone, lying in the burial-ground of the parish church, Bolton:—

"John Okey the servant of God was borne in London 1608 Came into this Towne 1629 Maried Mary the daughter of James Crompton of Breighmet 1635 with whom he lived comfortably twenty yeares and begot four sonns and six daughters Since then he lived sole till the day of his death In his time were many Great Changes and terrible alterations 18 yeares civill wars in England besides many dreadfull sea fights The Crown or Command of England changed eight times epscopacy laid aside 14 yeares London burnt by papists and more stately built againe Germany wasted 300 miles 200,000 protestants murdered in Ireland by the papists This towne thrice stormed once taken and plundered He went thorow many troubles and divers conditions Found rest joye and happines only in holines the faith feare & love of God in Jesus Christ He dyed the 29th of Ap & lieth here buried 1684 Come Lord Jesus o come quickly (*Coat of Arms.*)
Holines is mans happines

I send you two epitaphs: the first I copied this morning in the churchyard at Wycombe; the second some time since. If they are of any use to aid your laudable attempt, to prevent in future the abominations which disgrace too often at the present day the memorials of the departed, it will afford me pleasure:—

"Of no distemper,
Of no blast he died,
But fell
Like Autumn's fruit,
That mellows long,
Even wondered at
Because he dropt not sooner.
Providence seemed to wind him up
For fourscore years,
Yet ran he nine winters more;
Till, like a clock,
Worn out with repeating time,
The wheels of weary life
At last stood still.
In memory of John Ahdidge, Alderman,
Died 1785."

The following is from the Wesleyan chapel at Wakefield:—

"Her manners mild, her temper such;
Her language good, and not too much."

MINUTES OF INFORMATION ON DRAINAGE.

THE Board of Health, in a volume just now published, with reference to the drainage of dwelling-houses and public buildings (to which we shall return), give the following as their conclusions:—

In addition to the conclusions set forth in the "Report on the Sanitary Condition of the Labouring Population," and confirmed and adopted by the commissioners for inquiring into the means of improving the Health of Towns, namely,—

That no population living amidst aërial impurities, arising from putrid emanations from cesspools, drains, or sewers of deposit, can be healthy, or free from the attacks of devastating epidemics; and

That as a primary condition of salubrity, no ordure and town refuse can be permitted to remain beneath or near habitations; and that by no means can remedial operations be so conveniently, economically, inoffensively, and quickly effected as by the removal of all such refuse dissolved or suspended in water,—may be enumerated the following:—

That it has been subsequently proved by the result of draining houses with tubular drains, in upwards of 19,000 cases, and by the trial of more than 200 miles of pipe-sewers, that the practice of constructing large brick or stone sewers for general town drainage, which detain matters passing into them in suspension in water, which accumulate deposit, and which are made large enough for men to enter them to remove the deposit by hand-labour, without reference to the area to be drained, has been in ignorance, neglect, or perversion of the above-recited principles.

That whilst sewers so constructed are productive of great injury to the public health, by the diffusion into houses and streets of the noxious products of the decomposing matter detained in them, they are wasteful from the increased expense of their construction and repair, and from the cost of ineffectual efforts to keep them free from deposit.

That the house-drains, made as they have heretofore been of absorbent brick or stone, besides detaining substances in suspension, accumulating foul deposit, and being so permeable as to permit the escape of liquid and gaseous matters, are also false in principle, and wasteful in the expense of construction, cleansing, and repair.

That it results from the experience of works constructed upon the principles developed in these inquiries, that improved tubular house-drains and sewers of the proper sizes, inclina-

tions, and material, detain and accumulate no deposit, emit no offensive smells, and require no additional supplies of water to keep them clear.

That under a proper system of works for water supply combined with house and town drainage, such as is contemplated and sanctioned by the Public Health Act, no ordure is detained so long as to allow it to enter into advanced stages of decomposition, either in the house-drains or in the public sewers; but that all refuse is put in course of constant and inoffensive removal, at a rate of discharge of about three miles an hour.

That where the absence of a natural fall impedes the continuous removal of town refuse, and of surplus rain or spring water, an artificial fall may be obtained by steam power, at a rate of cost (on a scale for a large district) which is inconsiderable compared with the evils it would obviate; and that, at such rate of cost, or from 1s. to 2s. per house per annum, in many cases, not only may the house-refuse be removed from near habitations, but the foundations of houses and the whole sites of towns may be relieved from the damp of low-lying districts, and the consequent excessive unhealthfulness and decay of habitations thereon diminished.

That all offensive smells proceeding from any works intended for house or town drainage, indicate the fact of the detention and decomposition of ordure, and afford decisive evidence of malconstruction, or of ignorant or defective arrangement.

That the method of removing refuse in suspension in water, by properly combined works, is much cheaper than that of collecting it in pits or cesspools, near or underneath houses, emptying it by hand-labour and removing it by cartage.

That by a proper system of combined works, and properly adjusted tubular drainage, three districts at the least may, under ordinary circumstances, be drained and supplied with water completely at a rate of expense heretofore incurred in one for imperfect works, which accumulate decomposing deposit, and give off offensive and injurious smells.

That under ordinary circumstances, where new and combined works are properly executed, the expense of the main water supplies, and the main drainage works, have, on the average of the whole town, been less than at the rate of 3d. per house per week.

That where combined works have been properly constructed, a service-pipe has been introduced from the water-main for the conveyance of a constant supply of water, a sink and dust-bin provided, the cesspool filled up, and an apparatus of the nature of a water-closet substituted, connected by a house-drain with a main drain or sewer, and put in good action, at a charge under ordinary circumstances, and for the greatest number of habitations, payable by an improvement rate of little more than 3d. weekly, being less than the ordinary rates of expense for forming and keeping in repair common pumps, and the expense of cleansing cesspools attached to houses in towns.

That where combined works have been properly executed, the expense of the complete works has not hitherto exceeded the average expense of cleansing and repairing house-drains, and of cleansing cesspools, as declared upon a house-to-house inquiry, including 8,000 houses, in three average parishes of the metropolis.

That it is important, for the sake of economy as well as for the health of the population, that the practice of the removal of refuse in suspension in water, and by combined works, should be applied to all houses, especially to those occupied by the poorest classes.

Antiquarian Discovery at Bath.—Some workmen, while making excavations in this city on Saturday week, discovered several massive stone coffins of extreme antiquity, containing rare coins and bones—in some nearly the whole skeleton. The workmen unfortunately broke the coffins, but one or two still remain at some depth below the surface. It is supposed that the locality was the site of some ancient temple or burial-ground of the Romans.

NOTES IN THE PROVINCES.

Frogmore. — According to the *Morning Herald*, the unsightly buildings on the royal dairy farm at Frogmore are to be removed, for the preparation of new buildings on the same site. The works have been already commenced by the contractors for completing the new Houses of Parliament. The new plans comprise an extensive range of agricultural buildings, with apartments for farm labourers with their families, but no farmhouse.

Esher.—The foundation-stone of the new church at Esher has been laid. Amongst the contributors is the king of the Belgians, for 1,000*l.*

Hastings and St. Leonard's.—The consecration of the new church of St. Mary Magdalen, situated between Hastings and St. Leonard's, took place on Tuesday in last week. The building is in the Decorated Gothic style, and is constructed of the hard, blue limestone rock from the East Cliff, at Hastings, with Bath stone dressings and slated roof. When the spire is erected, its summit will have an elevation of 170 feet. The building consists, in plan, of nave, chancel, north and south aisles, with vestry, north porch, and a tower at the south-west angle (on which tower the spire is to be placed when the funds will permit). The general internal dimensions show a length of 112 feet from east to west, with a clear width of 60 feet. The height from floor to point of roof is 48 feet. The edifice contains about 850 sittings, 454 free. The aisle windows are varied in design. At the west end of the nave is a large five-light window, with a circular window over it, both of which are filled with stained glass, by Miller, of London. The chancel windows are glazed with plain quarries; but it is anticipated that the funds will ultimately allow of stained glass. The interior of the church is lined throughout with local sandstone ashlar, the warm tint of which contrasts well with the Bath stone dressings. The roof of the nave is polygonal, close boarded, and divided into square panels, with moulded ribs, and carved bosses, having bold arched and moulded ribs resting on small detached columns between the windows of the clerestory. The aisles and chancel-roof are open timbered, the carved wall braces of the latter being carried on stone corbels, carved with angels, &c. No plaster or composition of any sort has been employed in the church. The pulpit and font are of Caen stone,—the latter a gift of the architect, as is also the coloured glass in the clerestory windows, which we understand was painted by himself. The pavement of the nave and aisles is of black, red, and buff tiles, arranged in patterns, the chancel being paved with Minton's encaustic tiles, bearing the sacred monogram, evangelical emblems, &c. The gas standards and altar-rail are wrought in brass. In the chancel is a *corona lucis* of same material. An organ is being built by Holditch, at a cost of 300*l.* The architect is Mr. Marrable, of London. The contractors are Messrs. Piper and Son. Clerk of works, Mr. Case.

Marlborough.—Since 1849, on account of the crowded and disgusting state of the churchyards within the town, laudable efforts have been making to establish an extramural cemetery, for which the Marquis of Aylesbury has given a meadow, and the members for the borough have presented 50*l.* each. Notices of vestry meetings to put the matter into shape were put up on the church doors, but that on the lower parish church door was torn down; notwithstanding which a number of influential inhabitant ratepayers of the lower parish went to the church, but, by order, it was said, of the Rev. Sir Erasmus Williams, were refused admittance. They formed a meeting in the churchyard, where the notice was read over, and a chairman appointed. The meeting then adjourned to the town hall, when a letter from the bishop was read, approving of the object in view, and a church rate of 4d. in the pound was thereupon ordered to be immediately levied for the purpose. A vestry meeting was also held in the parish of St. Mary, at which the Rev. Mr. Warren presided, when resolutions were carried similar to those adopted in the lower parish.

Bristol.—Somersetshire, says the *Spectator*, is divided upon a nautical question. It is proposed to make new docks for the ocean-steamers now multiplying so rapidly. Already an Australian company has obtained a survey of the coast of the Bristol Channel: the people of the place are on the alert, and Bristol suddenly awakes to the fact that if it do not bestir itself in emulation of Liverpool, Glasgow, and Southampton, it may "be obliterated from the list of important seaports." *Steam ships of immense size, twice the length of the Great Britain, are in process of construction; and opinion inclines to anticipate a continuance in the practice of making ships much larger than they have been.* Ports of corresponding size are needed; and in a trade so suddenly and rapidly increasing, there is room for the Severn to take its share, without defrauding the Thames, the Clyde, the Mersey, or the Solent. Various plans are on foot; but two may be said to divide the field. One is, to convert Portshead Bay into a large harbour, by erecting piers, and to connect the new port with the Great Western Railway. The other starts from the suggestion of Lieut. Denham, who made the Admiralty survey of the Bristol Channel in 1835. Mr. Denham pointed to one place as the natural site of a port for Ireland, for America, Australia, and indeed for the world, namely, Sand Bay, an indentation of the coast nearer to the sea than Portshead. The *Clifton Chronicle*, in reference to the same scheme, states that some London merchants sent down six engineers to survey the Channel, near the mouth of the river, with a view to ascertain the capabilities of Portshead for the erection of docks; and that the work, with the connecting railway to Bristol, will cost about 300,000*l.* which the London houses would themselves raise. "If this be true," adds the *Chronicle*, "we hope the city of Bristol will have no hesitation in contributing a sum of 5,000*l.* for the improvement of the river." The Bristol papers deny the statement made by the *Spectator*.

Crewe.—It is proposed to build a cheese mart at the Crewe station, capable of containing 300 or 400 tons of cheese, for sale at the cheese fair, and of storing 100 tons. It is calculated that the cost of building, with site, will amount to 4,000*l.* It is proposed to raise this sum by 400 shares of 10*l.* each, with a limit of liability to amount of share, and to charge a per centage on the cheese pitched and stored, to pay interest and expenses.

Birmingham.—At a recent meeting of the poor-law guardians, the clerk submitted a return of the expenditure incurred in the erection of the new workhouse, as called for by a resolution of the board adopted at a previous meeting. It was as follows:—

Mr. Glenn, on account of original contract for building	£21,250	0	0
Mr. Glenn, on account of fittings and extras	5,250	0	0
Mr. W. Jewkes, on account of engineering works	2,400	0	0
Messrs. Smith and Naden, contracts for building lodge and fence walling	600	0	0
Mr. Alfred Knight, for fixing turret clock	75	0	0
Mr. James Haywood, for stones, &c.	142	0	0
Mr. Joseph Talbot, on account of contract for bell-hanging	100	0	0
Messrs. Bennet and Son, for tablet in board room	19	0	0
Messrs. Drury and Bateman, architects' commission	1,260	9	0
Messrs. Barnes, Winter, and Barnard, solicitors to Public Works Loan Board	70	12	0
Mr. L. Husband, salary as clerk of works	146	13	0
Mr. E. Wright, law charges in connection with original contract	40	5	0
Mr. N. Felkin, on account of labourers' wages employed on road	162	10	0
Mr. S. Phillips, work with teams of horses, &c. on road	11	17	0
Mr. James Cleaver, gravel	49	15	0
Messrs. Baker and Co. gravel	5	5	0
Mr. T. Smith, ashes	0	12	0
Mr. T. Reynolds, cinders	0	4	0
Total amount paid	£31,584	4	0

——There appears to be now a better prospect of at least the tower and spire of the ancient parish church of Birmingham (St. Martin's) being restored. The fund now amounts to 2,240*l.* of which 600*l.* have been obtained within the last few weeks.

Liverpool.—Workmen are opening a foundation for the erection of a new hall for the numerous masonic lodges in and about Liverpool. The site adjoins the Queen's Hotel, opposite the Old Haymarket, and on the sid

nearest St. George's-hall. The style of architecture (according to the local *Chronicle*) is not yet determined on, but it is presumed that it will be in keeping with that of the south end of St. George's-hall, nearly opposite to which it is to be erected. The upper apartments will be attached to the Queen's Hotel, whilst the lower buildings will be appropriated for other purposes. The foundation-stone of the new edifice was to be laid on Thursday.

Kingswinford.—Nearly forty puddlers in the employ of Messrs. Bradley, Foster, and Co. at Shutt-end, near Kingswinford, were brought before the local bench of magistrates on Thursday last, to answer a charge of neglect of work. They had "struck" in consequence of being refused an immediate advance of wages, although Mr. Foster promised they should have it on 1st October. One of them was committed to gaol for a month, and seven for fourteen days, while all the others were fined 40s. each and costs.

Kidmore-end, Oxon.—The new district church here, dedicated to St. John Baptist, was consecrated, on Friday week, by the Bishop of Oxford. The church is in the Early English style of Gothic architecture, from a design by Mr. Arthur Billing.

Grantham.—The rival corn exchanges here are both nearly finished. The opening of the building in Westgate, says a local paper, "has been announced for to-morrow, but a sort of spontaneous opening took place on Saturday last. The day being very wet, the farmers and factors went for shelter under the portico, and then into the building, and filled it. Thus the rain drove them in, and almost compelled them to adopt it for their market, although the scaffolding had not been removed. It is said that a great deal of business was done, and that 2,000 quarters of corn were sold there. The parties interested in the rival building, in High-street, expected to open it for business to-morrow; but were in doubt whether some window-frames for the roof would arrive in time. This is the largest room, but the one in Westgate has the great advantage of being on the spot where the market has hitherto been held, and towards which the farmers and others from habit naturally direct their steps."

Coventry.—The actual work of making the surface drainage of the new streets in Hillfields, says the *Coventry Herald*, commenced on Monday last, under the direct supervision of Mr. Robinson, the surveyor, recommended by the General Board of Health. We understand the local board will shortly advertise for a surveyor to undertake the examination of building plans, and the general business of the Local Board of Health.

Bradford.—A mill for the manufacture of alpaca fabrics is being erected, we are told, near Bradford for Mr. Titus Salt. It will cover six statute acres of ground. The principal building will contain a room 540 feet long: the engines will be of 1,200 horse power; and there will be 5,000 gas-lights, consuming 100,000 cubic feet of gas a day. In addition to this extensive factory, Mr. Salt is building 700 cottages for the workpeople in its immediate neighbourhood. The cost has been spoken of at upwards of half a million sterling!

Doncaster.—It is intended to apply for a faculty for the removal of the western gallery in the parish church. The vicar and archdeacon approve of the movement, but there is also a threatened opposition.

Burnley.—St. Paul's Church is making progress, and will, it is thought, be finished by Christmas. The foundation stone was laid on 10th January last. The church is in the Norman style of architecture, of about 78 feet by 76 feet, and will afford accommodation, without galleries, for about 750 persons: 357 sittings will be free.

Leeds.—At the present time, says the *Leeds Intelligencer*, the works in connection with the new sewerage in course of construction are proceeding with more than usual activity; and these operations being now carried on in Briggate, Woodhouse-lane, and other principal streets, the public traffic is in some measure diverted from its ordinary route. Sanitary meetings have been held in various wards throughout the town, with the view of setting it in order, as far as possible, before the arrival of the cholera.

Newcastle.—The foundation-stone of a new Presbyterian Church, in connection with the free or seceding Church of Scotland, and dedicated to John Knox (who was for a time one of the chaplains of Edward IV. in Newcastle), was laid on Tuesday in last week, on a site near the Roman Catholic Chapel in West Clayton-street. The architect is Mr. Dobson, and the contractor, Mr. Grainger; sub-contractors, Messrs. Gibson and Wilson. The cost will be 3,000*l.* including site. Of this amount 1,700*l.* are still to be realized.

Inverness.—The promoters of a new gas company in Inverness appear determined to go further than a mere threat of opposition to get down the price of gas. They have issued their prospectus, with a respectable array of names as a provisional committee. The capital (5,000*l.*) is purposed to be raised in 1,000 shares of 5*l.* each, and as soon as 500 shares are subscribed steps will be taken to form the company. The wisest course, as remarked by a local paper, would be for the old company to reduce the price of their gas a few shillings per thousand feet.

Dublin.—The unoccupied houses of Dublin are said to be six hundred less this year than last, owing to the compulsory closing of unwholesome cellars.

ELECTRO-TELEGRAPHIC PROGRESS.

Workmen have of late been engaged in laying down a new line of pipes along the Strand, to connect the General Post Office with the Admiralty, Houses of Parliament, and telegraph station at Charing-cross.

An amalgamation between the Electric Telegraph Company and the Irish Submarine Telegraph Company recently incorporated by royal charter, is being carried out for effecting the submarine telegraphic junction of Ireland with England, *vid* Holyhead. The principle on which their cable now manufacturing at the Millwall works is constructed, differs from that hitherto adopted, and consists in insulating the interior wires by means of india-rubber as well as gutta percha. These, after being laid up or twisted into a rope, are passed through an anhydrous solution, and then covered with spun yarn, and formed into a hempen rope, which is again passed through another, but different, anhydrous solution. The whole is then passed through a wire-rope machine, worked by steam, which encases the core in a metallic wire-rope, formed of twelve separate strands of six wires each, or seventy-two wires, in all forming a solid three-inch cable. These plaits or close convolutions of wire are thought preferable to the single spiral wire, as calculated to give greater flexibility and strength, and to prevent any portion of the cable from being unstranded. As it is manufactured it is payed off the machine and formed into a flemish coil. The cable is 70 miles long, allowing 10 miles for contingencies, the distance from shore to shore being only 60 miles. There are to be four wires, making a total of 280 miles of copper wire, and of this 180 are completed.

A second line between Dover and London, in connection with the Continental telegraph, already laid, will be completed in a few weeks. It has been promoted by the European Telegraph Company, and is being laid down *along the old coach road*, through Deptford, Greenwich, Shooters' Hill, Dartford, Gravesend, Strood, Rochester, Chatham, Sittingbourne, Faversham, Canterbury, &c. to Dover. The South-Eastern Railway Company, the proprietors of the present telegraph, would not sanction the formation of a second line of telegraph along their railway, and the plan was devised of laying the wires under-ground along the old road. Sanction was obtained of the different road trusts, and some 200 or 300 workmen are now actively employed day and night on the works. The copper wires, six in number, are encased in gutta percha; and being deposited in a kind of trough, constructed of kyanised timber, it is laid in a trench dug in the road, some foot and a half from the surface. Test boxes are erected every mile. A mile and a half of the line is completed every day. Six wires will be apportioned—two to Paris, two to Brussels, and two for the Mediterranean route. At present it is not known whether there will be an intermediate station between London and Dover. The telegraph is completed as far as Chatham from Cornhill.

A steamer was lately *en route* for Portpatrick, having taken on board, at Monkwearmouth, about 25 miles of wire, encased with gutta percha in the usual way, to be laid down between Portpatrick and Donaghadee. A further 100 miles, to be laid down between Harwich and Ostend, was then ready to receive the outer and final casement of iron wire, for which it was to be sent to Newcastle. England and Holland are soon to be connected in the same way. The 25 miles between London and Calais have now been in operation twelve months, and weigh 180 tons; and the electric current has not experienced any stoppage, even for a single moment. The wire has twice been caught by anchors of vessels, and on one occasion the anchor cable was cut away, and the anchor left connected with the wires.

On the anniversary of the present submarine telegraph, lately, two pieces of plate were presented to Captain F. Bullock, R.N. and Lieut. E. Burstall, R.N. who piloted the expedition between Dover and Calais at the laying down of the cable. A watch and appendages were also presented to Mr. G. Fenwick, who payed out the cable, and assisted in constructing it.

Some further consideration appears to have been given to a project, which we some time ago noted, for a line of telegraph, partly submarine and partly over land, between Europe and America, *vid* Iceland and Greenland. The route, it is said, has been partially surveyed by two young engineers, Messrs. Harrison, brothers, who appear to consider the project as practicable. They propose, according to the *Mining Journal*, to "start from the most northern point of the main land of Scotland, proceed to the Orkney, Shetland, and Faroe Islands; from the most north-westerly of these cross to Iceland; from Cape North, in Iceland, to the eastern coast of Greenland; thence across the peninsula to a point on Davis's Straits, near the Arctic circle, crossing the Straits to a point near Cape Walsingham. The next and last submarine line would be across Hudson's Straits into Upper Canada, the wires then traversing the land to Quebec, from whence it would command the whole extent of the continent of America. By this arrangement the whole of the submarine line would, probably, not exceed 2,500 miles; but, being in detached portions, the longest of which, from the Faroe Islands to Iceland, would not much exceed 500 miles, the chances of practical success are greatly multiplied." How they propose to overcome or obviate the tremendous submarine influence of icebergs in Greenland or elsewhere, we do not know. The mere length of line, we think, might be no great obstacle. The Danish Government are said to be favourable to the scheme, and are willing to render every assistance as far as the route crosses their territories.

The route across the American continent, selected for the great Californian line of telegraph, extending over 2,400 miles, will commence at the city of Natchez, in the state of Mississippi, run through Northern Texas to El Paso, on the Rio Grande, thence to the junction of the Gila and Colorado rivers, cross at the head of the Gulf of California to San Diego, on the Pacific, and then skirt the coast to Monterey and San Francisco. The committee on the measure report to the Senate of the United States, that if this line of wires be established, the Pacific and Atlantic Oceans will, for commercial communications, become as one, and that intelligence will be conveyed from London to California and India in a shorter time than was required ten years since to transmit a letter from Liverpool to New York.

It appears that the total number of miles of telegraph in the United States is 27,177 independent of range of lines projected or in progress. About 17,283 miles are on the Morse system, and the remainder on that of House,

Bain, and O'Reilly. The longest existing line is that between New Orleans and New York, by means of which, in April last, direct communication between the two cities in a single circuit over an extent of 3,000 miles was obtained, despatches being sent between the two places sixty seconds "a-head of time." The expense of their construction varied from 100 to 200 dollars per mile, the profits alternating at between three and six per cent per annum. The number of wires also varies, there being between some places only one, and between others two, four, and five. On the western and Canada routes there is generally but one. The Washington and New Orleans Telegraph charge two dollars from Washington to New Orleans, 1,716 miles, with no charge for address, date, or signature; the Atlantic and Ohio Telegraph, one dollar and thirty cents, from Philadelphia to Milwaukie, 812 miles. The Magnetic Telegraph, from New York to Washington, 245 miles, fifty cents; and to New Orleans, two dollars fifty cents; but when a communication exceeds 100 words, the price on all words exceeding is reduced one-third. The New York and Niagara Telegraph charge sixty-five cents for 500 miles. These charges are the same to all places on the intermediate routes, each line running its wires through numerous towns and cities where telegraph stations are established.

PUBLIC SLAUGHTERHOUSES: NECESSITIES OF LONDON.

I find there is a general belief, that wherever the metropolitan cattle market is to be placed, the slaughtering of nearly all the cattle will take place there, and that all the buildings for that purpose are to be located thereabouts. As I have had something to do with the laying out of another metropolitan cattle market, I was led to inquire into all the circumstances, and I found that although a large number of cattle would be slaughtered in the neighbourhood of the market, several slaughterhouses (I am considering that slaughtering would be made compulsory away from the centre of the town) would be required round about London, —at least twelve on a moderately large scale,— because the trade must be accommodated as near to their respective places of business as possible; that it will be better to have several slaughterhouses of moderate extent than a limited number of very large dimensions; that each establishment ought to have a number of stalls for individual butchers, to be under their own lock and key, and one large one for those who kill but few animals and only occasionally; that premises should be provided in each establishment for cleansing and working up all the products from the animals, so that the washings of the offal should only be conducted away as manure; and that very strict regulations should be enforced as to the routes and times at which the cattle are to be driven from the cattle market to the several slaughterhouses.

The mode of arriving at the amount of accommodation required for slaughtering all the cattle for the metropolis I have estimated by taking the proportion of those butchers who slaughter as compared with those who do not, and I find that about 1,500 have their own slaughterhouses, and kill all kinds of animals, or nearly so; that about 500 send their cattle to the common slaughterhouses, or join others in premises, or only kill a few sheep in cellars, &c.; and that from 600 to 800 do not kill any animals at all, but purchase their meat at the large markets and convey it to their shops. The accommodation, therefore, must be provided among all the slaughterhouses for about 1,500 butchers in private stalls, and say for 600 or 700 in large places common to all, where they can occasionally kill.

The objection of carrying the meat from the slaughterhouses to the shops is not so great as it has been made to appear, for at the present time one-half of the 2,600 or 2,800 butchers in and round London convey all or certain portions of their meat from the centre of London to distances varying from one mile to six miles, and that very meat either walks into London (one-third part of the animals is not used for food) or is conveyed dead from the country. Under a new system, a large quantity of meat would still be conveyed from the central markets, but, if the public slaughterhouses are properly placed, all the butchers would have only short distances to convey the meat and none of the offal or tallow, which need not be collected and carried about the streets to and fro as at present; and all the driving of cattle through the central streets will be totally done away with.

I agree with you that it is unjustifiable to place a cattle market, with slaughterhouses, meat market, and dwellings for the persons employed about them, in such a locality as Copenhagen-fields, which has been, and was becoming more so, a retirement from other more occupied and bustling places; and it is all nonsense for the corporation to say that the market, occupying about eight or ten acres, will be isolated and surrounded by seventy acres: the whole neighbourhood, for a quarter of a mile round the seventy acres, will seriously feel the effects of the nuisance.

R. B. Grantham.

THE BRISTOL GENERAL HOSPITAL COMPETITION.

The report of the building committee, now before us, states that in the first instance a sub-committee was nominated "to select from the designs for a new hospital, four and not exceeding six of the plans, with leave to call in professional assistance, if desirable, to enable them to form a correct judgment of the merits of the designs submitted by the competing architects, and to report the result." Feeling the need of professional assistance, they called in Mr. George Wightwick, residing in the neighbourhood, and not now in practice. With his recommendation, the sub-committee agreed and presented a report founded upon it. After further consideration, the four designs thus selected were submitted to Mr. T. H. Wyatt, and he recommended, as the sub-committee had previously done, the design of Mr. W. B. Gingell. This gentleman has accordingly been appointed architect. The second premium was awarded to Messrs. Aickin and Capes; the third to Messrs. Clarke and Norton; and the fourth to Messrs. Coe and Goodwin, all of London.

We have received several very violent letters on the subject, one a personal attack on the character of the selected architect, which would subject us to an action for libel, but we decline inserting them. It cannot be denied that some of the proceedings have had a strange appearance: the public acrimonious discussion of the merits and demerits of the plan which is now selected, long before the decision was made, was, to use the mildest term, very irregular; but supported in their decision, as the committee are, by the opinion of two professional men of integrity, we cannot question its justice.

THE STATUE OF NAPOLEON AT LYONS.

On the occasion of the visit of the Prince President to Lyons, among other festivities was the inauguration of the equestrian statue of the Emperor (that is to say, of Napoleon the Great), by M. Le Comte de Nieuwerkerke. The French newspapers have worked themselves up to a perfect *furore* of enthusiasm in describing this event, and vie with each other in painting, in the most glowing colours, the excited crowds, the salvoes of artillery, the cries of "Vive l'Empereur," and all the signs of attachment and gratitude that have marked the progress of the modern Attila.

The statue is the same which was shown at the Exhibition of 1851, in London, and subsequently in the Champs Elysées, at the national *fête* of the 15th of August.

The Emperor is represented in his popular costume, with his gray *redingote* and the little traditional cocked hat. One hand is reining his charger, and the other is placed on his heart, as when uttering those memorable words, "*Lyonnais, Je vous aime.*" The statue is placed on a marble base, ornamented with garlands of laurel: two symbolical figures ornament the lateral faces, representing War and Justice, and at the back Industry and Commerce, supporting the dedication of the monument "to Napoleon."

Sculptured on the marble, and covering the circular part of the pedestal, are bassi-relievi, showing to the north the flags of Prussia and Russia, with tablets, on which are engraved the principal victories accomplished in these countries,—Eylau, Friedland, Moscow, Silsitt, &c.; the south recalling the memories of Italy and Austria,—Arcola, Mount St. Bernard, Marengo, &c.; the east, with palms and crowns of lotus, and the names of the pyramids,— Cairo, Damietta, &c. The west containing on one side a representation of the Adieux at Fontainbleau, and on the other, Prometheus torn by a Vulture—"a mournful allusion," says the *Constitutionnel*, "to the sufferings that rent the heart of the Emperor on the rock of St. Helena."

The idea of this statue was first broached in 1849, and was confided to a committee of the citizens of Lyons. Under their auspices it progressed rapidly, and was finished some time ago, but the formal inauguration was deferred until the President's visit.

This ceremony took place on Monday, the 20th ult. in presence of an immense concourse. The Prince received an inflated address from M. Duhamel, mayor of the second arrondissement, the president of the commission, who, after a tedious recital of the favour this city had received from *the* Emperor, concluded with—"Inheritor of his name—be so also of his greatness, as well as of his affection for us, and the love of a city which was the first to acknowledge the legitimacy of the Emperor. Honour to the memory of that great man, and *Vive son neveu, le Prince-Président! Vive l'Empereur!*" At the finish of this address, the mayor presented M. Maugin, the architect of the monument, to the Prince, who invested him with the cross of the Legion of Honour. P.

RAILWAY MATTERS.

Amalgamation being, in the meantime at least, impracticable, we are to have a rather hot competition, it appears, between the London and North-Western and the Great Western companies, a circumstance which shows pretty clearly the main motive to the proposal of amalgamation. The London and North-Western contemplate, it is said, a further reduction in their passenger fares, in order to meet the increased competition to which they will be subjected on the opening throughout of the Great Western line,—the proposed reduction to come into operation in course of this month, when, it is understood, passengers will be conveyed at the rate of 2d. per mile by express trains, 1½d. per mile by ordinary trains, and ¾d. per mile by third-class or parliamentary trains. The precise reductions, however, are not yet determined on. The Great Western, on the other hand, threaten to carry passengers throughout for 10s. each, as soon as their line is opened. The London and North-Western too, as already noted, are making arrangements to travel the distance from Birmingham to London in two hours. ——A new ventilating apparatus has been applied to some of the American railway cars. It consists of two parts, one for withdrawing the foul air and another for replacing it with pure air. The withdrawal is effected simply by opening the car windows outwards like doors towards the back of the car, so that the rush in the external air, while the car is pushing forward, will have a tendency to exhaust the air within the car, by traction as it were towards itself,—in fact by the tendency to exhaustion perpetually sustained at the point of exit. The other part of the apparatus consists of an orifice in the roof of the car, so fitted up with perpendicular tubes pointing down into a vessel of water that the air can only have entrance through the tubes and by impinging on the surface of the water and escaping over the rim of the vessel into the interior. By these means it is calculated that the air will be

entirely freed of dust, and delivered in a pure state to the interior of the car, into which the exhaustion of the foul air will tend to draw it in a continued stream so long as the car is in motion.——The extensive range of buildings required for the railway plant at Doncaster is now in progress, and exertion is being made to complete them as early as possible. There will be an engine-shed capable of containing about eighty engines, a fitting-shop 417 feet in length, a boiler-making shop, a hooping and firing shop, pattern-makers' rooms, various stove-rooms, engineers' offices, &c. and a well-stocked Mechanics' Institute for the use of the men. There will also be a capacious engine-room, which will contain a large stationary engine, to be used for turning the lathes and other machinery.——The second tube of Chepstow bridge over the Wye, was to have been raised last week, but in consequence of the incompleteness of the arrangements, it has been found impracticable to raise it so early. A delay must now take place, as there will be no high tide available till about the 14th or 15th of this month. The tube is lying in the engineer's yard at Chepstow, apparently in a complete state, but the tackle for lifting it is not ready. The traffic over the one line of rails along the bridge, answers every purpose at present. It has been well tested by heavy trains lately.——The Egyptian railway works have been greatly advanced within the last few weeks. By 1st January, 1854, the communication, it is hoped, will have reached the capital; and, if the Viceroy is prosperous and supported, it is highly probable he will order its continuance thence to the Red Sea at Suez. ——A railway company, called the Upper India, has made its appearance. Its plan is to commence at Allahabad, where the navigation of the Ganges for steamers terminates, and to carry an iron road in time to Lahore and the Indus. The country is favourable for the project, being generally flat. In the first instance the railway will only be constructed to Cawnpore.

THE REAPING MACHINES.

THERE can be no longer any doubt, it appears, of the decided superiority of the machine which has been for upwards of twenty years in steady operation, every harvest, on Mr. Bell's farm, of Inchmichael, in Perthshire. The Royal Irish Agricultural Society have expressed their unqualified admiration of its style of working, which, says *Saunders's News Letter*, "surpassed everything that the most sanguine could imagine, so that all present expressed themselves astonished at its performance; and there can be no doubt that it will effect a revolution in agriculture: it left nothing to be done by the rake: the only heads left were those in binding. The machine had not to be stopped once, although the grass and clover were of considerable length." The *Irish Farmers' Gazette* speaks of it in similar terms:—"The implement performed its work in a most admirable manner: the stubble was left more even than by any possibility it could be done by the sickle, while the severed corn was laid as neatly and carefully as it could be by the hand: it cuts as clean as the scythe, and lays the corn better than it is possible to do by the latter implement." The report of the Irish Agricultural Society states that, "It appeared that, by fair average working, Mr. Bell's machine will cut, per day of ten hours, with two pairs of horses in yoke of two hours each, ten acres per day; while Mr. Robinson's machine, although having much merit as an improvement on Hussey's machine, was not capable of doing anything near so much work, nor quite so well."

As to McCormick's, the other American machine; at a trial at Keillor, in Scotland, it was declared on the part of Mr. Crosskill, its promoter in this country, that "it would be useless to contend against Mr. Bell's any longer, which he considered a far superior and more effective machine than any he had yet seen."

Under such circumstances, what *are* we to think of the "Agricultural Society of Scotland?" The fact that it many years since gave a prize of 50*l.* to Mr. Bell can only tend to hasten its condemnation as a most useless association for the promotion of agriculture. It ought to have made the renown of such a machine (however really defective by comparison with future instruments) to have rung throughout the whole world for years ere now. Whereas it has allowed the very existence of it to remain unknown even in the country whose agriculture it pretends to foster and promote. After so gross an instance of neglect of obvious duty, our readers will not be surprised to learn that a gentleman, resident in Edinburgh, a Mr. John Richardson, intimates, in the *Scotsman*, that a model of a reaping machine, to be worked by steam, invented by him thirty-five years since, and placed, for preservation, in the museum of the Highland and Agricultural Society of Scotland, as he was without the means of experimenting with it in a working form, had been lost altogether, when he applied to have it transferred to the Great Exhibition! Noble patrons of science and of agriculture! A written request was not even acknowledged, but an examination of the museum proved the fact of the loss.

Other claimants to a share of the merit of originating the reaping machine are appearing. In the *Mechanics' Magazine* for 12th November, 1825, is a drawing of one by Mr. H. Ogle, a Northumberland schoolmaster, improved by Mr. Joseph Brown, of Alnwick, in 1823. This machine, however, does not resemble Bell's, but is almost identical with McCormick's, having a reciprocative motion applied to a long straight serrated cutting edge in place of the long scissars of Bell's. The late Mr. Smith, of Deanston, in Scotland, appears to have also invented a reaping machine; but we know nothing of its merits.

A new machine, on the principle of cutting with revolving scythes, has been invented by Dr. A. D. Brands, of Forres.

The solution of the five-shilling duty, it is thought, will be effected by the reaping machine, the saving being about equivalent to the duty.

RAILWAY SIGNALS.

BEING in the receipt of frequent consignments of, to me, a useless result of over-production, namely, the screams of passing railway engine-whistles, it has occurred to me that the sound might perhaps be beneficially confined to the sphere where it is useful, if, instead of being directed up in the air, the mouth of the whistle were placed close to the ground, and near the iron railway bars on one side of the engine, through whose sonorous nature the vibrations might be taken up, and perhaps transmitted to a much greater distance along the line than at present, though without the surrounding locality being so much disturbed by the sound. When on the look-out for an expected train, the railway officials might be instructed to stoop their ears to the bars, and listen for the whistle, as Indians lay their heads to the ground and listen for an enemy's footsteps; or to touch one of the bars with a stick, and apply the other end to the ear.

G. MACKENZIE.

THE KING'S CROSS TERMINUS.—GREAT NORTHERN RAILWAY.

THIS fine station is now completed, and will be opened for use in a few days. We published an engraving of the exterior, and a description of it, some time ago, and we now give an interior view, showing the station as it would appear if the front were removed, together with a plan of the whole, and details at large of the roofs. It is a very extraordinary work, and reflects honour on its designer, Mr. Lewis Cubitt. Each "shed" is 800 feet long, 105 feet wide, and 71 feet high to the crown of the semi-circular roof, without a tie. A brick wall, formed by piers and open arches, divides them. On the west side of the departure platform, are the offices for the general administration of the affairs of the railway (including a booking hall, about 100 feet in length, 40 feet in width, and 45 feet in height), and on the east side of the departure platform the cab drive, 35 feet in width. There are seven lines of way under each shed, with the necessary turn-tables and appliances. The roofs—semi-circular—are formed of laminated ribs, placed 20 feet apart, manipulated to their form on curbs or moulds, first formed of the required size and curve, and of inch-and-half boards or planks, at various lengths, the boards strongly screwed to each other at frequent intervals or spaces, no two joints of the boards being placed opposite to each other. Sufficient of these boards are screwed together to form 2 feet in depth, and they are 11 inches wide at the bottom and 9 inches at the top. The grain of the wood is so crossed by the construction of ribs from boards that they are rigid in the form or sweep the curb first confines them to, and when released from it they have no disposition to straighten. They are, however, maintained to their semi-circular shape by being fixed to iron stancheons in the walls, and by raking timbers attached to the top curve of the rib to the top part of the iron stancheon; and over this raking timber a portion of the roof-covering is formed by purlins, boarding, slating, and lead gutters. The higher portions of the roofs, which are glazed to the extent of two-thirds of the whole covering, are formed by longitudinal purlins fixed 8 feet apart; and thick plate-glass, in sheets of that length, are fixed, in sizes 2 feet 6 inches wide, divided by iron bars, rebated to receive them.

The buildings on the west side serve to resist any possible tendency on the part of the ribs to spread, and, on the other side, very strong trusses, with iron ties running from the lower part of the curved ribs into the outer wall of the cab-drive, serve the same purpose. The northern ends of the roofs are hipped in quadrantal form, the end of the ribs being supported on a strong truss, which runs from side to side, and admits of a gangway at the level of the springing. This is marked by dotted lines on the plan, but is not shown in the view. Fig. 1 is an elevation of one of the ribs with the iron stancheons. Fig. 2 is a section of the laminated rib, with the iron shoe to carry the purlin. Fig. 3 is a section of the purlin. Fig. 4 shows the ridge. And fig. 5 is a plan of the whole station. The appropriation of the various parts of this is explained by the following

REFERENCES TO GROUND PLAN.

A. Oil stores and lamp-room.
B. Guards' mess-room.
C. Lost parcels.
D. Porter.
E. Refreshments.
F. First class ladies.
G. First class.
H. Make-up office.
J. Station clerk.
K. Strong-rooms.
L. News.
M. Second class.
N. Second class ladies.
P. Telegraph.
R. Porter.
S. Waiting-room.
T. Transfer of shares.
V. Chief clerk.

MEDAL TO LIEBIG.—We learn from *Silliman's Journal* that a medal has just been issued by the medallist, Ferdinand Korn, in Mayence, in honour of the great chemist, Justus Liebig. The obverse presents a striking likeness of the chemist. The reverse presents an allegorical composition, consisting of a number of figures, among which the four principal ones are the personifications of Science in general, Chemistry, Botany, and Mineralogy, the others representing other sciences bearing upon chemistry.

PRACTICAL ART IN WOVEN FABRICS AND METALS.—Two professorships have recently been established for these specialties at Marlborough House, with the view of directing the studies of the pupils in classes, affording assistance to manufacturers and workmen who may seek it, and giving information to the public by lectures, &c. on the examples collected in the museum. Mr. Octavius Hudson is appointed to the office in the specialty of woven fabrics of all kinds, and Professor Semper to that of metal working of all kinds, including jewellery, enamels, &c.

DETAILS OF ROOF, PLAN, &c.

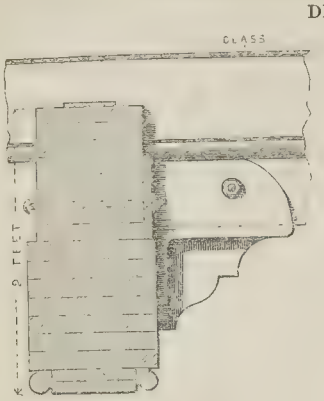


Fig. 2.

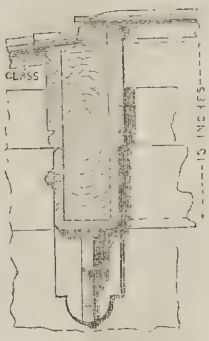


Fig. 3.

Fig. 1.

Fig. 4.

Fig. 5.—PLAN.



KING'S CROSS TERMINUS, GREAT NORTHERN RAILWAY.—Mr. Lewis Cubitt, Architect.

STAINED GLASS.

A new painted window has been placed in St. Alban's Abbey, on the south side of the nave, near the small door known as the abbot's entrance from what were formerly the cloisters of the abbey. The window is a copy of the well-known fresco-painting on the wall of the north transept. The work has been executed by Mr. Clutterbuck.——The south transept lancet window of St. Mary's Church, Lichfield, has been enriched with a mixture of ancient and modern stained glass prepared by Mr. David Evans, of the Wyle Cop. There are three compartments, each having a separate figure, of ancient stained glass, and standing on a mosaic ground before a diapered curtain, of blue and red ground, surrounded by florid Gothic canopies, and tabernacle work. Each canopy springs from shafts, which extend up the sides, from square pedestals at the base of the window. In the centre opening is a figure of the Virgin Mary with the Infant Saviour in her arms, beneath which is a scroll. The left opening has the figure of St. Thomas; the right, St. Bartholomew. Under each of these is a scroll, with scriptural text. Mr. Charles Evans, son of Mr. David Evans, was the designer. —— Two new stained-glass windows have been put up in the south aisle of Chester Cathedral by Wailes. The stone tracery is also new. Each window contains four principal compartments, illustrative of subjects from Scripture, surmounted by angels with scrolls and the usual emblematical devices; and beneath an inscription. In one window are delineated—the commission of Christ to St. Peter, "Feed my lambs,"—the Communication of the Holy Spirit to the Apostles, "Receive ye the Holy Ghost,"—the selection of St. Matthias by lot to the Apostleship—and the Ordination of the Elders by the hands of Barnabas and Saul. The other window represents the Good Samaritan—the Return of the Prodigal Son—Dividing Fishes to the Apostles for the Multitude—and the Parable of the Labourers in the Vineyard. It is to be hoped that means will soon be forthcoming to enable the chapter to undertake the groining of the nave, with other important renovations, which the dean has long had in contemplation. Besides the seven stained glass windows which the cathedral now possesses, three more are expected from other donors.

ARCHITECTURAL BOTANY.

Among all the details and minor accessories of architecture nothing in the present day is more neglected by architects than the foliated ornament of their buildings. They supply elaborate working drawings of all the moulded work, drawn out full size, but whenever they come to any foliated portion it is indicated in many cases by the roughest possible scratch of some ornament out of an authority, and the workman is left to do the best he can with it. Now I do not mean to say this ought not to be, but the mason ought to educate himself to be worthy of this trust, and it becomes the duty of the architect to assist him in doing so. The mason or carver, whether it be in wood or stone, must diligently study the works of our ancient buildings. This is most easily done from casts, and we have to thank those who are endeavouring to establish a museum of mediæval art in Cannon-row, Westminster, for their assistance to the workman in this respect, as he even now can go there and study casts of some of the most elegant specimens of foliated ornament from some of our most celebrated works of the mediæval period, and in our artizan schools he can learn to draw and model them.

But, Sir, this is not sufficient for the workman to do alone: he must not only study the works of our forefathers, but he must also, at the same time, study that book from which they culled such beauties: he must also go to the book of Nature, for it is not the object only to produce reproductions of these beauties, or even fresh combinations of them: the carver must do something more,—he must produce fresh designs and make use of new materials; —we want fresh beauties. We do not want *repetition*, be it ever so beautiful: we want original work, and not less beautiful than the old.

To draw attention to this necessity, a series of lessons has been commenced at the North London Drawing School, Camden-town, upon "Architectural Botany," and we shall feel greatly gratified if the subject be entered into with that zealous feeling which will alone bring about success. For the purpose of these lessons, I have been preparing for some time past a series of illustrations of various specimens of natural foliage and flowers, collected from our gardens and hedges, as well as specimens of exotic plants obtained from the Palm House, at Kew. And, further, I intend taking every opportunity that other occupations will admit of extending this collection. In these lessons, therefore, it is proposed to draw before the pupils, they following to the best of their ability, some of our most beautiful leaves and flowers; also to endeavour to give them at the same time sufficient botanical knowledge to enable them to proceed in the study themselves, and induce them to take every opportunity that they may have of copying and familiarizing themselves with nature.

James K. Colling.

THE FAMILY HOUSES OF THE BERLIN BUILDING ASSOCIATION.

This Berlin Association, alluded to in an earlier article, is formed of shareholders who receive 4 per cent. a year on their shares, and besides, are reimbursed to the whole amount of their shares within twenty-nine years of the payment thereof. When a house is built by the association, the whole outlay of capital is divided upon the tenants of the house, so that each pays 6 per cent. a year upon the expenses of his apartment. From this calculation are deducted,—first, a reserve fund (see below); and secondly, the probable running expenses of the house for the year. Of the 6 per cent. thus paid, 4 per cent. go to pay the interest upon the shares, the remaining 2 per cent. for paying back the capital, &c.

In this way the house is free from debt at the end of the twenty-ninth year; or, in other words, it then becomes the freehold property of the tenants, wherever the apartment has remained in the same family during the whole term of thirty years. Should any one of the families leave before this term of thirty years has expired, but having lived in its apartments for at least five years, a certain sum is paid out to it, proportionate to the interest it had acquired to the property of the house. For instance, the family that has rented a small apartment for only 2*s.* 6*d.* a week, upon leaving this apartment after five years' tenure, receives 6*l.* in cash; after ten years' tenure, 13*l.* 1*s.* and so on.

Thus, to the respectable and provident artizan and workman, a prospect is held out of acquiring a property for himself or his family by thirty years' good conduct in the same house; or if he should prefer to quit the house before, the building association stands to him in lieu of a savings bank, by paying a premium upon the number of years he and his family have resided under their roof.

To pay these premiums as necessity may require, is the principal object of the reserve fund before mentioned. The reserve fund acts besides as a guarantee, to the tenants as well as to the shareholders, of the association's engagements being always punctually fulfilled: it is also intended to supply the houses with good books and other means of instruction and entertainment. A special general meeting of the shareholders is to be convoked when the time for the dissolution approaches, *i. e.* when the thirty years above mentioned are nearly at an end: in winding up the affair then the reserve fund is to be disposed of for some purpose of public charity.

The association was formed in November, 1847: its patron is H. R. H. the Prince of Prussia, and it counts amongst its honorary members H. R. H. Prince Albert. Up to the end of 1851 fifteen houses had been newly constructed, and one fitted up anew: they contain 146 apartments, are inhabited by about 800 persons, one half of which number are children. The plans and prospectuses of the London Society for Improving the Dwellings of the Labouring Classes, kindly communicated to the Berlin Association, ever since its commencement, have been found infinitely useful for immediate adaptation to the local wants of Berlin. All preparations are now being made for introducing hollow bricks in the erection of new houses, for which purpose the Prussian Minister of Commerce, M. Vander Heijdt, has placed a machine from the establishment of Messrs. Randell and Saunders, at their disposal. The capital at present amounts to 8,000*l.*: the reserve fund (which is still increasing by presents from shareholders and others) consists of 750*l.* One of the shareholders undertakes, at the request of the chairman, the supervision and general management of each of the houses (Hans-Vorcteher). His services, as well as those of the chairman (M. Hoffmann, at present architect to the association) of the directors, treasurer, &c. are entirely gratuitous, the only paid *employé* of the association being the accountant clerk.

CONTRACTORS AND HOUSE-OWNERS.

In the Marylebone County Court, recently, an action was brought to recover 10*l.* 15*s.* by Mr. Marin, a marble chimney-piece manufacturer, of Dr. Bartlett, under circumstances of some interest to parties contracting with builders to erect houses at a certain sum.

The plaintiff's evidence was that he supplied the two chimney-pieces charged for by the express order of Dr. Bartlett, and that he did not look to Mr. Rawlins, the surveyor and contracting builder to defendant's house, for the payment, although Mr. Rawlins had promised to see him, plaintiff, settled with for them. The defendant, upon being applied to for payment, said,—"Go to my surveyor: he has to erect my house on contract, and the chimney-pieces are in the specification."

The defendant said he did not consider himself liable to the claim. He had entered into a contract with Mr. Rawlins for 2,100*l.* to build him a house, and the contractor was to find materials and labour. He, however, stipulated with Mr. Rawlins, that he, defendant, was to select the marble chimney-pieces. This much he had done in the present claim, and nothing further. Mr. Rawlins measured and ordered the mantel-pieces, and plaintiff had, it appeared, applied to that person for payment. He was willing to pay plaintiff if Rawlins gave the order, so that he could legally deduct the amount from the contractor's agreed charge. He urged the injustice which might arise from the Court adopting the principle of holding owners of houses liable for materials supplied to contractors, as it might be that parties, after they had paid their contractor, would be called upon by timber merchants and other tradesmen to pay for the materials with which their house was built.

The Judge (Maude) said he considered the plaintiff had nothing to do with the contractor. Mr. Bartlett chose the chimney-pieces, and they were in his possession.

Verdict for the plaintiff.

THE IRON TRADE.

There still appears to be an upward tendency in prices, but we should hope that the obvious endeavours to produce a panic amongst purchasers will not succeed. It is alleged by those interested on behalf of the producers that they are so pressed for iron at the 20*s.* advance, and even at higher figures, while they have orders for the whole of the ensuing quarter at the low prices, that "they feel much hesitation in making sales." Meetings to arrange as to wages have been held in various quarters of the midland district.

The whole of the ironworks lately in blast in South Wales are said to be now fully employed, and it is stated that a number of those for some time out of blast will almost immediately be blown in. It is expected that the rate of wages will be advanced. The rise in price readily established upon bar, pig, and rail iron is computed at 20 per cent. Some of the works are said to have more orders on hand than they will be able to execute for a length of time to come.

In Scotland, the manufacture seems to be also in an active state. Every furnace in Fifeshire is said to be in full blast at present, and new ones are being constructed. At present, the blackband of the central coal-fields is

worked up either by the Lochgelly or by the Forth Company's furnaces. The projected furnaces will melt the ore of their own extensive field, and that obtained from several other estates as yet untouched.

In France, a fall has taken place in the price of cast-iron. The project ascribed to the Government of lowering the tariffs on imports of foreign iron is said to be the cause of this downward tendency. Perhaps the threatened increase of the tariff on Belgian coal may have had something to do with it also. The price has been fixed at 165f. the 100 kilogrammes on fine cast-iron of the first quality taken at the works, which makes 10f. decline on the prices of the fair at Besançon, and 5f. only on that of Chalons.

An experiment in the manufacture of pig-iron, by the use of cannel coal in the furnace, has been recently tried in the State of Cincinnati, U.S. at the Buckeye Furnace, Jackson County. Commencing the blast entirely with charcoal, they gradually introduced first one-quarter, then one-half, and finally three-fourths of cannel coal. An improvement in the working and yield of the furnace, it is said, was noticed at each successive addition to the charges of cannel coal.

"TRIFLING SUGGESTIONS THE ORIGIN OF GREAT INVENTIONS."

The brightest achievements of science which arrest the attention of the most careless and uncultivated, are the offspring of slight observations recorded in the course of centuries. Such, indeed, is the condition of the human mind, that even the most absurd views and opinions have frequently led to the discovery of highly important truths; and those pursuits which often appear to have no connexion with science or literature frequently bear essentially upon the point. Trace back the origin and progress of our modern inventions, now far advanced towards perfection, and remark the multitude of small and gradual accessions; and the trivial occasions of many of them would confound the most reflecting. Witness the labours of the alchemists in search (?) of the philosopher's stone,—labours insane in themselves(?), but which, through the incidental, though at the time disregarded, discovery of many truths relating to the nature and properties of substances, have become the parents of modern chemistry, with all its wonderful power: on the other hand, a neglect of observation of humble things, which would give rise to suggestion, has been the great impeding cause of the progress of science.

The great characteristic of modern philosophy, which at the present time has made such progress, is a zeal in collecting facts, and a determination to deduce theories, instead of adapting facts to ready-framed theories, which every one can now appreciate, because the great results are before the world, and have had a marked influence in the destinies of mankind.

To elucidate the above, we may take the stupendous results of the steam-engine, which may all be traced to a trifling suggestion, arising from plunging an inverted bottle into water; yet many admirers of the invention would ridicule the observer of any similar fact. Every one can now feel both surprise and admiration at witnessing the progress of a steam-vessel advancing rapidly against the opposing forces both of wind and tide, which has led to the whole system of modern navigation and maritime discovery. From such a view only of the subject can we justly estimate the importance of suggestions, so extraordinary is the course of human events.

In England the application of coal for smelting and of steam for blast furnaces, form the grand epochs in our mining history. Yet from what slight circumstances did both originate? The art of printing likewise, probably the parent of more good than all others, owes its origin to rude impressions taken from letters carved on the bark of a beech tree: this was a slight matter, which thousands would have passed over with neglect. * * * * Astronomy, again, so essential to navigation, and consequently to commerce, on the importance of which it is needless to dwell.

To the formation of enlightened legislators, the improvement of the mind through observation of minute circumstances is essential; and it is almost needless to observe that wise laws, in the absence or repeal of foolish ones, are indispensable to the profitable exercise of industry; and, in conclusion, it must be added that since such great discoveries have been made from the due observation of trifling accidents, we should encourage instead of despise those who notice the phenomena of nature under all circumstances, however unimportant some of them may appear. Remember the inscription formerly placed in the workshop of Peter the Great, in Holland,—"Nothing is too little for the attention of a great man." G. J. Rhodes.

HOUSE AGENTS' CHARGES.

BLOOMSBURY COUNTY COURT.—GRAY AND ANOTHER *v.* THOMAS.

This case had been previously heard during the unavoidable absence from town of the defendant, when judgment was given against him. The defendant, however, subsequently, through his solicitor, Mr. Charlton, applied for, a new trial which, under the circumstances then stated, the Judge, Mr. Heath, granted.

The plaintiffs are auctioneers and house agents in Camden Town, the defendant being a timber merchant and builder, carrying on business near the Camden Railway Station, and the amount sought to be recovered from him was 16*l.* 17s. as commission for selling three houses, built by and belonging to defendant in Harmwood-street, Hampstead-road. On the part of the plaintiff, it was stated that the houses had been sold by him to a friend of his, to whom he had mentioned his authority from defendant for their disposal. The defendant entered his office in the beginning of 1851, but the precise date he could not recollect, and in the presence of his clerk (since dead) deputed him to sell on commission any property he had to dispose of. The defendant repudiated the plaintiff's demand on his oath, stating that the only interview he had had at the plaintiff's office was with Mr. Gray some months prior to his building the houses in question, and then the conversation was about some houses he had for sale at Highgate. The claim of plaintiffs was for disposing of the houses in March last, when he had witnesses to prove that the sale of the same was effected between the buyer and Mr. Brown, the defendant's agent, in the previous August.

Witnesses confirmatory of defednant's statement having been heard,

His Honour said that he felt bound to reverse his former decision, and expressed an opinion that the plaintiffs had no legal demand upon the defendant, in whose favour therefore his judgment would now be.

Judgment for defendant, with costs.

VALUATION OF PARISHES.

GREENFORD.

At a recent sitting of the Brentford Petty Sessions an appeal was heard of a novel nature, the Rev. Mr. Middleton, rector of Greenford, county of Middlesex, being the appellant, against a poor-rate assessed by the respondents, the churchwardens, vestry, and board of guardians of his own parish.

The appellant stated that his assessment to the poor-rates had lately been increased, whilst several of his parishioners had had theirs reduced. He further objected to the *modus operandi* of the re-value of the parish, the board of guardians having taken that office upon themselves, instead of calling in the professional services of a surveyor, which had hitherto been the custom throughout the kingdom. The rev. appellant was understood to contend that a valuation made without a professional man, and by interested parties, was clearly an act of injustice and against the spirit of the law. He urged that his rate should be reduced to the former standard, 640*l.*

Mr. Rigge, who represented the board of guardians, as its deputy-chairman, said that the board thought with him, that the parish required a re-valuation; but as the board did not wish to go to the expense of employing a surveyor, their clerk was desired to write to the Poor-Law Commissioners upon the subject. The answer of the commissioners was to the effect, that they, the guardians, need not employ a *surveyor*, and that a rate could be legally levied upon their own valuation. Upon this he, Mr. Rigge, went through the valuation, and took for his data the result of free trade measures, viz. the average price of corn, straw, and hay for the last twenty years. He found by this, the farmers in the parish paid the same rent, rates, taxes, and tithes now as they did twenty years ago, whilst the price of corn and their other agricultural products had sensibly decreased. Now, the rev. appellant received the same tithes, and had the benefit of cheap produce, and he therefore reduced the farmers' assessment and increased the rector's. He thought this a fair and business-like way of valuation.

Mr. Baillie, the chairman, condemned the respondents' conduct in going about the parish valuing their own property in connection with their fellow-parishioners. He would not pass an opinion as to the legality of a re-assessment made by interested parties, and without a professional person to value, for the bench were satisfied the appellant, according to the papers handed in, was assessed at too high an amount under the old assessment, but as that assessment was not appealed against, they could only adjudicate upon the present. They were of opinion that the appeal should be allowed with full costs, and recommended the officials of the parish to act more in harmony with their pastor, and not give him or any one in the parish such good grounds of appeal as the present, or the parish would find themselves in the hands of the lawyers.

Judgment for the appellant, and rate reduced to its former amount.

A BROADWAY HOTEL.

The *New York Herald* gives an account of a new hotel named the Metropolitan, at the corner of Broadway and Prince-street, lately opened. The building forms an L, 300 feet fronting on Broadway, and 200 feet on Prince-street. It is six stories high, and presents a front of brown stone. The architecture is termed Roman, though the style is not pure in any order. The main entrance on Broadway leads to the public office of the house. On the first floor are ladies' reception-room, gentlemen's lounging-room, dressing-rooms, and apartments for the reception of guests, prior to assigning them rooms. The floors of the office and other public rooms are paved with marble slabs. The mantles in the reception-rooms are made of rare marble, and the furniture is all rich and inviting. There is a private staircase leading from the ladies reception-room to the second story, but the thoroughfare to the upper-part of the house is by the broad staircase, which is very wide, and protected on each side by heavy bannisters, surmounted with a massive oak rail, wrought and polished to the highest extent. The first landing is lighted by a window of stained glass, presenting, among other designs, the Arms of the United States, the Arms of the State of New York, and the Coat of Arms of the City of New York. The Capitol at Washington and the City Hall are also represented. This window, altogether, is a feature of the house.

A ladies' parlour is 24 by 30 feet, in which are three very large mirrors: the mantelpiece is of beautiful white marble, ornamented with great skill. The furniture is of rosewood, covered with rich brocatelle; and silk damask curtains are hung at the windows. The walls are painted in fresco, and the designs upon the ceiling are chaste and beautiful (we are but quoting), showing the unmistakeable traces of the hand of art. The second parlour on this floor is called the reception parlour. It is in size 16 by 30 feet. The mantel is of pink Lisbon marble, and the walls are painted in rich panel work. A door opens out upon the balcony on Broadway, where a view may be had of the great thoroughfare from Trinity to Grace Church. The third is called the vestibule parlour. The mantelpiece here is made of Brocatelle marble, and the panel work is very rich, the ceiling particularly. Into the details of silk damask, rich brocatelle, rosewood furniture, green and gold drapery, gold and silver goblets and pitchers, mirrors worth 10,000 dollars each, magnificent Wilton carpets, &c. &c. we cannot here enter. Suffice it to say, it is quite dazzling and confusing.

The whole number of rooms in the house, exclusive of the first floor and basements, is three hundred and fifty-three. In the sleeping apartments, there are over four hundred beds, all made upon spring mattresses, with hair mattresses over them. Accommodations for six hundred guests are always in readiness, and the house is capable of holding one thousand, if occasion should require. Two

hundred servants are to be employed in the hotel. The cooks are Frenchmen, the chambermaids, washers, ironers, &c. are white girls, and the waiters all black men and boys.

The building was erected by Mr. P. S. Van Rensselaer, at an expense of 600,000 dollars. The ground on which it stands is valued at 200,000 dollars, and the furniture cost 120,000 dollars—making a total of 920,000 dollars. All the public rooms and passages in the hotel are to be heated by steam pipes. There are gas-burners wherever light is required throughout the house, and the bells and speaking-tubes are of the most perfect construction.

NOTES THROUGH IRELAND.

The shield and headstone of a new chapel of ease was set lately at a place called Carrahollig, county Mayo, by the Marchioness of Sligo. The site and a deep-toned bell have been contributed by the marquis.

We find that in some localities the Encumbered Estates Commission has commenced to work improvements. In Galway, for instance, a rugged and neglected district is being converted into a picturesque situation. We allude to the tract of ground between Salthill and Blackrock, now the property of Mr. Barton, of Dublin, who is at present (in conjunction with Mr. Frazer, the landscape gardener) causing the same to be laid out in building plots of about thirteen acres each, for *model* villas. The remaining portion will be divided into smaller holdings, of three or five acres each; and we trust, that here also the *model* building principle will be carried out, for the benefit of the *petty farming* and *working* classes. It must be acknowledged by those who are acquainted with this locality, that the intended improvements will be a great feature. In Mayo, 63,000 acres of Sir R. O'Donnell's estates, also a large portion of Erris, and the shores of Clew Bay, together with a vast tract of land in Galway, have been knocked down by the commissioners' *hammer* to English capitalists.

The Limerick Market Trustees have received a number of plans in competition, but the amount of expenditure stipulated by the instructions issued (viz. 10,000*l.*) appears inadequate to build a corn exchange and give the market accommodation required. These buildings which were much wanted in Limerick, together with the recent decision of the Packet Station Commissioners in favour of *Foynes* as the transatlantic port, are two grand desiderata gained by the citizens.

The Midland Great Western Railway Company have for some weeks past (though late in the season) followed the example of their railway brethren by establishing a series of cheap excursion trips between Dublin and Galway. The company's large hotel in connection with their terminal buildings in Eyre-square, and described in The Builder some time since, is inhabited by a large number of strangers, whom the beauties of the Bay of Galway and the romantic wildness of Connemara have drawn to the locality.

The Hibernian and Alliance Gas Consumers Companies at Dublin have reduced the price of gas to 5*s.* per 1,000 cubic feet.

Ballooning Extraordinary.—One of our correspondents amusingly proposes, with the view of expediting the transmission of letters or small parcels, "that a balloon (of sufficient power and at a sufficient elevation) be moored immediately above the centre of the City, by wires of sufficient strength, radiating from the car to as many stations in the suburbs as may be deemed necessary. The presence of a man or boy in the car would be required: he would have communication with terra firma by means of a double rope passing over a wheel in the car, and dropping into a central station below. By this means, letters, &c. could be raised in a few moments from the earth to the car, where the attendant would be ready to place them in light small wicker baskets, hanging to wheels, running on the wires: he would then loose them, and, by the force of specific gravity, they would dart down the wires with great velocity to their respective destinations!!"

Notices of Books.

The Architectural Publication Society. Part II. of Volume for 1851-2.

This new part of the Society's publication consists of an article on *Aqueducts*, fully illustrated by M. Servas de Jong, of Amsterdam, and translated, with additions, by Mr. J. W. Papworth. It has also illustrations of fountains, and an engraved plate of the organ at St. Mary's Church, Lubeck, an extraordinary but tasteless production.

The writer of the article on Aqueducts makes the following remarks in conclusion:—

"It has frequently been mentioned as matter of surprise, that some of the aqueducts above described should, in modern times, have been built in preference to the now ordinary method of the pipe system. On consideration of the merits of the ancient plan, it would be found that although nearly two thousand years have elapsed, some of the erections have incessantly fulfilled their purpose; and if one estimate were made of the cost of construction and repair in stone or brick, after the Roman manner, and another upon any system of tubes capable of delivering the same quantity of water, their liability to obstruction, to bursting, and to loosen at the joints, their wear and tear, including loss by age and by decomposition, with the generally necessary expense of steam-power, the balance would be found infinitely in favour of the method described in the preceding pages, without taking into consideration that good water loses its quality in metal tubes, while even inferior water is improved while running in a brick or stone channel; besides the above, there are all the inconveniences produced by inequality of pressure in the pipe system, the deleterious effects of the metals employed, and the necessity of taking up whole lengths of mains laid under the solid pavement of our streets, which are rendered impassable during the works: such an inconvenience the Romans wisely avoided, and continued to prefer the system of raised aqueducts, even to that of pipes in vaults."

Miscellanea.

Extension of the Salford Royal Museum and Library.—A total sum of about 2,500*l.* having been raised, the committee procured plans and specifications from several architects, and those from Messrs. Travis and Mangnall were approved of, and they had orders to complete their plans and afterwards proceed with the works. The new building, which is now in the course of erection, and was commenced about three months ago, is situated at the west end of the library and museum, and stands upon the site formerly occupied by the yard and outhouses. The building, as described in the *Manchester Courier*, is to be two stories high, and of the Italian style of architecture, the same as the present structure. The lower room is to be the reading-room, and is 75 feet long by 30 wide. It will be lighted by five large windows of a Venetian character on the north front, and by one of the same description at the west end of the room. The upper room, which is to be devoted to the purposes of the museum and picture gallery, will be 75 feet long by 30 feet wide, and the light is to be obtained through the roof, on the same principle as Lord Northwick's picture gallery, near Cheltenham, leaving the whole of the walls free for the suspension of pictures. The height of the lower room will be 17 feet, and that of the highest part of the upper room 28 feet. The building will be heated with hot water, and ventilated. This alteration will make the institution more than twice its original size, and the new portion, like that of the old one, is being constructed of brick with stone facing. Mr. Petrie, the head gardener of the park, intends to alter permanently the character of the sloping ground lying before the north side of the building, and to lay it out in terraces, in the centre of which there is to be a fountain. The contractors are said to be under engagements to have the works completed by January. The number of books given out in the library for the first six months of 1850, was 14,423; for the corresponding six months in 1851, 17,944; and for the same period in the present year, 19,147. The number of readers who visited the library during the first year is estimated at 60,700; for 1851, 80,000; and for the first six months of the present year, 54,000. It is to be hoped that when this thriving and important institution is completed, the money required to place it out of debt will be supplied to the committee.

The Bailey Memorial, Hereford Cathedral, is now completed. Mr. Bailey represented the county for several years, and assisted in obtaining funds for the restoration of the cathedral. The memorial executed from the design of Mr. Cottingham by Mr. Boulton, is an Altar Screen, of Caen stone, and is erected at the eastern end of the choir, across the great Norman arch: the design consists of a dado of the height of the altar, of carved panels, inlaid with coloured marbles, above which, resting on an enriched moulded sill, is a series of five recessed panels, containing as many subjects sculptured in alto-relievo,—"The Agony in the Garden"—"The Bearing the Cross,"—"The Crucifixion,"—"The Resurrection,"—and "The Three Marys at the Sepulchre:" above these panels are crocketed pediments, inlaid with coloured marbles, and resting on carved capitals with clustered shafts of polished marble: these are continued upwards by another range of semi-detached shafts, terminating above an enriched perforated cresting in detached foliated capitals, supporting at intervals six figures of angels with wings erect, bearing the emblems of the Passion. Four of the pediments are surmounted by finials, the centre one having a cross. On the reverse side, or that next the ambulatory of the Lady Chapel, the entire surface to the height of 8 feet from the plinth, is covered with a carved diaper, terminating in a continuous panelling, containing enamelled shields of the armorial bearings and monogram of the deceased. On this side there is a bust of the deceased by Mr. J. Evan Thomas, on a granite pedestal.

The Leeds Town Hall Competition.—At a meeting of the committee, held on Thursday in last week, to consider their position in reference to the instructions to the architects, it was resolved, "that it is not desirable at present to deviate from the course hitherto pursued." No alteration in the instructions, therefore, will be made. The decision of the committee is said to have been founded on two circumstances,—first, that the instructions complained of are almost identical in their requirements with those issued to architects in view of the erection of the Leeds Borough Gaol, and which then excited no dissatisfaction; and, second, that "minute" explanations are demanded, in order that the professional referee, whose advice the committee will seek when all the plans are before them, may be enabled to judge whether the estimate in each case is reasonable or not. It must now rest with architects, therefore, to do what they think right in the circumstances.

Coal Shoots. — A correspondent, "W. R. B." with reference to the mess caused by coal-wagons discharging their cargoes through the small circular holes which mark the pavements, advises tha every coal merchant should have a large funnel made, the bottom, or pipe end to fit the manhole, the mouth large enough to receive the coals as they are discharged from the sacks: the funnel might be protected from injury by having a flat ring or flange rivetted, to encompass it, and so placed as to rest upon the stone. The whole might be made of wrought iron at small cost.

Consumption of Smoke.—The various plans for burning smoke seem mostly failures, and a practical proof of it is furnished by the appearance of Leeds and all the other manufacturing towns at the present time. I would suggest that instead of trying to burn, we should try to drown the smoke or condense it in some way or other. Steam is condensed in the low pressure engines: could not smoke be passed into a flue with a jet of water constantly falling like a mist and be condensed, or passed through a coarse piece of canvas kept constantly wet, which might be done by an endless web dipped into water at the bottom of the chimney shaft and kept in motion by the engine.—G. W.

Fall of Two Houses in Seven Dials. — On Sunday night, or Monday morning rather, between two and three o'clock, a frightful fall of two houses occurred in Seven Dials, St. Giles's, when many persons were seriously injured, two or three fatally, it is feared. The houses abutted against each other at the back, and adjoined one of the corner houses, a large gin-palace, called the Crown Tavern, facing the opening at Seven Dials. The ruined houses faced Queen-street and Great St. Andrew's-street respectively. One of them was a cheap lodging-house for poor people, which accounts for the numbers injured. The other was an oil and colour shop. The official surveyors are blamed; but there are various questions involved, and into these we cannot, at present, enter. The recklessness with which individuals will risk their own lives, even while danger is obvious, was curiously evidenced a few nights ago in the still unsettled and dangerous ruins themselves, where we observed a hair-cutter, professional or otherwise, coolly cutting away at the hair of a customer, who as unconcernedly submitted to the operation, while a bystander held the candle whose glare disclosed the curious scene to all who stood in the street!

Welsh Slate Traffic.—The development of the slate traffic on the Chester and Holyhead line is gradually proceeding, and in a short time there is no doubt that it will form a most important item of revenue. The branch lines of rail from the great slate wharfs at Port Penrhyn and Port Dinorwic have been connected with the tramways at the quarries, and, in a short time, it is hoped, there will be a communication at Carnarvon between the line and the tramways leading to the great slate basin.

Libraries in the United States.—There are, it is said, at least 10,199 public libraries in the United States, containing 3,753,964 volumes. These are distributed under the following heads:—

			Vols.
State libraries	39	containing	288,937
Social libraries	126	,,	611,334
College libraries	126	,,	586,912
Students' libraries	142	,,	254,639
Libraries of academies & professional schools	227	,,	320,909
Libraries of scientific and historical societies....	34	,,	138,901
Public school libraries	9,505	,,	1,552,332
Total libraries.....	10,199	Total vols.	3,753,964

The States of New York, Massachusetts, Michigan, Mississippi, and Pennsylvania, stand pre-eminent for the number of their libraries. New York has upwards of 8,000 school libraries, and more than 200 other public libraries of various denominations. Massachusetts has 700 school and 62 other public libraries. Michigan has 374 of the former, and seven of the latter. While even the state of Iowa can boast of its 2,660, Wisconsin of its 7,163, and Minnesota of its 3,200 volumes of books for public use.

New Application of the Lever Principle.—A working model of Messrs. Faulkner and Mayne's patent pumping engine, which, by the application of balancing and counterbalancing weights by leverage, is intended to supersede steam, is thus described by the *Manchester Courier*:—At one end of it, on a lever connected by a shaft with a pulley, the inventor places a thirty-pound weight at a distance of six-and-a-half inches from the fulcrum. On the opposite end another lever is connected with a pulley half the diameter of the former one, and on which there is placed, at six-and-a-half inches from the fulcrum, another thirty-pound weight. When these levers are put in motion, the one counterbalances the other, and the power required to move them is very small. Supported on two pillars from the centre of the machine, there is a sway beam, about six feet long, which is connected at one end with two pulleys by a chain, and, consequently, when the levers are moved, the sway beam is set in motion, and by the application of about 2lbs. of moving power, a weight of upwards of 100lbs. placed at the other end of the beam, was lifted up and down with ease. One man by this machine can do as much work as a three-horse engine.

The Houses at St. Augustin's, Ramsgate.—In your leading notice of the late W. A. Pugin you allude to the houses at the east end of his church in this town as completely "swamping that building." It may be well to mention that these houses were neither designed nor built by Mr. Pugin, though they are a sad attempt to copy the style of his work adjoining; and are indeed just sufficiently like to deceive the uninitiated. Pugin, of course, would not have committed the absurdity of marring his own favourite work by perpetrating the houses with the overwhelming roof, &c. &c. which you so justly reprobate.—N.

Bedfordshire Archæological Society.—At the monthly meeting of the council of this society, held on Tuesday in last week, it was resolved, "that it is desirable to publish for the use of the members of the society, from time to time, as often as materials may accumulate, an octavo sheet of miscellaneous notes relating to the architecture and antiquities of the county." If found practicable, the first number will be published before 1st January, 1853.

Sham Patent Agents. — A "victim" denounces a certain company as sham patent agents; but it is too serious a matter for us to commit ourselves, to the peril of actions for libel on such a ground. We think it advisable, however, to warn those of our readers who are interested in patents, to keep their eyes open to the risk of falling into the hands of unsafe advisers under the guise of respectable patent agents.

Melted Lead.—A simple method, and one always available, of preventing accidents with melted lead similar to the one which occurred while fixing the casting at the Nelson Column, is in constant use among stonemasons, and deserves to be generally known. A small quantity of common salt placed in the hole before running in the hot metal will prevent the lead flying, however damp the stone may be. Rosin and grease are also frequently so used, and are said to be equally if not more certainly efficient.—G. R.

A Trifling Difference.—Pray, give the following list of tenders for painting, &c. the St. Olave's Union Workhouse, Parish-street, Horselydown:—

Suter	£225	0	0
Murphy	195	0	0
Mallet	193	0	0
Brighton	180	0	0
Franklin	178	0	0
Pallet	175	0	0
F. C. Clare.....	147	0	0
Weller.....	147	0	0
Metcalf	140	0	0
Main	133	0	0
Mann	130	0	0
Keen	127	0	0
Tyler and Andrews ..	117	10	0
Ambler (accepted)....	105	0	0

TENDERS

For making the roads on the Kilburn Park estate: Mr. W. H. Lindsey, surveyor:—

Brown	£5,596	13	9
Williams.....	5,519	16	2
Barnes and Turner	5,486	14	10
Murray	4,980	14	9
Coker (accepted)	4,544	14	6

TO CORRESPONDENTS.

"T. B.," "G. W. R.," "L. C.," "H. R.," "J. G. W.," "J. F.," "G. W.," "Lord E.," "G. M.," "T. J. B.," "J. M. W.," "T. C. N." (the expenses could not be recovered), "S. R." (we are not aware. We doubt the advisability), "An Architect," "F. P.," "R. P. P.," "W. P." (received), "J. B.," "A. W. P.," "J. J. B."

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and *not* to the Publisher.

ADVERTISEMENTS.

PROFESSOR DONALDSON'S LECTURES on ARCHITECTURE and CONSTRUCTION, at University College, will be resumed on FRIDAY, the 15th OCTOBER, at Half-past Six p.m.—Further particulars may be had at the Office of the College.

GEOLOGICAL MINERALOGY. — KING'S COLLEGE, LONDON.—PROFESSOR TENNANT, F.G.S. will commence a COURSE of LECTURES on MINERALOGY, with a view to facilitate the study of Geology, and of the Application of Mineral Substances in the Arts. The Lectures will be illustrated by an extensive collection of specimens, and will commence on WEDNESDAY morning, at NINE o'clock. They will be continued on each succeeding Wednesday, at the same hour.
R. W. JELF, D.D. Principal.

CLERK WANTED, probably for a permanency. Must write a good and quick hand, and if used to attending to contracts in a public company, would be preferred. Hours, nine to six. Apply by letter, stating age and particulars, to C. G. 34, Skinner-street, Snow-hill, London.

BUILDER'S FOREMAN, or CLERK of the WORKS, WANTED, fully capable of setting out, superintending, and keeping an account of Carpenters' works.—Address, H. F. at the Office of "The Builder," stating qualification and salary required.

To Foundry Foremen.

WANTED, a FOREMAN of the FOUNDRY, in an engineer's shop in London, where about fifteen moulders are employed; one who has had previous experience as a foreman would be preferred. Liberal wages will be given.—Apply by letter, stating age and qualifications, and wages expected, to C. D., Miller and Field's, Stationers, Westminster-bridge-road.

To Plasterers.

WANTED, a first-rate WORKMAN, to undertake the plastering of two large detached villas, 12 miles from London. Materials found.—Apply to Mr. JOHNSON, Surbiton-hill, Kingston, Surrey.

To Surveyors.

WANTED, an expeditious SURVEYOR and good MAPPER, also an ASSISTANT SURVEYOR. Immediate application (pay by coach) by letter (post-paid) to X. Y. Z. 18, 8th-grove, Hanbury-street, Mile-end-road, London, E. Unexceptionable references required.

To Plan Draughtsmen.

WANTED, immediately, TWO rapid and experienced first-class DRAUGHTSMEN, fully acquainted with the routine of a Civil Engineer's and Surveyor's Office, whose services are required on a Board of Health Plan.—Communications, enclosing specimens and stating salary, &c. &c. to be addressed to Mr. ARTHUR, at Mr. Bury's Office, 71, St. Thomas-street, Weymouth, Dorset.

WANTED, a SITUATION as CLERK of WORKS or BUILDER'S GENERAL FOREMAN, by a man of experience. Satisfactory reference will be given.—Address, A. R. Chapel Cottage, Montpelier-row, Twickenham.

WANTED, to conduct the general routine of an Architect's Office, a First-class PRACTICAL DRAUGHTSMAN and DESIGNER; must also have a thorough knowledge of measuring and taking out quantities.—Address, Box K 40, Post-office, Liverpool, stating qualifications and terms.

To Builders, House Decorators, and Others.

WANTED, a permanent SITUATION, by a Young Man, who understands the Painting, Glazing, Distempering, and Decorative Paperhanging, &c. Has no objection to any part of the country.—Address, C. F. T. Office of "The Builder," 1, York-street, Covent-garden.

WANTED, by a Young Man, aged 30, an ENGAGEMENT as MANAGING FOREMAN of a BRICKFIELD, at per year or per thousand. Can have an eight years' reference from his present employer. His work can be inspected.—Address, M. B. Mr. Bell, Corn Merchant, 160, Whitecross-street, St. Luke's.

To Paviors and Surveyors of Roads.

WANTED, a constant SITUATION as FOREMAN or JOURNEYMAN, either in Town or Country, as above; is forty-one years of age, and for many years has been accustomed to lay and setting out work. Good references from his late employer.—Address, THOMAS GREEN, 32, Baldwin's-gardens, Leather-lane, Holborn.

To Decorators, Painters, and Glass Stainers.

WANTED, by the Advertiser, a SITUATION in the country; not more than 50 miles from London preferred. He is a good writer and general decorator, both in the ancient, modern, and estimating out work. Good references from his late employer.—Address, C. C. C. Office of "The Builder," 1, York-street, Covent-garden.

To Builders, Carpenters, and Others.

A SURVEYOR and BUILDER'S ACCOUNTANT is open to engage himself for two or three days in the week. Terms moderate. Respectable references will be given.—Apply by letter, post-paid, to H. D. S. Office of "The Builder," 1, York-street, Covent-garden.

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TO SCULPTORS

THE Council of the ART-UNION of LONDON, desirous of producing in BRONZE a fine work of art commemorative of the late DUKE of WELLINGTON, offer the sum of ONE HUNDRED and FIFTY POUNDS for a BAS RELIEF, to enrich the pedestal, and make a companion to the Wellington statue, illustrative of some event in his military life. The subject is not to be treated allegorically. The models are to be sent to No. 444, West Strand, on or before FEBRUARY 1st, 1853, either with or without the artist's name openly attached. The Council reserve to themselves the option of withholding the premium, if a work of sufficient merit be not submitted.

GEORGE GODWIN, } Hon. Secs.
Sept. 28, 1852. LEWIS POCOCK.

BUILDERS' BENEVOLENT INSTITUTION. The FIFTH ANNIVERSARY DINNER will be held at the LONDON TAVERN, Bishopsgate-street, on THURSDAY, 14th OCTOBER, 1852.

SAMUEL MORTON PETO, Esq M.P. President, in the Chair.

STEWARDS.

Angell, Samuel, esq	Gough, Benj. esq.	Parker, T. R. esq.
District Surveyor.	Greaves, Rich. esq.	Phillips, F. H. esq.
Balam, Charles, esq.	Grayson, Mr. George.	Potter & Co Messrs.G.
Barnes, R. esq.	Herbert, Wm esq.	Richardson, R. esq.
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Bird, Stephen, esq.	Messrs.	Randell and Saun-
Bird, Mr. George,	Higgs, Mr. Joshua.	ders, Messrs., Bathi.
Treasurer	Holmes, Mr. John	Rawlins, W. W. esq.
Bird, Mr. Joseph.	Hutchens, Mr. Wm.	Rolt, Peter, esq. M.P.
Bird, Mr. Edward.	Head, Mr. George.	Smith, G. Spencer
Brown, Mr. Edward	Helling, Mr. J. N.	esq.
Balmer, Mr. John	Harding, Mr. Wm.	Smith, Mr. Thomas.
Burstall, R. K. esq.	Harding, Mr. W jun.	Sapwell, Mr. J.
Bashfield, John, esq.	Jackson, Thos esq.	Skeat, William, esq.
Bellett, Mr. A.	James, Mr. Abel.	Shirlaw, Mr. Thos.
Cubitt, Mr. Alderman	Jackson, Mr. H. W.	Stirling, Mr. Wm.
William, M.P.	Joll, Henry, esq.	Soward, Mr. J. jun.
Cozens, Mr. Thomas.	Lee, William, esq.	Simkin, Mr. William
Clowser, Mr. T.	Locke, George, esq.	Sanders, Mr. F.
Carter, Mr. Edward.	Myers, George, esq.	Stephens, Mr. S. J.
Collins & Stanbury,	Myers, David, esq.	Troup, James, esq.
Messrs. Birming-	Nesham, Thos. esq.	Tyerman, Thos. esq.
ham.	Norris, Mr. William.	Tilbolt, J. esq.
Dunnage, Wm esq	Newsum, Mr. J. jun.	Turnbull, Mr. Thos.
Day, Mr. Ebenezer	Oldfield, Charles, esq.	Vigers, Mr. E.
Eales, Mr. William.	Oldfield, C. Fred. esq.	Wastall, James, esq.
Eldred, Mr. J. H.	Outhwaite, Mr. J.	Welch, William, esq.
Eyre, Walpole, esq.	Patrick, Thos. esq.	Watking, Mr. S.
Forest, Robert, esq.	Piper, T. jun. esq	Watts, Mr. R. jun.
Fressell, T. esq. F.S.A.	Pennethorne, J. esq.	Walker, Josh. esq.
Gardiner, W. J. esq.		

Gentlemen desirous of promoting the interests of the Institution by becoming stewards, will be pleased to forward their names to the Secretary, Mr. A. G. HARRIS, at the Office, 4, New Oxford-street, of whom tickets may be obtained, 21s. each; also of Mr. GEORGE BIRD, the Treasurer, 36, Edgware-road; the Stewards; and at the Bar of the London Tavern.

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FREDERICK TWYNAM, Resident Director.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the following advantages obtained by fish-jointing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 26th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and the rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fish-joints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Monaghsire,
North and South-Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

East-Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MANBY, C.E., Great George-street, Westminster, or to WILLIAM HOWDEN, Secretary, 26, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25th of August:

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 25th August:—

"The result of the three months' working of the new rails between Penzance and Gwinear has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the Board of Trade of the board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the Londonderry and Enniskillen Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the cast-iron road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons, and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishments to private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 38, Pall-mall, London.

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At a division of Profits declared up to 3rd July, 1847, the Bonus added to Policies effected in the seven preceding years on the "Return System" averaged Thirty-three per Cent. on the premiums paid. Four-fifths or Eighty per Cent. of the Profits are divided amongst the Policy holders.

LOANS in connection with Life Assurance on approved security.

Annual Premium required for the Assurance of £100 for the whole term of life:—

Age.	Without Profits.	With Profits.	Age.	Without Profits.	With Profits.
	£. s. d	£. s. d.		£ s. d.	£. s. d.
15	1 11 0	1 15 0	40	2 18 11	3 6 5
20	1 13 10	1 19 3	50	4 0 9	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary.

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Annual Income, £153,000. Bonuses Declared, £743,000.
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Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£. s. d.	£ s. d.
1806	2,500	79 10 10 extinguished.	1,221 2 0
1811	1,000	33 12 2 ditto	231 17 8
1818	1,000	34 16 10 ditto	114 18 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
321	1807	900	882 12 1	1,382 12 1
1174	1810	1,000	1,169 5 6	2,269 5 6
3392	1830	5,000	3,558 17 8	8,558 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch, and at the head Office, No. 50, Regent-street.

TO INVENTORS.

THE NEW PATENT AMENDMENT ACT is now in FORCE.—Particulars and information may be had on personal application, or by letter, enclosing a stamp, addressed to Messrs. BARLOW and Co. the Patent Office, 89, Chancery-lane, London.

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81, Cheapside, 30th Sept. 1852. A. L. SAUL, Secretary.

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PORTLAND CEMENT.—THOMAS FREEN and CO. having completed their works at WOULDHAM ON THE MEDWAY for the manufacture of PORTLAND CEMENT, beg to inform their friends and the public that they are now ready to supply cement of superior quality on reasonable terms. Roman Cement and Plaster of Paris Works, Tuscany Wharf, Canal-road, Kingsland-road.

PATENT PORTLAND and ROMAN and ANSTON CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, having now completed some heavy contracts, are prepared to execute orders to any extent for the above Cements. Many highly respectable references can be given where their cements have been used for both home and foreign use and abroad. Orders received and executed either from their works at Greenwich, or their wharfs, Lindsey Wharf, Chelsea; 24 Wharf, Harrow-road, Paddington; Rhenish Wharf, Whitefriars, City; Brine's Wharf, King's-cross; and Messrs. COLWILL, Bros. and Co's, Bridge st. Covent Garden, opposite the Office of "The Bell Inn." —Agent at Southampton, Mr. GEORGE SHARP, Union Wharf 6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality is desideratum never before attained in Portland Cements. It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combines with such its removal by fresh properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Conway Castle is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been entirely formed of this material but this cement and sea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The insoluble and hydraulic qualities of Medina Cement are superseded in the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. PLUDER, American Wharf.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this useful material, confident ly offer it to the notice of the Trade and the Public generally, as possessing every valuable quality for a Common Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tint d to any other.—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses Barracks, &c. It is easy of application, requires no previous coat, will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement from the great reduction in price, and its solid firmness for internal as well as external surfaces, places it above all other materials of its kind; it has no smell, and, may be painted or papered in a few days; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 22, Steel-yard, Upper Thames street. A liberal allowance to wholesale dealers.

WILLIAM ASPDIN'S PATENT PORTLAND CEMENT Messrs ASPDIN, ORD, and Co. have much pleasure in informing customers of this valuable Cement that as their works are now in operation they are prepared to execute any orders they may be favoured with.

New Wharf, Abingdon-street, Westminster, Sept. 23, 1852.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, w o, in 1796, first introduced PARKER'S ROMAN CEMENT; also Terras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses &c.

Manufactory, Mill Wall, Poplar; Depôts Commercial-road, Lambeth, and Paddington-green.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any ashes. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.

SECONDS, PAVIORS, and STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 48, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs near the West India Docks, and sold at No. 1, Praed-street, Edgware-road, Paddington.

TO BRICKMAKERS.

ASHES and BREESE FOR SALE; good quality, good measure, and in any quantity.—Apply to MARK I. TOMKINS, Green bank, Old Gravel-lane, Wapping.

SMOKY CHIMNEYS CURED.—The PATENT DRAUGHT ACCELERATING CHIMNEY-POT, and CHIMNEY PROTECTOR, are Machines that have been well tested in the cure of Smoky Chimneys. The Inventor undertakes the cure of Smoky Chimneys in Town or Country.—Particulars sent, on application to A. GREEN, Zinc Worker, 4, King street, Hammersmith, near London.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c.—JAMES LEE HANCOCK, Sole Manufacturer (and Licensee), Goswell-mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally, to his Patent Vulcanised India-Rubber Tubing, which is now manufactured from 1-8 inch bore and upwards, in lengths from 50 to 100 feet, and of various strengths, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES, LIQUID MANURE, and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.

*** Testimonials may be had on application at the Manufactory.

N.B. VULCANIZED WASHERS, and SHEET RUBBER or Steam and Hot Water Pipes, and Packings for Pistons and Gland-Boxes of Steam Engines, cut any size to order.

DURRAND'S "BONDED and SUFFERANCE WHARF," TIMBER-PRESERVING WORKS, ROTHERHITHE BETHELL'S process consists in preparing timber with creosote, or oil of tar, and is pronounced unrivalled for Railway Sleepers, Bridge Timber, Telegraph Poles, Piers, Docks Harbours, &c.; and the Outside Planking of Ships and Barges. And also for use in the colonies, as being perfectly impervious to the attacks of all land or marine insects. PAYNE'S, Sir W BURNETT'S, and MARGARY'S processes, in addition to their preservative properties are non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and General Building.

Extensive and most complete Machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.

Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 2, Charlotte-row, Mansion-house, City.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PERFECTLY SECURE FROM THE DANGER OF FIRE; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an impersishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which iron, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and warehouses, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late FOX and BARRETT), 12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's-park, and various other public and private buildings; in quantities to finish twenty square yards for 10s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8s. 9d. and 9d. each.

PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, for out-door use. White Stone and Lead, &c. Greens and Blues, 8s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price; only 2s. per gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s

G. BELL and CO. Steam Mills, 2, Wellington-street, Goswell-street, London.

IMPROVED WHITE or OXIDE of ZINC for PAINT, &c. under H. M. Royal Letters Patent.

LANGSTON, SCOTT, and WHITE, SOLE MANUFACTURERS IN THE UNITED KINGDOM

Grand Surrey Canal Dock, Rotherhithe, London.

Messrs. L. S. and W. have succeeded in removing the practical objection to its use, viz. want of body. They are the only makers of efficient ZINC DRIERS: without them outside work, floor-clothing, &c. fails.

(Wholesale only.)

Price under that of genuine white lead.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.

In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.

Hubbuck's paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT;"

and if the cask has not been so marked, the reason is obvious.

The powd-red White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and other purposes where it is used with size, gum, varnish, parrit &c. &c.

A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, of the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is, therefore, susceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.

WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well as persons inhabiting newly-painted houses, are subject.

The VIEILLE MONTAGNE COMPANY import the Oxide in casks containing their mark, No. 1, without which none are genuine, and is to be obtained dry or ground at the Company's Agents at the following places, viz.:—London, Liverpool, Birmingham, Hull, Newcastle, Leith, Belfast, Cork, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, Jersey, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull. It may also be obtained from the Grinding Agents, Messrs. C. DEVAUX and Co. 63, King William-street, City. Wholesale Agents, Mr. Charles Jack, 8, Tottenham-court, New-road, and Messrs. Hubbuck, Thames-street, in kegs of 14lbs. 28 lbs. 56 lbs. and upwards, at low rates; and Messrs. R. Anderson and Co. Timber bush, Leith, wholesale and retail.

The Company also employ a painter, who will undertake any description of painting in Zinc by contract.

Since its introduction into the United Kingdom, the Admiralty and the most eminent medical men have given it their preference. The public is cautioned, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.

For further particulars apply to Mr. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and S. KNIGHT, of Great Suffolk-street, Borough, their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-UPON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if merited by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride of Lead, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The intention of the discoverer was at a very early period of time to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond a doubt. They themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately the covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as with lead, for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 9, Upper Thames-st.
LIVERPOOL	Mr. Richd. Cooke, 7, Rise-lane.
MANCHESTER	Messrs. Johnson and McGowan.
LEEDS	Mr. James Douglas.
SUNDERLAND	Messrs. T. and E. G. Jepson.
DEVONSHIRE AND CORNWALL	Mr. John Young. Mr Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Stimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. J. Luskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun and Co.

The Builder.

SATURDAY, OCTOBER 9, 1852.

"YOU say, in your last record of electro-telegraphic progress—and a wonderful progress it is,—that "twenty-five miles of wire for one of the Irish lines were encased with *gutta percha* in the usual way." Now, I wish you would tell us something more about this, and of the manipulation generally of gutta percha. Thus writes to us an inquirer; and as we are always willing to afford readers the information they desire when we can do so conveniently and it is likely to interest others, we made a journey to the works of the Gutta Percha Company in that far distant part of this never-ending, still-beginning metropolis, this ten-times-Babylon, called the City-road. Well may strangers ask, where does London end? A satisfactory reply can scarcely be given.

It ought to be almost too late now for us to give any information about gutta percha; but the truth is, the public is not curious: the many-headed monster is contented to wait till he finds the information is in his head—he knows not how nor cares; and many of the present generation will go down to their quiet graves without any other knowledge of this extraordinary material than that it is something like India-rubber, and serves to keep their feet dry. The majority of our readers, however, know perfectly well that the tree from which it is obtained, and there is but one, grows scarcely anywhere but in the Malayan Archipelago, and that until Dr. Montgomerie noticed the native use of it in 1842, and, together with Dr. D'Almeida, forced it upon the attention of the London manufacturers in 1843, it was unknown here. In 1845 we imported only 20,600 lbs. but in 1848 the quantity brought in amounted to 3,000,000 lbs.* and, since then, it has been constantly increasing, and, if it can be had, will continue to increase. Even now we see it in use in the shape of mill-bands, buckets, sailors' hats, buoys, speaking-trumpets, tables, baskets, picture-frames, moulded decorations of all sorts, pumps and bottles for acids, pipes for water and gas, soles for boots, hats, snuff-boxes, whips, skate-bottoms, bottles, breasts of water-wheels, dressings for wounds, sash-cord, waterproof cloth, even toothed wheels, and a hundred other things. And these we are satisfied are as nothing compared with the uses to which it will be applied hereafter. In fact, you may make anything of it but bread and cheese, and even of these you could get from it such an imitation as would serve the eye, though the gastric-juice would find it difficult to work upon. Some of the lumps in which it reaches this country are not unlike flattened cheeses, double-Glo'ster, for example: others are like cocoa-nuts in their rough shells; and the first step taken with it is to bring these within the action of a vertical wheel, with knives fixed on the face of it, which, revolving rapidly, cut the material into thin slices, and often expose the progress of the Malays towards the deceits of incivilization, in the shape of lumps of wood encased, to increase the apparent quantity. The mode of obtaining gutta percha, we may say here, is most wasteful: instead of tapping the trees at intervals to obtain the sap, the trees are cut down, so that, unless their artificial cultivation be taken up by civilized people, the supply will soon be shortened. Dr. Oxley,* who wrote in Singapore, whence all that we get at present comes, says, that for the quantity which was exported between January 1st, 1845, and July, 1847, nearly 70,000 trees must have been destroyed!

When it has been sliced, as we said, it is boiled in coppers, forced into a hopper, where serrated knives tear it into shreds; and it is washed in various waters, in the course of which the foreign matter sinks to the bottom and is removed, while the gutta percha floats. Being cleansed, and this is of great consequence, especially for covering telegraph wires, the material is put between rollers, which partly squeeze out the moisture, and it is then placed in a kneading machine, and, ultimately is passed through rollers to form sheets and bands, or submitted to the drawing-mill to be formed into cords or pipes. At the temperature of boiling-water it becomes soft, will take any form or the finest impression, and at the ordinary temperature regains the consistence of leather.

Herein lies, as may be seen at once, its extraordinary value. Combined with sulphur, it may be made as hard as ebony, too, but this is not the condition in which it is most useful. For pipe-making and for covering telegraphic wires a further cleansing process is gone through: it is driven by immense pressure, the pressure of four hydraulic pumps, through gauze wire and very fine holes in a steel plate, and it is rolled and kneaded again. To make pipe the softened material is forced through a die, the pipe as it forms being drawn away from the die through water to harden it. The mode of joining the pipes is very simple and beautiful, hot water and a little skill being all that is needed.

There seems good reason to believe that piping of this material will be very extensively used. The testimonials in favour of its use for conveying water and other fluids are numerous and strong, although necessarily the experience is comparatively short. We regard it as of the utmost importance that the fact of its endurance should be established, as, that being proved, we shall then be able to get rid of the noxious lead-piping through which water now flows to our dwellings, and the, still worse, lead-lined cisterns. The ability to make pipes in very long lengths, too, will be valuable in many cases, as, for instance, when it is necessary to lay pipes under water. To convey the Croton water to Blackwell's Island, New York, a distance of 1,000 feet, the pipe was made of gutta percha *in one length*, and, by means of a line of boats, was lowered into its place—with small anchors attached at intervals to keep it steady—in seven minutes and a half. We remember, a few years ago, when some of the Dutch and Belgic towns were being lighted with gas by our countrymen, noticing the time that was occupied in driving the mains across the canals and other waters that intervened. Gutta percha (its durability being, of course, first proved) would have obviated the difficulty.

As to the strength of gutta percha pipes, we have the evidence of the engineer to the Birmingham Waterworks that a 200 feet head of water and the "ram" caused by shutting it off suddenly produced no effect; proving their capability to withstand hydraulic pressure, whether steadily or intermittently applied. Mr. Burstall, who conducted the experiments (and his very name must have struck dismay into the piping), says, "The tubes were $\frac{3}{4}$-inch bore, the material $\frac{1}{8}$ inch thick; and, in addition to the trial already named, they were also tested by the Water Company's proving pump, with its regular load of 250 pounds to the square inch: afterwards we added weight up to 337 *pounds, and I wished to have gone to* 500, *but the lever of the valve would bear no more weight: we were unable to burst the pipe.*" The cost, as we understood, is at present about the same as lead, but then expense is saved by the absence of joints.

It may be well to mention that where pipes or other articles made of gutta percha are exposed to the direct rays of the sun, they should be painted *white*, as this effectually, it is said, prevents the material from softening. The youngest of our readers of course knows why.

At the Lambeth Gutta Percha Works, where the same processes are seen in operation, they adopt for pipes, &c. what they call Double Compound, containing, apparently, India-rubber mixed with the gutta percha, and this produces a more flexible article, and if proved to be equally strong and lasting (of which there seems little doubt), will come largely into use. Small tubes of this compound are very well suited for all gas-work where flexibility is required, and for publicans' use, to attach by union joints the beer cask with the drawing machine: a pipe of half an inch bore is found to be very useful in many places, the connections being made in about a minute.

At the works in the City-road we noticed, amongst the objects moulded, batteries, formed with all their divisions *in one piece*. To produce this, of course immense pressure is required,—as much as 150 tons. Here, too, we saw the mode adopted for testing the covered wires: the wires, we should say, receive two coatings, so that, should any impurity occur in the first operation, the evil it would cause may be obviated by the second. Made into lengths of about 1,000 yards each, these are suspended in water for a certain time, and are then temporarily connected, to the extent of 40 or 50 miles, through which the current from a powerful battery is made to pass and discharge a gun. It was passed through 60 miles when we were there, without the slightest perceptible interval of time.

Let what we have said suffice to show the importance we attach to the introduction of this material, the application of which, we feel satisfied, is but in its infancy, and will pave the way, as every fresh discovery does, for further advances and improvements. We owe it much for what it has already done. But for our knowledge of gutta percha, the extension across seas of the electric telegraph, which is now tying together all parts of the world, might have long remained an unrealised possibility. And then, following the progress only one step farther, who shall venture to say to what the telegraph will lead?

* Report of Jury, Class xxviii. Great Exhibition.

* Quoted in Tomlinson's "Cyclopædia of Useful Arts."

THE OPEN SEWERS OF BROMPTON.—It is discreditable that in such a neighbourhood as Kensington and Brompton open sewers should still be allowed to spread their injurious gases and bad odours in the few green lanes which connect the two quarters.

CONVERSAZIONE OF THE ARCHITECTURAL ASSOCIATION.

The opening meeting and conversazione of this association was held on October 1st, at Lyon's-inn-hall, and was exceedingly well attended. Letters of apology from the Earl de Grey, Professor Cockerell, Mr. Inman, and others were announced. A report from the committee was read, which congratulated the members on the satisfactory condition of the association, adverted to the great progress made during the past session, and ascribed the prosperity of the society to the free and unrestricted but kindly criticism it was its object to foster. Allusion was also made in it to the success of the Architectural Exhibition, which had in the first instance been originated by the independent exertions of the association.

Mr. Kerr, in moving the adoption of the report, took occasion to allude to several questions which had been with more or less success taken in hand by the association, namely, architectural education, the architectural exhibition, and the *questio vexata* of competitions. With regard to the first, he alluded to the progress which was gradually being made towards the obtainment by the profession of that which is the object of its existence—the proper and scientific management of the entire building operations of the country. But a few years ago there were almost no architects as a separate profession,—even Nash was a builder; now their number was very considerable, and it was rapidly increasing. Some deplored this as ruinous; but he contended that it was properly the mere result of the increased division of labour and the increased appreciation of the architect's use—demand creating supply. However, it was a serious fact at the same time that the public had but little confidence in the architectural profession: this was the reason of the condition in competitions that the committee would not bind themselves to employ the successful competitor, and so on: if the architectural profession possessed the confidence of the public as others do, such a condition would be out of the question: it was also displayed in the fact of the royal mansion at Osborne having been built without an architect. (It was here remarked, however, that this was not to be the case with the new palace at Balmoral.) Although it was to be expected that a rapid increase in the demand for architects would weaken the supply for a time, yet, he contended, there was more than this in it. The means of education were essentially defective and inadequate. Royal Academy lectures, six a year, were not suffi cient. University lectures also, wherein a single professor had to take the whole province of art and science, as if it were but a very small one, were not sufficient. The Institute of architects ought to have its professors and teachers, so that every one of the numerous subjects of study should be taught by a man who had given peculiar attention to that one department, and was perfect in it. The profession would never acquire the complete confidence of the public of this matter of fact and common sense country till such means of thorough instruction were provided. The institute, he thought, had too much on its hands to enter fully upon such an undertaking yet; and whether the association could contrive to provide any substitute in the meantime was a question worthy of consideration. With regard to the architectural exhibition, he congratulated the association upon the success which had attended their efforts in its establishment. In the time of Sir Joshua Reynolds, when painting and sculpture were mere reproductions of antique conventionalities, architecture being the same, was a fit member of the same academy; but now that both the one and the other had become more truly principled, the disparity of nature between pictorial art and constructive art was made apparent. Thus arose the disrespect shown towards architecture in the rooms of the Academy both by the public and by the academicians themselves. At the same time the increase of architectural employment provided more and more the means of supplying an exhibition of its own. The association had the great merit of setting this on foot: it had succeeded beyond expectation; and now that the management had been without hesitation transferred to the subscribers, the public would additionally appreciate the magnanimity of the act. As regarded architectural competitions, he was sorry that the efforts of the association had not produced much of a practical result. The principle of the competition was, no doubt, as ancient as the art of architectural drawing; and this species of business might be said to stand almost alone as to the applicability of the principle. The undoubted fixedness of its establishment at the present day was the result, not of accident, but of sound and philosophic principle. Many persons had contended against the system altogether, but it was in vain to do so: we must rather suit ourselves to the fact of its fixedness. There were many most obnoxious details in the present operation of the system, and the good of it was almost entirely lost; but it only required a remedy to correct all or most of the evil. The want of confidence in the architectural profession and its cause, he had already alluded to; but its result here was more serious still. Suspicion being once justified, this provoked license; and all the injustices of everyday experience were the consequence. What he considered to be needed was confederation—the trades' union system in some form. The public were not unwilling to give fair play, if this were understood. The diversity of opinion among architects themselves was a difficulty, and there might be some who would adopt the policy of keeping aloof for selfish ends; but these difficulties were not insurmountable. A well-founded confederation upon the abstract question might soon determine details of operation; and he recommended such to be formed, although after all nothing could enable the profession to dispense with the merit which he had first alluded to,—that thorough education which would secure universal confidence.

Mr. Edmeston, who was in the chair, then read an address, from which we make the following extracts:—

"The schools of design established all over Europe, the art societies, the artizan schools, and numbers of similar institutions, all point plainly towards the direction public taste is taking, and are all called into action by it; and if one proof could be found stronger than another, it is to see at this moment the hard, calculating spirit of trade deliberately counting the cost and relying on the profit to be reaped by an expenditure of large treasure, in furnishing forth a resort of public amusement with food for the mind and not merely for the eye and ear, in sending forth two gentlemen of known ability to select and purchase at great cost works of art the best and most rare, efforts of the highest taste and genius, and that to please and entertain a holiday multitude.

A better comprehension and criticism of works of art is becoming more widely diffused each day: the eye of the beholder becomes more alive to the beauties that may be placed before it, and learns to discriminate between the fictitious, the claptrap, the merely mechanical, as opposed to the true and the poetic."

"Time was when, from the highest branches of poetical design down to the lowest connection between design and production of all kinds, there was but little encouragement afforded by the public at all: in manufactures the direct application of art was not understood, and there was a general absence of enlightenment and perception upon all matters of decorative art in all forms. Professor Cockerell himself complained very justly before the select committee of the House of Commons,—that 'while the improvements in the science of building gave us great advantages over our forefathers, architecture as an art had lost ground,' and its principles were less understood than formerly. At that time it was no fashionable subject of research, it was matter of caprice as to what style of any age or country could be called the best (the prevailing taste was, indeed, Elizabethan), a state of things to be truly laid to the ignorance of the mass in matters of taste. But it was time that matters should mend. Manufacturers found there was a necessity to adopt different views: art manufacturers and applications were called into existence: an Art Journal found a widely-extended support: books were written, lectures given, papers read before societies; the least and the worst of all as indicative as the best of an earnest desire, an awakened spirit; calling into action all sorts of argument—warm discussions—almost hostile demonstrations; so that opinions heretical to all before received, became a creed to some, and the even easy path of professional life became filled with stumbling stones, with gaps and holes, hidden and unseen before, till the weary mind was well nigh tempted to put the whole down as empty trash, and to listen no longer."

"The industrial arts are now leading the way, and each day the public mind will become more alive to and will learn to relish the higher and more ideal creations of fancy: insensibly the public eye will become educated. The demand will be raised, and our business it is to be prepared to satisfy it, and to see that the noble art of architecture is not alone behindhand. There is, indeed, much to do. In all this great city of London how little is there which attempts or professes in the least degree to take any part whatever in the general progress."

"The architectural student labours under many difficulties. No mere drawing school or school of design will do for him: it would be quite insufficient, because his pursuit is mixed up with the technical knowledge of numerous handicrafts, of which he could not possibly gain any experience in a school."

Mr. Tite expressed the great gratification he felt in being present for the first time at a meeting of a society so numerous and so successful in its object. Looking around him, and reverting to the experience of his own youth, he could only say, notwithstanding all the defectiveness of the means of education at present, that if students nowadays could only understand how much inferior were the means at command at that time they would feel thankful for what opportunities they possessed. He remembered how, more than thirty years ago, he was a member of such a society as the present, formed by half a dozen students of the academy, and how it had to be abandoned after only a few months' existence from total want of encouragement. But even although matters were mended now, he could not help saying how far our brethren on the continent were before us. In Germany, where he had recently spent some time, he found that the profession possessed, more particularly in Berlin, its regular teachers of every branch of the architect's knowledge. The student had classes at his command on every subject in detail. After a thorough instruction of this nature, he had to devote a fixed period to practical work: he was then ready to submit his acquirements to the examination of persons appointed by Government: it was only after such examination that he commenced as an architect; and he who had not the license of the examiners was not allowed to practise at all. The consequence was, that the German architects were thoroughly possessed of the whole extent of professional skill. For instance, he had looked over the new Museum at Berlin, which every one knew to be an extensive and elaborate work of art: he had afterwards had the gratification of seeing the working drawings of the building, and it was only then that he perceived to his astonishment how complete and intricate had been the architect's labours. He found that they had embraced the most minute details of decoration from first to last. Nothing had been left to other management: the colouring was all completely arranged on the drawings,—even the gilding on the enrichments: the panels for paintings were matters for determination by the architect, Herr Stüler: and even the subjects of the pictures, the work of Cornelius and other masters, were chosen by him as part of his design. The consequence was, that the entire work was one harmonious whole,—absolute unity of purpose pervaded every part of it,—it was the production of a single mind.

At a future period of the evening, Mr. Tite adverted to a remark which had been casually dropped, which appeared to be in opposition to the principle of an architect's payment by commission. He hoped it would not be allowed to go forth that any departure from the recognised system would be encouraged for a moment. Of all competition, that of price would be the worst. Every architect ought to stand far above the possibility of a suspicion that he would increase his client's expenditure for the increase of his own commission. This principle of payment was recognised every-

where at present, and in France the rate was the same as our own—5 per cent; and the confirmation of the principle was the best safeguard for the independence of the profession. He also alluded to objections which had been raised to the views which had been expressed by Mr. Kerr on the subject of competition: he concurred with these views from his own experience, and believed that the principle of competition, if properly worked out, was one calculated to be of great advantage. Holding up to view the great objects of the advancement of the art, and the maintenance of the dignity of the profession, he counselled combination and co-operation as the surest means of securing such excellent ends.

Mr. E. Hall adverted to the advantages of meetings of this character. Not only, he said, is the education of the architect a subject demanding attention, but that of the public is of equal importance; and to this end no means could be of such service as the Architectural Exhibition in familiarising the public eye to the peculiarities of representation, and as an antidote to the pernicious influence of the present stucco architecture. The architectural profession is of an universal character: the same principles which the most thinking minds have decided on for guidance in architecture apply in equal force to furniture and other objects of daily use. An edifice, the result of long and careful thought and consideration, should not be hastily altered in any way; but in the present day (with the utmost indifference to the feelings or the reputation of the original architect,—often for a mere whim) a building is thought to require alterations or additions; and London offered but too many examples of buildings disfigured or entirely lost to us by such unjustifiable operations.

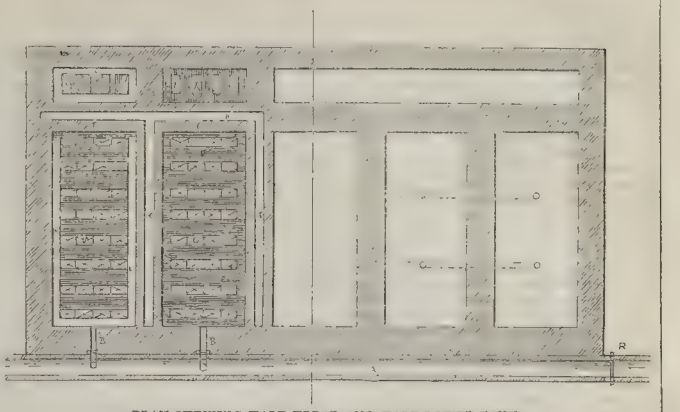
Mr. Billings advocated a higher standard for the qualifications of the architect, and the necessity of combination to attain that end. The architects as yet have worked in an isolated way—and have, therefore, produced no impression. He urged the adoption of fees and charges for the actual amount of time and skill expended, instead of the present system of a per centage on the cost of the work done.

Mr. Ferrey (who proposed a vote of thanks to the Chairman), Mr. Kendall, Mr. Scoles, Mr. Jopling, Mr. Garbett, Mr. Jennings, &c. were present.

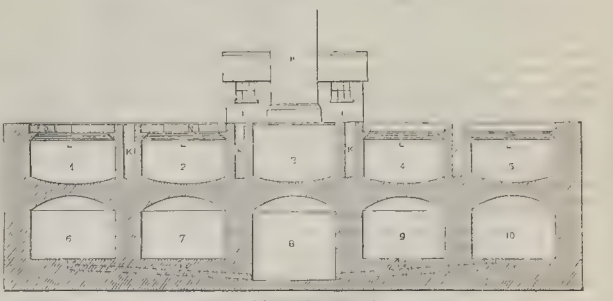
OPENING OF THE OXFORD AND BIRMINGHAM RAILWAY.

On the 30th, the heretofore incomplete portion of this line or branch of the Great Western Railway, viz. from Banbury to Birmingham was formally opened. The ceremony was distinguished by a series of casualties very discreditable to the management. The line has been constructed by Messrs. Peto and Betts, under the superintendence of Mr. I. K. Brunel. The works include—the Harbury cutting, between Banbury and Fenny Compton, half a mile in length, and 110 feet deep, out of which have been excavated 3,000,000 cubic yards of marl and limestone; a viaduct at Leamington, and bridge over the High-street, the latter 130 feet span; an aqueduct at Myton, constructed so as not to impede the navigation of the Birmingham and Oxford canal; a bridge over the Avon, 160 feet in length; viaduct at Warwick, of 30 arches, 25 feet span each; a bridge over the road and canal at Warwick, composed of iron girders 150 feet span; the Hatton embankment, 3 miles in length and 25 feet in height; the Finwood bridge, 60 feet high and 140 feet long; an iron bridge over Stratford Canal, 60 feet in length; the Solihull viaduct, 500 feet long; an embankment at Haycock's-green, one mile long and 48 feet high; the Haycock's-green cutting, one mile long and 30 feet deep; a bridge under the Bristol and Gloucester Railway, constructed on an embankment, 50 feet high, the trains of the Bristol and Gloucester line having worked over it during the progress of the works; an iron bridge over the Warwick canal, 150 feet long; and a bridge over the Coventry road into Birmingham, 60 feet long.

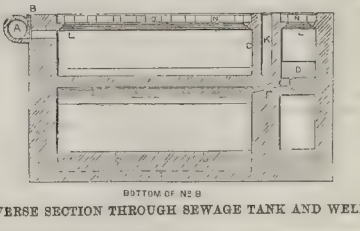
DIAGRAMS TO ILLUSTRATE THE HON. AND REV. MR. GORE'S SCHEME FOR THE DRAINAGE OF TOWNS.



PLAN SHEWING HALF UPPER AND HALF LOWER TANK.



LONGITUDINAL SECTION.



BOTTOM OF № 8

TRANSVERSE SECTION THROUGH SEWAGE TANK AND WELL.

DRAINAGE OF TOWNS.

A SCHEME FOR THE DRAINAGE OF TOWNS, AND THE CONVERSION OF THE SEWAGE MATTER INTO A DRIED INODOROUS MANURE, AND CLEAR INODOROUS WATER, WITHOUT THE ESCAPE OF EFFLUVIA DURING THE PROCESS.

The town, into which it is desired to introduce the system about to be described, must be divided into sewerage districts, formed with reference to surface configuration, and at the lowest point in each district receptacles proportionate to the extent of the district, and density of the population therein, must be formed for collecting, disintegrating, desiccating, and deodorizing the sewage matter.

The accompanying diagrams will tend to illustrate the description of the formation of one of these receptacles, and of the process therein to be pursued in the conversion of the sewage matter.

The fulfilment of every necessary requirement for the efficient drainage of the district having determined the depth and capacity of the minor and main sewers, and the dimensions of the collecting receptacles having been derived therefrom, A represents the main sewer in the district, conveying the sewage matter by means of sluices (B) into the collecting receptacles 1, 2, 4, 5, excavated to a sufficient depth below the general level of the district and the main sewer to admit of their being fully charged, to within 4 feet of the top, with sewage matter.

The area of the place of collection, &c. should be excavated to double the depth determined on as necessary for the construction of these receptacles, the lower half being divided into five compartments, 6, 7, 8, 9, 10; the centre one (8) being carried down below the floors of the others for the purpose of draining them and working pumping machinery.

Over these compartments five tanks must be constructed; 1, 2, 4, 5, being the collecting receptacles before noted, and 3, a tank for filtered water, as will hereafter appear, sufficient intervals (K) being left between the tanks to admit of their proper construction, and to contain,—first, pipes for heating the tanks; second, machinery for working cranes by hydraulic pressure; third, gas-pipes for lighting the tanks; 4th, pipes for admitting atmospheric air for ventilation; and, lastly, a means of access to the reservoirs or wells below.

In the end (C) of each tank, opposite the sluice (B) for admitting the sewage-matter, are to be inserted, at a level of 6 feet from the top of the tank, sluice-cocks filled with perforated guards, and so on at intervals to within about

8 feet of the bottom of the tanks, for drawing off, as the more solid particles precipitate, the watery portion of the sewage, into (D) a properly constructed filter, in which the water is purified, and passed by means of the drains (E) and pipes (F) into the wells and reservoirs, 6, 7, 9, 10, and hence, as desired, into No. 8. H represents a tower higher than the highest house in the sewerage district, with supply reservoir at its top, and chimney through the same; I, engine-house, &c.; L, ledges around sewage-tanks, 1, 2, 4, 5, and filters D, four feet wide; M, 6 feet spaces of boards resting on ledges, leaving alternate intervals of 4 feet; N, boxes placed in these intervals, with hinged bottoms, and levers attached; O, finely-sifted coal-ash, placed on the boards, and within the boxes; P, boards over M; Q, covers to the boxes; R, safety-sluice in main sewer for diverting the sewage into tanks when closed, or passing the storm-waters clear of them when open by communication with a river.

Having thus enumerated the requirements necessary for converting by this system sewage matter into dried manure and clear water, let us now describe the process by which this result is to be effected.

The boxes and intervals between the same over tank No. 1 and the adjoining filter being filled with coal-ash to the depth experiment has determined as sufficient for effectually preventing the escape of effluvia, the sewage matter is admitted into tank No. 1, and on that being full, into No. 2, and so on throughout the series. Here it is allowed to remain for precipitation, the watery portion of the sewage, during the deposition of the more solid, being drawn off into the filter by means of the cocks set in finely-pierced metal, as before described. These cocks would be worked in stages, and their ceasing to run would intimate that the matter had become sufficiently consistent for the introduction of the coal-ash through the boxes, gradually, but in sufficient quantities to deodorize the sewage without destroying its properties as a manure, care being taken continually to replenish the boxes so as to retain sufficient thickness of coal-ash to prevent the escape of effluvia. The sewage being now sufficiently solidified, heat would be applied to the matter in the tank, by means of flues, pipes, or other effectual and approved method, for the purpose of evaporating the remaining moisture, which would be absorbed by the coal-ash over the boards: gypsum may now be introduced through the boxes for further deodorizing and fixing the volatile gases of the manure; and the drying process being complete, the tank may now be ventilated and lighted, and men, entering the tank through the boxes, may fill the contents into bags, which being removed by the hydraulic cranes, may be stored for sale in a convenient part of the premises.

The coal-ash between the boards, which has absorbed the moisture emitted during the drying process, may now be transferred to the bottom of the tank, and fresh substituted.

Coal-ash is named as the most desirable for this purpose, and from its being easily obtainable in towns; but sand, street sweepings, or the like, would be useful substitutes. It is presumed the manure thus obtained, would be of a most fertilising quality, and being solid, inodorous, and portable, would find a ready sale.

The water, having been received upon the filter, gravitates through whatever chemically and mechanically prepared strata the best experience on such matters may suggest, and is passed into reservoir or well No. 5, immediately below: thence it drains into No. 8, from which it is pumped into No. 3, in a perfectly purified state: it is then pumped into the supply tank at the top of the tower, for the purpose of distribution as the wants of the district may demand; and among the numerous uses to which it may be advantageously applied, may be named the working of hydraulic machinery, the supply of closets, manufactories, mews, watering streets, and the extinction of fires.

Among the advantages which this scheme possesses over the existing system of town drainage may be mentioned,—

1. As the main drains would be, comparatively to the existing ones, short, their size, and consequently the cost of their formation and repair, would be proportionably less.

2. Manual cleansing and flushing would be rendered unnecessary from the facilities the system would offer in obtaining a proper inclination for the main and tributary sewers.

3. From the opportunities afforded of mechanical and chemical action on the sewage matter—mechanical in the processes of deposition, filtration, &c. as before described, and chemical in the facility by which any preparation may be introduced into both the tanks and filter, through the boxes,—it is assumed that if it is possible, by mechanical and chemical agency, to render sewage water clear and inodorous, every possible means are afforded according to this scheme.

4. The abundance of clear inodorous water would render the system nearly self-acting and self-paying;—*self-acting*, on account of its affording so much facility for working machinery: it would not only work cranes for emptying out the tanks, which would reduce manual labour to a great extent, but by the application of hydraulic pressure to pumping machinery, it might be made to supply the water-tank at the top of the tower in any quantity required;—*self-paying*, for if short hydraulic-pressure machinery be necessary for the working of any manufactory in the neighbourhood it could be supplied; and it is supposed that the sale of the water for other purposes would pay amply for the staff and repairs which might be occasionally necessary at the places of collection; moreover, as the basement story and first story only would be required for carrying into effect the proposed scheme, a building could be erected over the first story suitable for a steam-mill, or any manufactory or warehouse, and so free would these places be from the escape of effluvia, from the depth of the coal-ash on the top of the tanks, &c. that the superstructure would be applicable even for model lodging-houses. The rent of these buildings would probably cover the rent of the land necessary for the places for receiving the sewage.

In order to complete the cleansing of towns, it will be necessary to remove, in the most effectual manner, and to manufacture into valuable manure, without the escape of effluvia, every description of animal refuse, including dead horses, dogs, &c. and every description of vegetable refuse. The removal of all this could be effected by covered vans, made air-tight, and conveyed to pits excavated in the sewage district for the purpose. The pits should be seven in number, and each pit should be large enough to contain one month's vegetable and animal refuse of the district. To render the system more intelligible, I will suppose each pit to be 100 feet by 40 feet, and 30 feet deep. Over the top of this pit an open railway should be constructed, upon which the covered vans could be driven, and their contents emptied out through their bottoms. The order in which this refuse should be placed in the pits is as follows:—1 foot thick of dry and sifted street sweepings should be placed at the bottom of the pit: over this 1 foot of stable dung should be spread, treading it down carefully: 6 inches of animal and vegetable refuse should be placed on this layer of stable dung: another layer of stable dung, 1 foot thick, should now be spread over the animal and vegetable refuse, treading it down carefully as before, and over this should be placed 6 inches of street sweepings, the surface of which should be spread evenly and rolled. Over this a layer of dung, 1 foot thick, should be placed, treading it down carefully as before; then a layer, 6 inches thick, of animal and vegetable refuse as before; then another layer of dung, 1 foot thick; and then 6 inches of street sweepings. Exactly the same process should be carried on as before until the pit is full, when it should be crowned with 18 inches of street sweepings. During the process of filling the pit care should be taken to finish the day's work with the layer of street sweepings, so as to prevent the possibility of the escape of effluvia. In six months, if this heap were opened, it would be found to be one homogeneous mass, resembling black butter: it would be impossible to distinguish the dung from the animal and vegetable matter; or the animal and vegetable matter from the street sweepings. It would be one uniform black colour, and as inodorous as the usual farm-yard dung, after it has been turned and exposed to the atmosphere. Indeed, from my own experience, I will venture to affirm that it would be, after lying six months in the pit, as inodorous as maiden soil, and much more fertilizing and lasting in its effects than any description of farm-yard dung. The open railway over the top of the pits would much facilitate the emptying out; and if intervals were left between the pits, similar to the intervals described between the sewage tanks, cranes could be worked by hydraulic pressure, which would much facilitate the operation of emptying. It is to be observed, that as only the basement and ground story is necessary for carrying on these operations, buildings for any purpose might be erected over these pits.

Probably the steam-engine might be dispensed with by a judicious application of the water-power: at the points where the lower wells empty themselves into the deep well, a wheel might be placed which would work a pump, which might lift the water to the upper water-tank No. 3. The water in No. 3 might be let off upon hydraulic rams placed at the bottom of the tower, which would raise the water to the tank at the top of the tower. When the tank at the top of the tower over-flowed, it would be conducted into five water-tanks constructed on the top of the building which is proposed to be erected over the sewage-tanks. The roof of the building over the vegetable and animal refuse-pits might be turned to the same account, *i. e.* a reservoir for holding the filtered water. The water-tanks at the top of the buildings could be constructed of any depth, and each tank being separate any leakage could easily be repaired. The sewage-tanks might be heated by gas instead of steam. If the rams should not be sufficiently powerful, probably some self-acting plan could be struck out; for when the quantity of water is taken into account, and the power of applying it in any manner most convenient, it certainly does appear reasonable.

A. H. Gore.

SCIENCE AT THE SHERIFFS' INAUGURATION DINNER.

A good step was taken by the new sheriffs, Mr. Alderman Carter and Mr. Angus Croll, on the 30th September, at the London Tavern, but it did not go far enough. It would appear that they had invited the secretaries of various learned societies, and other scientific men, but they did not concern themselves to place these properly, and in some cases, indeed, provided them no place at all. Thus we saw the eminent secretary of the Royal Society—apparently the only officer of that body present, and therefore the actual representative there of pure science—chased from chair to chair, and ultimately transformed into a "vocalist" for the nonce, and squeezed into an extemporised seat in close proximity to the door, where the in-draught gave the candles the appearance of stalactites, and rendered a long stay impossible. Two other learned professors might very properly have been told to "go up higher." This error is the more singular, as both the sheriffs are connected in a degree with science: but unfortunately, in the City, precedent is so strong that men, when they get into office, seem forced to succumb to it, and are positively afraid to do better than their predecessors.

Mr. Bathe, with the suavity and tact that belong to him, and have enabled him to place his house the first in general estimation, tried to make all contented; but he could not talk away a crick in the neck or the pressure of an Arnott's stove at one's back.

Improvement in Anvils.—A patent has recently been taken out by Mr. P. Wright, of Dudley, for constructing the largest anvils of at most but two separate pieces, and smaller of only one, by means of two hollow dies of cast-iron, into which the mass of heated iron is forced till it assumes its shape.

STONE PULPIT AT SHREWSBURY.



STONE PULPIT AT SHREWSBURY.

THERE are few places in England so familiarly known by name as Shrewsbury: every one has heard of "*Shrewsbury clock*" and other historical and literary associations of this ancient town; but many who know Shrewsbury by repute are little aware of the numerous matters of interest which remain at this day in the town and neighbourhood. Shrewsbury still retains to a remarkable extent the appearance of former times, and the various picturesque views in the streets cannot fail to attract the attention of the visitor.

The stone pulpit which is one of this week's engravings is a remnant of the ancient Abbey of Shrewsbury, and was formerly in the refectory, which was doubtless a noble room. Of this once spacious hall, however, with the exception of the reader's pulpit, nothing remains.

The plan of this pulpit is octagonal: some broken steps lead through a narrow door, with its arched head nearly flat, to the interior: the southern half rests on the ruined wall, and looked outward, in the form of a small bay window: the corresponding moiety, which was within the hall, rests on a bracket, encircled with delicate moulding, which springs from a corbel, carved as a head, but now defaced. This part projects considerably over the wall, forming the basement, about 5 feet from the ground: an obtusely pointed, or rather conical roof of stone, is suspended 12 feet above the floor, on six narrow pointed arches, which have been decorated with trefoil heads. The western side is a blank wall, and that opposite contains the door.

The roof interiorly ascends to a Gothic dome, vaulted on eight delicate ribs, which spring out of the wall, without corbels or pilasters; and in the centre, at the intersection of the ribs, is a very fine boss, representing an open flower, on which is a representation of the Crucifixion, very delicately sculptured, with St. John and the Virgin Mary at the foot of the cross. The spaces of the three northern arches looking inward are filled up with stone embattled panels, to the height of 2 feet from the floor: on the centre panel are two crocketed tabernacles, with a small buttressed division, surmounted by a pinnacle. In one of these is the figure of an angel, in the other a female whom he is addressing: they seem to have represented the Annunciation of the Virgin Mary: the right-hand panel bears the figures of St. Peter and St. Paul, with their respective symbols; and that on the left a monk and a female in the monastic habit—probably St. Winifred and the Abbot Beuno. No panels ornament the sixth side, the arches of which are open. Like

other portions of the abbey, where sculpture is employed as a decoration, this fragment was of the fine grey stone of Grinshill quarry, which is of a firmer texture and more fit for statuary or niche work than the soft red sandstone of the other parts of the fabric.

CHURCH-BUILDING NEWS.

Cranfield.—A painted window has just been placed in the parish church of Cranfield, Beds. It contains, in two lights, six shields, one of ancient glass, said to be the arms of a descendant of Edward III. consisting chiefly of the royal arms of that period, and the only specimen of stained glass remaining in this church before its late restoration,—the royal arms of the present period,—the arms of the Archbishop of Canterbury,—of the See of Ely,—of Mr. J. C. Harter, the patron of the living,—and of the present rector, the Rev. G. G. Harter. The whole is surrounded by a border consisting of roses of York and Lancaster, and was executed by Mr. Willement, of London.

Blackheath.—On Tuesday week the whole of the masons employed in erecting the new church at Blackheath, at the expense of Mr. J. J. Angerstein, struck from work, in consequence of some dispute. This is the third time a similar course has been adopted by them within as many months; concessions on the two former occasions having been made to their demands. In their third experiment they have failed; the whole of them, including the foreman, having been paid their money and discharged. Other hands are now being engaged, and the work is not likely to suffer much delay in consequence.

Kidmore-end, Oxon. — St. John's district church was consecrated on Friday in last week. The church is in the Early English style of Gothic architecture, from a design by Mr. Arthur Billing. The plan is that of a double parallelogram, consisting of a nave, chancel, north porch, and small vestry. The nave is 60 feet long by 22 feet wide, and the chancel 17 feet by 20 feet, the east end of an apsidal form. The nave is lighted with simple lancet windows on the north and south sides and at the west end. The glass to two of these windows is a donation from Mrs. Brandreth and Mrs. Nind, being filled with Powell's figured quarries, and having texts of Scripture inserted. Between each window a buttress of two stages is introduced, dividing each side of the church into four bays: in the second of these, on the north side, is the porch, which is of stone, having a doorway with columns at the sides and moulded arch above. It has a timber roof of open framework, the gable surmounted with a simple cross in stone. The roof to the nave is of open framework, with lancet pointed framing to the principal rafters. The west front is terminated by a gable turret to contain one bell, and of a simple character. The chancel, which is the most striking feature of the church, has a stone groined roof supported by columns placed between each of the windows, the stone ribs of which are moulded, and have the characteristic enrichment of the dog-tooth ornament executed throughout them. It is lighted by seven trefoil-headed lancet windows: the centre window, immediately above the altar, contains a painting of the Crucifixion in stained glass, executed by Warrington, being the gift of the architect. Two other windows in the chancel are filled with stained glass, executed by a lady residing in the parish. The chancel arch embraces nearly the whole width of the nave. The sittings are all free, and accommodate 220 persons: they consist of plain open benches. The whole of the woodwork has been stained and varnished. The walls are built of flint, with Bath stone dressings and groins to the windows and buttresses. The building has been carried out by Messrs. Biggs and Wheeler, of Reading.

Higher Brixham. — St. Mary's Church, Higher Brixham, according to a Devonshire paper, is undergoing extensive repairs, and the seats are being re-modelled. The vestry is to be placed within the church, near the entrance: it was previously at the eastern end, and caused great inconvenience to the clergyman in passing to and fro. The Rev. Robert Holdsworth, the vicar, has presented a window of stained glass, and a lady of the same family an altar-piece. The north transept, occupied solely by Sir J. B. Y. Buller, bart. and family, is, at his own cost, being "beautified" and fitted up. The church is above 400 years old, and it will only need a little additional liberality on the part of the parishioners to remove the rough cast from the tower, in order to render—the edifice a credit to the town.

Wolverhampton. — The restoration of the collegiate church, according to the local *Chronicle*, has at length been commenced. The contract for the external portion of the fabric (with the exception of the chancel, for the reparation of which the Ecclesiastical Commissioners, or their lessee the Duke of Cleveland, are, or are supposed to be, liable), has been undertaken by Messrs. Higham, under the superintendence of Mr. Ewan Christian, the architect to the Ecclesiastical Commissioners. It appears from his report, that the estimated expense of the exterior work will be about 6,000*l.*; that is to say, for the repair of masonry or for drainage, 3,337*l.*; for the repair and renewal of roofs, 2,000*l.*; and for re-glazing the church, 193*l.*: these sums amount to 5,530*l.* to which is to be added, as an allowance for contingencies, 470*l.*; making the total of 6,000*l.* The restoration is to be taken in sections: the formation of a dry area along the north and south aisles, as a protection from damp, is already commenced; and the south aisle, clerestory, porch, and tower will probably soon be proceeded with. The west end of the church will, it is believed, be reconstructed, and a more appropriate window introduced. Of the sum required for the repair, 3,000*l.* will be given by the Ecclesiastical Commissioners, and about 2,000*l.* has been promised in the way of subscriptions. The sum of 1,000*l.* is still required.

Hull.—The inauguration of the new synagogue took place on 26th ult. The pews are of oak, and will accommodate about 200 persons on the floor, and about 80 more in the ladies' gallery. The several works have been completed by Mr. James Brown, builder; Mr. T. Clarkson, joiner; Mr. Smith, plumber; and Mr. Hilken, painter, after the designs of Mr. W. D. Keyworth, of Hull, architect. The building is warmed by hot-water apparatus supplied by Messrs. Wilson and Woodfin.

Wrawby parish church, near Brigg, having been closed for several weeks, for the purpose of making some alterations, and thoroughly cleansing the whole interior, was re-opened on 26th September. The restoration has been under the superintendence of the architect last named.

Leeds.—The foundation-stones of two new churches were last week laid in the parish of Leeds, each of them, says the *Leeds Intelligencer*, in a district thickly inhabited by the hard-working sons and daughters of toil, whose physical, moral, and spiritual condition is exciting the attention and sympathy of both clergy and laity. The chief stone of the first of them, namely, the Church of St. Jude's, Pottery-field, Hunslet, was laid on Tuesday in last week. A bottle, containing a florin (bearing the date of the present year), and a brass plate, having engraved on it the names of the committee, the architect, &c. were deposited by the architect in a cavity made for the purpose. The florin may thus have a chance of being seen by some future generation, which is more than can well be said by most of that now living, who may never see it any more than its predecessor of F. D. notoriety: a coin a little more characteristic of the era should have been added. The plan of this church consists of a spacious chancel, with sacristy and organ chamber in the south side; a nave and lean-to aisles, 85 feet in length, having the tower at the west end of the north aisle. It is intended (should the funds—400*l.*—be provided), to surmount the tower with a lofty spire. The works are progressing rapidly under the management of the architect, Mr. Philip Boyce, and it is hoped to complete the fabric ready for consecration in about twelve months' time. The other church alluded to is one at Buslingthorpe, to be dedicated to St. Michael and all Angels.

Aberdare.—A new church has just been opened in this rapidly increasing town. It is of the Decorated style, and consists of a nave 82ft. 6 in. and 23 ft. wide, from centre to centre of columns; aisles, 82 ft. 6 in. by 13ft. 9 in.; and a chancel, 30 ft. by 20 ft. North transept and north-east vestry, with organ-loft over, 18 ft. by 16 ft.; and a north porch. The height of the church in clear is 50 ft. The tower is placed at the west end, 15 feet square in the clear, and height with spire, 180 ft. The windows are worked in Coombe Down Bath stone, double jointed, the walling of Duffryn stone, pointed with blue mortar, with rusticated quoins of Bath stone. Four Bath-stone columns, with octagonal caps, separates the nave from the aisles. The roof is an open timbered one, stained and varnished, as also are the seats to imitate oak. The church is heated on the hot-water principle. The site chosen is an elevated spot in the centre of the town, and it forms, with its lofty spire, a very conspicuous feature. It affords accommodation for about 900 persons. The cost is said to be 4,000*l.* Mr. A. Mosely is the architect, and Mr. Strawbridge, jun. of Bristol, the builder.

SOMERSETSHIRE ARCHÆOLOGICAL SOCIETY.

The fourth annual meeting of this society was held last week in Bath, and passed satisfactorily. The attendance would doubtless have been larger if intimation had been given to all the members of the intended meeting and proceedings. The want of management and arrangement on the part of those who direct the various archæological congresses now annually held, five times out of six tends to lessen their efficiency. Several interesting excursions were made, and a good temporary museum formed. Mr. Gore Langton, M.P. presided, and, with the mayor and other residents, displayed much hospitality. On Tuesday papers were read on the "Necrology of Egypt," by the Rev. H. Street; "On the Perpendicular Church Towers of the County," by the Rev. F. Warre; "On Church Restoration," by Mr. C. Davis, and others.

At the dinner on that day the Rev. H. Scarth suggested that every clergyman should keep a record of all the events which occurred in his parish, and collect historical documents connected with it.——Dr. Markland, referring to the state of opinion when he first became a Fellow of the Society of Antiquaries, said—At that period every thing regarding antiquities was looked at, except by a few, with apathy. True it was, that those who loved the study were not then held up to the ridicule to which Pope had previously consigned them—

> With sharpened eye, pale antiquaries pore;
> The inscriptions value, but the rust adore.

They had got, perhaps, a little beyond this satiric reflection, but still their studies were regarded with comparative indifference. Let them, however, mark what had taken place within the last quarter of a century. The foundation of the Oxford Architectural Society, about fifteen years ago, had led to the formation of the Institute and Association, and to kindred societies in almost every county in England: amongst them, he was happy to enumerate Somersetshire. The president had, in the morning, beautifully alluded to the zeal with which the society repelled every attempt at the demolition of ancient buildings. Another duty which it had to perform was to prevent a decayed building from being mutilated and marred in its restoration. He (Dr. Markland) had lately visited Lincoln and Ely, and it was impossible to traverse the walls of those noble cathedrals without feeling something like exultation that England still possessed such edifices, and that they were so duly appreciated.

Mr. Britton, on the part of the visitors, made one of his genial speeches, and referred to the time he had known some of the local antiquaries. His young friend, Dr. Markland, he said, had reminded him that he had visited him in the year 1807. He (Mr. Brit-

ton) did remember it; and he loved him from that time forward, because he saw energy, enthusiasm, and proper feeling for true antiquity through the medium of history, which had characterised him from that time to the present; and in such matters, as they might suppose, he had found delight, because his young friend had confided to him for many years the results of his lucubrations and studies. He had within the last few days visited Stonehenge, and, although he had done so ten or fifteen times, he believed he had never viewed it with more interest.

The evening meetings were devoted to Natural History. On Wednesday, Mr. E. A. Freeman read a paper on the Perpendicular style as exhibited in the churches of Somerset. The reader enlarged on the scarceness, in English parochial architecture, of interiors which could be really considered as grand wholes: even in Somersetshire Perpendicular, though comparatively common, they are by no means so usually met with as grand towers or other external features. But some of the first-rate Somersetshire exteriors, as Taunton, Bruton, Martock, Yeovil, and Wrington, are of the very noblest kind, as perfect in their own kind, and as truly works of architecture in the highest sense, as any cathedral or abbey. He then proceeded to trace out the characteristics and history of the local style, which he distinguished as being intensely Perpendicular in the leading idea, while retaining a good deal of Decorated detail. Its germs are found long before the Perpendicular era; the Early English nave at St. Cuthbert's, at Wells, quite forestalls its general conception; it is continued in the Decorated work in Bristol Cathedral, and attains its perfection in the transepts of St. Mary Redcliffe, transitional from Decorated to Perpendicular. Most of the best examples have, like St. Cuthbert's, a tall pier and narrow arch, though there are some important exceptions to this rule, of which Bath Abbey is one of the most conspicuous. The timber roofs are often of great magnificence: when the clerestory is present, they are commonly low-pitched and tie-beamed: in its absence they are usually of the cradle form, which, also, as at Yatton, Banbury, and Congresbury, sometimes occur where there is a clerestory. There are some remarkable cinque-cento examples at Axbridge and East Brent. There are two principal types of arrangement of the arcades and clerestory, of which Wrington and Martock may be taken as respectively the best examples. Mr. Freeman compared the two at length, and, on the whole, gave his preference to the latest. He then proceeded to compare the three great churches, Redcliffe, Sherborne, and Bath. The first exhibits the local style in its noblest form, and approaches, in its internal effect, very nearly to absolute perfection. At Sherborne, in the presbytery, an instructive lesson is afforded by the manner in which a design, essentially of the same type as Redcliffe, is modified in its proportions by the architect working on the remains of a Norman church. The nave is quite different, and very inferior. In the Bath Cathedral he recognised great merits and great defects.*

Cost of Builders' Tenders.—We are every now and then consulted as to the remedy which builders have against those who advertise for tenders, find the result beyond the sum available, and ultimately employ other builders, either on lower tenders or curtailed work, giving no remuneration to any of those who really competed on the terms advertised. To all such we would wish to remark, that they have their remedy in their own hands. They ought to stipulate beforehand with the advertisers that the lowest tender will be accepted, or, if not, avoid the affair altogether. In one of the cases complained of the advertiser announced that he would not bind himself to accept the lowest tender; but, in fact, he accepted none of them, and had ultimately to restrict the work to be done, and gave it to none of the tenderers according to advertisement.

* Full reports of the meeting will be found in the *Bath Chronicle*.

NOTES IN THE PROVINCES.

Southsea.—It is proposed to erect a new pier at Southsea, near the King's Rooms. The shares, it is said, have mostly been taken for the scheme.

Llangefni.—New national schools have been recently erected by Mr. W. Rogers, of Beaumaris, from a design furnished by Mr. W. Kennedy, architect, and were opened on Wednesday in last week.

Birmingham.—The directors of the Great Western Railway Company intend to erect what is a novelty in Birmingham—an arcade. The great opening, which extends from Monmouth-street to Temple-row, is to be covered over and a street formed. On each side shops are to be constructed, the whole being covered by a light roof of glass. One end of the arcade will be opposite the entrance to the permanent station, which is to be erected upon the arches and over the tunnel at Monmouth-street. Some time, however, will elapse before either of the works will be proceeded with.

Liverpool.—Foot-passengers, it is said, are subjected to danger in passing one corner of the fencing in front of St. George's-hall, and it has been suggested that wooden posts should be placed there if the present fencing were likely to remain long. Mr. Newlands, the borough engineer, states that the working-drawings for the front approaches to the hall are all ready.

Heywood.—A meeting of rate-payers has been held to consider the propriety of applying to Parliament for an Act to light the streets with gas. Mr. Wm. Bell remarked that the town contained nearly 20,000 persons. He and others had got an estimate of the probable expenses, and found that the cost for 150 lamps was 90*l.*; 75 pillars, with lamp irons, 112*l.* 10s.; 75 brackets, 45*l.*; 75 stones for lamp pillars, 16*l.* 17s. 6d.; 750 yards of gas pipes, 16*l.* 8s. 1½d.; 150 feet of brass pipes, 2*l.* 10s.; 150 taps and burners, 5*l.* 12s. 6d.; 150 lbs. of bolts for fixing pillars, 5*l.* 2s. 1d.; 112 lbs. of lead, 18s. Fixing and erecting 150 lamps, 22*l.* 10s. Making a total for fixtures of 317*l.* 8s. 2½d. The probable expenses of 150 lamps lighted with gas for 2,000 hours, was 187*l.* 10s.; two lamplighters' wages, for 26 weeks, at 15s. per week, 39*l.*; collecting the rate, 20*l.*; repairs, &c.; making a total for lighting of 261*l.* 10s. The expenses of fixing and lighting for the first year would amount to 578*l.* 18s. 2d½.; and a rate of 8d. in the pound upon 18,000*l.* (value of property in boundary) would amount to 600*l.* The lighting after the first year would only require a rate of 3½d. in the pound.

Kidderminster.—The inhabitants of this town are about to erect a monument to Richard Baxter. The Archbishop of York and Bishop of Manchester have approved of it, and promised assistance, and one gentleman will give 100*l.* The monument is to be placed in the parish church.

Alnwick.—On Wednesday in last week the chief stone of new borough schools, designed by Mr. Thomas Robertson, architect, was laid by the Duke of Northumberland.

The Tyne and the Tees.—Breakwaters are to be formed, if practicable, by the Admiralty, one at the mouth of the Tyne, another at the entrance to Hartlepool harbour, and a third at the mouth of the Tees. Captain Vetch is said to be now surveying the coast and the river Tees with Mr. Bald, C.E. The Tees breakwater will be upwards of a mile in extent, and will include the deep pools, which, in Mr. Bald's report upon the navigation of the river Tees, were stated to be capable of floating ships of the largest size at low water. Material is near at hand. A report and plans for effecting this are before the Admiralty, designed by Mr. Murray, C.E.

Middlesborough.—In connection with these improvements on the coast, a contemporary states that Middlesborough, which but a few years since contained only one house, numbers a population of nearly 10,000 persons, most of them brought hither by the working of the mines of iron, lately discovered in the Cleveland Hills, and from which all the branches of the iron trade are springing up as rapidly as works can be brought into operation. The vast iron mills, furnaces, and forges of Messrs. Bolckow and Vaughan now turn out nearly 1,000 tons per week. The foundries of Messrs. Gilkes and Co.; earthenware works, ship-building yards, a capacious dock, &c. occupy the land which a few years since knew no inhabitant. This little town bids fair, it is said, to rival all the great iron manufacturing districts in the kingdom; having advantages they cannot lay claim to; and improvement in the river will give it superiority in the commercial departments of its trade. Great as have been the metamorphoses of this place, fresh blast furnaces are rising up around it nearer to the "Iron Hills;" and Mr. Pease, who has bought property two or three miles out of the township, towards the mines, has petitioned the Privy Council to have it included in the township, upon an application which is being made for a charter of incorporation.

Jersey.—Victoria College was opened on the 29th ult. The foundation-stone was laid on 24th May, 1850. The building, as described in the *Jersey Times*, will accommodate 400 pupils. The principal hall, in which the ceremony of the opening took place, is 100 feet long by 28 feet wide: the west schoolroom, joining it at right angles, is 50 feet long by 22 feet wide. The turrets of the façade are 84 feet high. The architect of the building is Mr. Hayward, of Exeter; the contractor, Mr. Joseph Le Rossignol; the surveyor, Mr. Gallichan. Sir James H. Reynett, K.C.H. ex-lieut.-governor of Jersey, was expressly invited by the States to assist at the opening ceremony. The College-grounds, in front of the building, will be laid out under a plan prepared by the architect. The walks will consist of a series of terraces; the first, 18 feet from the frontage, with a flight of steps in front, and one at each end, with a cut granite support-wall, level with the terrace: the second, or lower one will be 25 feet broad, with a flight of steps in front, a defence-wall at the western end, and a defence in front, of granite pillars and chains, with gas-lamps at the ends: in front of all, the grass-plots will slope to the shrubbery.

BUILDINGS AND DOINGS IN IRELAND.

Our correspondent states that upwards of 250,000 persons have within the last year visited Ireland, mainly through the cheap excursion trips introduced through the agency of Mr. C. P. Roney, and have circulated a million of additional capital through the country. We were well aware of the inducement these offer, but were not prepared to hear of such a number of visitors as this.

The new "monster house" competition is decided: Mr. Caldbeck gets first premium, 25*l.*; and Messrs. Murray and Denny the second, 15*l.* The plans furnished by Mr. W. D. Butler are, however, purchased, and his design for the front elevation is to be carried out.

The Killarney Junction Railway Company (encouraged by the great influx of visitors) are about building a spacious hotel at Killarney, to contain a coffee-room, with retiring room off same, billiard, smoking, and private sitting rooms, bar, housekeeper's apartments, and culinary offices, together with sixty or sixty-five bed-rooms. The architect is not yet decided upon: the expense will probably be 6,000*l.* Some capitalists have been inspecting sites near Mangerton for the purpose of building private dwellings, and these intended works will, no doubt, give great employment to the poor of the locality.

An infant school and a market house are to be built at Listowel.

The Ulster Railway extension line is proposed to proceed by Glasslough, Monaghan, Clones, and Belturbet to Cawan, and join a railway to be constructed by the Midland Great Western Railway Company from thence to Mullingar. The intended outlay is 350,000*l.*

A new mechanics' institute is projected at Limerick.

Additions to Skibbereen workhouse are to be built.

An asylum for the orphan children of those

who perish at sea is to be immediately erected adjacent to the Claddagh school, Galway.

The foundation-stone of a new military church and schools at Birr has been laid.

Mr. Dargan has contributed an additional 6,000*l.* towards the Dublin Industrial Exhibition.

At Galway the Board of Works are reclaiming a large piece of ground with the rubbish from the excavations of the river, and it is proposed to build thereon. The tract of marsh, &c. between the Terryland embankment and the Wood Quay is being converted into a spacious plain.

The tunnels at Downhill, on the Londonderry and Coleraine Railway are being cleared out, and roofed with bricks. The rock near Magelligan is to be removed, and blasting operations are being proceeded with.

Recent additions have been made to the college of St. Columba, near Rathfarnham, Dublin, and it is intended to expend 11,000*l.* more on further new buildings, which will consist of a chapel 65 ft. by 30 ft. with windows in the flanks between buttresses, and having at extremity a gable with five-light window of *Geometric* period, and at the angles pinnacled buttresses. A hall, 60 ft. by 22 ft. with piazza off same is to be added, and also a school-room, 75 ft. by 30 ft. The dormitories are to accommodate ninety students. By the new buildings a quadrangle, with arcades of pointed arches at three sides, will be formed. Central between the chapel and school-room, the entrance-tower of a square form, flanked with buttresses, and pierced at intervals with windows, is situated. The architect is Mr. Hardwicke, and the builder, Mr. Moyers, of Dublin. Style, Early Gothic.

Two new school-houses are being erected at Glan, county Galway, and buildings of a similar class have been lately erected in this locality. About five miles from Clifden a large building for ecclesiastical and scholastic purposes, to accommodate 500 persons, has been erected.

A new terminus is about being built at Drogheda by the railway company. Mr. G. Papworth, architect.

New school-houses have been erected at Cleggan, Roundstone, Derrygimla, Aillbrack, and Errislaunore. Model farms are attached to some of these establishments.

The Board of Ordnance intend enlarging the Military Chapel at the Royal Hospital, Dublin.

The foundation-stone of a new Wesleyan Church, minister's residence, and school-house, at Rathmines, county Dublin, has been laid.

The Packet-station Commissioners have decided in favour of Foynes as the transatlantic *Irish* port, and propose to be built there a jetty near the present harbour (ensuring a depth of 20 feet at low-water spring tides); also a small rubble breakwater from south-east side of Foynes Island and floating lights off Scattery Island. Mr. Gibbons, harbour engineer, proposed to prolong Eastern Pier into 22 feet of water of the chart, and extend its front laterally 150 feet eastward. This is estimated to cost 3,600*l.* Mr. Long, district engineer, submitted a plan, showing a pier on western side, and a groyne from Foynes, at an estimated cost of 45,000*l.* Mr. Rendall submitted another plan. A modification of Mr. Gibbons and Mr. Long's plan is proposed by the commissioners, and will probably cost 12,000*l.* Two plans were submitted by Mr. Roberts, of Galway, in favour of that port—one estimated at 227,000*l.* the other at 155,600*l.*—but the commissioners were of opinion that the latter works did not provide the required accommodation. A line of railway, at a cost of 4,011*l.* per mile, is proposed to connect Foynes harbour with Limerick. To render Tarbert available, a floating-dock, with an outlay of 77,000*l.* is required.

The Birmingham Society of Artists have awarded the prize of sixty guineas offered to the artist of the best picture contributed to their exhibition, to E. M. Ward, A.R.A. for his picture of "Charlotte Corday going to Execution." The jury accompanied their award with an expression of their high appreciation of the merits of Mr. Millais' "Ophelia."

THE "PEOPLE'S PALACE" AT SYDENHAM.

The directors of this undertaking have issued a little pamphlet, stating "what has been done, and what will be done," addressed to intending exhibitors. It is scarcely important enough for its object.

The works are progressing; and last week the ground-work for fountains, &c. was let. These promise to be of a remarkable character. The basin for the principal fountain will be 400 feet in diameter, and will include, besides the central jet of 200 feet, numerous other jets of great size and height around it. It is only right to mention that the entire superintendence of the construction of the building is placed in the hands of Mr. Charles H. Wild, who had previously proved his competency in Hyde-park.

Although the design as it now stands will be a great improvement, externally, on the original structure, much more might be made of it. Sir Charles Barry, it appears, feels this so strongly, that, from national feeling alone, he submitted sketches and suggestions for its advantage some time ago, consisting mainly of an enormous dome at the intersection of the central transept, and lesser domes at the intersection of the other transepts. A mighty dome of glass reflecting the dazzling lustre of a bright sun, amidst the beautiful landscape in which the building is to stand, would certainly produce a wonderful effect. The proposed additions it was found, as we are told, would cost a large sum, and delay the completion of the works beyond the time fixed for opening, and on these grounds it seems the directors declined adopting them.

Two new lines of railway are projected to run to the intended "palace." One, the "Vauxhall and Sydenham," is to proceed from the South-Western Railway, at Vauxhall, through Clapham-rise, Herne-hill, &c. to the Dartmouth Arms Station on the Brighton Railway. The other, "The West-end of London and Crystal Palace Line," is proposed to commence at a new station on the Surrey side of the Thames close to the new Battersea-park bridge (with a possible station at Millbank), and thence proceed through Clapham, Brixton, &c. to the building itself. It appears somewhat strange that, while in the latter the directors of the "Crystal Palace Company" take part, in the first their contractors, Messrs. Fox and Henderson, are advertised as having agreed to construct the line, and to guarantee a return for fourteen years. This seems to show less unanimity than is desirable.

SIGHTS AND SCENERY.

Princess's Theatre.—Those who know *Mont St. Michel*, in Normandy, will remember what good opportunities it affords to the artist in quest of picturesque effects, and in bringing out a melodrama having this celebrated rock-castle for its name and scene Mr. Kean has not lost sight of them. The village of St. Jean, with the mount in the distance, is charmingly painted (by Gordon), and introduces a clever dance of Normandy girls in red petticoats and white aprons, evidently born of Oscar Byrn. A scene in the Chateau de Rochemont, where the soldiers of Cardinal Mazarin are destroying the furniture (in the style of the soldiers of the Commonwealth, to whom their dresses give them too strong a resemblance), has some good effects of light and some clever groupings; and the last scene, the sands under a mist, which clears off to brilliant sunrise, is creditable to Mr. Dayes. Mr. Wright, who made his first appearance here, was very funny, but has not a part with which much may be done.

The Adelphi Theatre has opened with "The Green Bushes," which should be called "The Ever-green Bushes," being always in season. The author of this piece once told us of a sailor who, after seeing it, travelled to America, and on his return, going to the Adelphi, found the same piece on the bills; and then a second voyage, and again the same play when he came back. It well deserves its popularity: full of incident and striking situations, the characters are true to nature, and afford opportunities for some excellent acting. Fun and pathos, the ordinary and the picturesque, are duly blended, and there is withal little to mar the effect even with the fastidious. As respects that with which we more immediately concern ourselves,—the scene where the faithless lover is dying, with his wife leaning over him, and Miami stands on a headland against the troubled sky, is an admirable picture, full of poetry. The audience warmly welcomed Madame Celeste on her return from America.

Dioramas.—Mr. Prout's Diorama of the *Gold Fields of Australia*, which was opened some time ago in the building next to the Polytechnic Institution, has much very excellent painting, especially in the sea views, and the painter of it who knows the country personally, gives much information that will be found useful by those who contemplate an excursion to the "diggins."——The Diorama of *The Holy Land*, at the Egyptian Hall, has rushed into new popularity, and is daily and nightly crowded. The intrinsic excellence of this work is aided by the introduction of native songs and music.——*The Wellington Campaigns*, at the Gallery of Illustration, is invested with fresh though melancholy interest by the death of its hero. A very short time before this occurred, the Duke visited the gallery, and made many valuable remarks in the hearing of the expositor, who now gives his audience the advantage of them.

DETAILS, PALAZZO AGOSTINO, PISA.

In completion of our illustration of this palace, we now give details of the window and other parts, which are all in moulded brick.

The Palazzo Agostino is its own chronicler, for all historic records of it or its founders are consigned to oblivion. It was commenced about the beginning of the fifteenth century, when Pisa first began to feel the vengeance of the Florentine Republic, and when, after a protracted siege, it was sacked by them, and 200 of its nobles exiled to various parts of the Mediterranean, and this fatal dispersion, and a following century of oppression, no doubt prevented its completion: it wants the upper story, and one-third of its façade.

The details exhibit a cherished longing for the classic past, though unable to resist the then present power of Lombard feeling, the more strongly impressed upon the Pisan mind, inasmuch as the Milanese and Lombards had for some short while before been the nominal defenders and virtual rulers of their city.

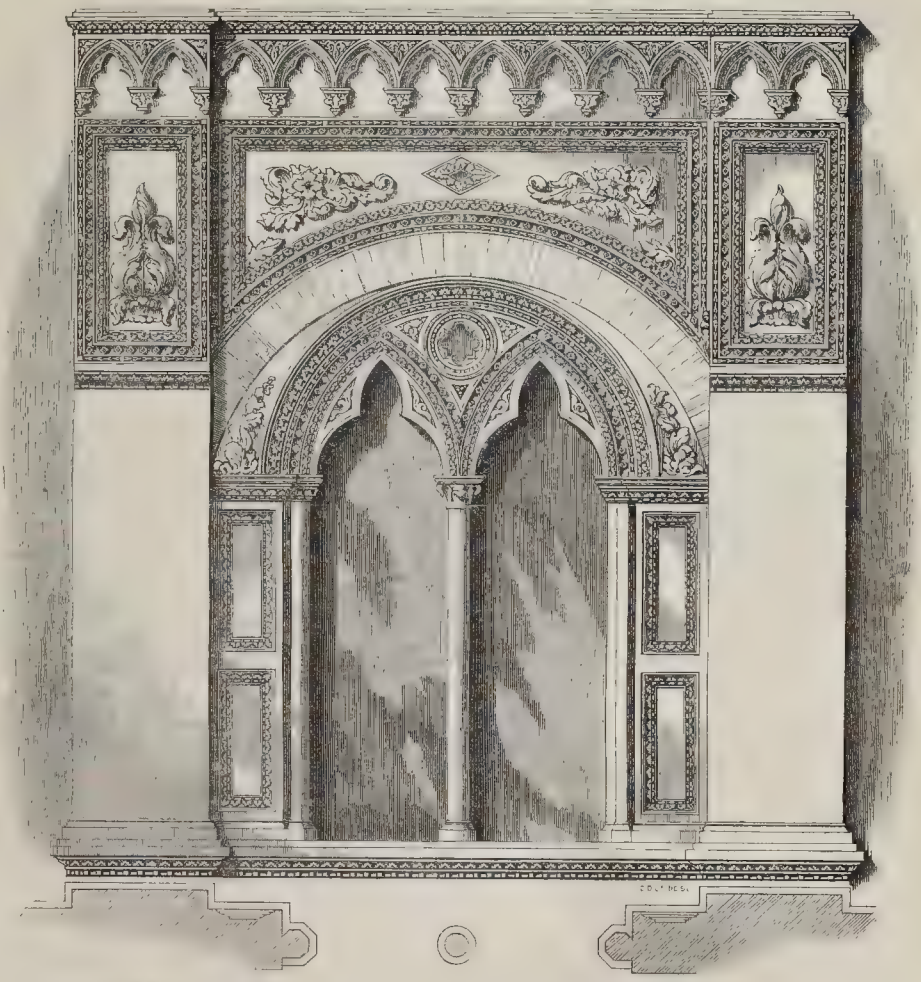
The material is a rich red clay, beautifully worked, the principal ornaments being finished *by hand, after they had left the mould*, which imparts a freedom and brilliancy usually lacking in moulded ornament, and basking, as they do, in the sunshine on the *Lung 'arno*, the foliage seems to curl and crisp for very love of light and sunshine. The ground-floor is now used as the *Caffé del' Ussero*, the first floor as the *Stanza Civiche*, and the remainder let off in numerous tenancies.

G. T. Robinson.

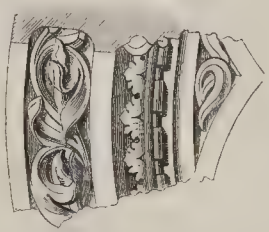
Builders' Benevolent Institution.—We particularly desire to draw the attention of our readers to the fact, that the fifth annual dinner of this thriving institution is to be held on Thursday, the 14th inst. at the London Tavern. Mr. Peto, M.P. will be in the chair, and there is already a good array of stewards. We hope that the trade in particular will well support Mr. Peto, and respond liberally to the appeal on the part of the charity, so as to enable it to have another early election of pensioners, and to increase the number to twenty at least. There are only fifteen at present on the funds, and there were nineteen candidates at the election in May, of whom three only could be elected, thereby leaving sixteen disappointed. The young institution has done wonders, but not so much as it ought, if we consider the immense number of affluent men who are connected with the building trade. Such an institution ought to become in a few years the largest and richest in the metropolis.

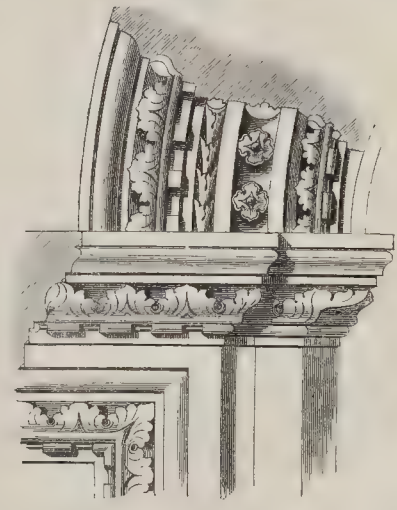
DETAILS OF THE PALAZZO AGOSTINO, PISA.

WINDOW ON FIRST FLOOR, AND UPPER STRING-COURSE.









WELLINGTON.

THE offered premium of 150*l.* by the Art-Union of London, for a bas-relief, illustrative of an incident in the Duke of Wellington's life, will, we trust, lead to the production of a fine work of art. Besides issuing a considerable number of reproductions in bronze, the council will probably engrave it for general distribution, and thus spread to all parts of the kingdom and the colonies the artist's reputation. Should there be several works of merit, the council might engrave a series of them.

It is to be hoped, though scarcely to be expected, that artistical assistance will be obtained in the arrangement of the Duke's funeral.

Many memorials are spoken of. They cannot easily be worse than some which already exist. At Brighton it is proposed to restore the Old Church, where the Duke was once in the habit of attending, as a memorial to him. The cost is estimated at 5,000*l.* At Oxford, a stained glass window in University Church has been suggested. At Manchester, it was proposed to rebuild the tower of the cathedral, to be afterwards known as the "Wellington Tower;" but a statue has been determined on.

A good opportunity offers itself for the subscribers to the Wellington memorial now disfiguring the arch at Hyde Park Corner, to take it down and place it where its chief merit, its gigantic proportions, may be appreciated. It might be arranged so as to form a noble memorial of the great commander. At present it is a loud-crying disgrace to all the parties concerned, and serves only to provoke a jest or a groan: it is a standing memorial of bad taste and broken faith, and an insult at once to the nation and to a great Memory. Our project would not stand still for want of funds: money to lower it would be raised without difficulty, for the reason that a broken-winded clarionet gets sixpence to "move on."

MR. FINDEN, THE ENGRAVER, AND THE ART-UNION OF LONDON.

MR. WILLIAM FINDEN, the historical engraver, who died on the 20th of last month, executed a large number of fine works, particularly the sofa picture of "George IV." by Lawrence; Wilkie's "Village Festival," and many of the plates in the "Gallery of British Art." The last work of importance on which Mr. Finden was engaged was an engraving for the Art-Union of London, after Hilton's picture in the Liverpool Town Hall, "The Crucifixion." A contemporary, who, through some peculiar feeling, is unfortunately never able to exercise his ordinary judgment when speaking of the Art-Union of London, says, as a reason for the inferiority, as he thinks, of "The Crucifixion" to some of Mr. Finden's other works,—"A great engraver is, indeed, reduced in the world when he undertakes to work for an Art (we had nearly written a poor law) Union, for all who have worked for societies of this nature have wrought with a sense that they were doing what poverty alone compels them to do—and their works have exhibited corresponding traces that the hand had lost its cunning, and the heart its good will."

That the public may not be misled on this point, we will mention that "The Crucifixion" was a picture selected by Mr. Finden and his brother for engraving as a private speculation, but feeling, probably, that it was too heavy an undertaking for them, they urged the council of the Art-Union to take the responsibility of it. This the latter consented to do, and they agreed to pay Mr. W. Finden 1,470*l.* for engraving it, which included 210*l.* for the copy of the picture previously obtained by Messrs. F. He agreed to execute it in three years, but more than five passed before it came into the hands of the council. The impressions are to be issued as prizes only, in limited numbers, so that he could have had no fear, supposing the engraving properly executed, that impressions would be distributed from a worn-out plate. He had every inducement indeed, and, as he professed, the greatest desire to produce a fine work: any inferiority that may be observable must be attributed to the approaching infirmities of the departed engraver.

The objectionable observation we have quoted would disgrace English engravers, if it were true. In the exceptional cases, where engravers commissioned by the Society have produced inferior works, let the discredit rest where in justice it should, on themselves alone.

THE COMMERCIAL TRAVELLERS' SCHOOL COMPETITION.

FIFTY sets of designs were submitted to the committee, in reply to their advertisement, the estimates varying from 8,300*l.* to 32,000*l.* Mr. Hardwick and Mr. Wood were called in to advise upon these, and recommended seven. The committee, we understand, adopted the order in which the referees placed these, and have awarded the first premium (100*l.*) to Mr. G. O. Lane; the second (50*l.*) to Messrs. Garling and Blakesley; and the third (25*l.*) to Messrs. Banks and Barry.

The signatures of the selected seven were—"Argonaut," "Spes 1," "Fides," "Britannia A. 6," "Credamur," "Consider the fortune of thy Son," and "*Non quo sed quomodo.*" We believe this was the order in which they were placed by the referees, but are not certain.

Many of the designs showed skill and knowledge, as well among those that were not selected as those that were, but not one, we should think, would answer the purpose of the committee. It was grievous to see so much labour and thought wasted through want of complete knowledge of what is wanted, and which personal communication between the architect and employer can alone supply.

We are anxious to remove the impression which we understand exists in the committee, that having *rewarded* the authors of the selected designs, they can now employ any other person as their architect. Such a proceeding would be most unjust. The premiums afford no inducement whatever to go into an undertaking of this kind. If these were the sole reward looked for, the competitors might have gained more without drawing a line, or giving a moment's thought; and we will tell the committee how. At the very least 5*l.* as an average, of hard cash (more indeed), has been expended on each of the fifty sets, quite irrespective of time and labour. If the competitors, instead of spending it, had clubbed their money, and drawn lots, it would have given them three larger premiums, without the anxiety, thought, and expenditure of time which have been required. Those who competed looked of course to the higher reward of carrying out their designs.

ENLARGEMENT OF BRITISH MUSEUM.

THE purposes and contents of the National Museum now press so closely on its limits, that the plan of Mr. Hosking for its enlargement, sketched out in his mind even while the main building was in course of erection, and formally but unavailingly offered by him for the approval of the trustees in November, 1849, is now more and more forcing itself into notice as a matter of necessity; but the writers in the daily press who urge its adoption, appear to have lost all recollection of its true paternity, and speak of it as a sort of general property, modified and altered by one and by another according to fancy. We think it but justice to Mr. Hosking, therefore, as we originally published his design both by text and by illustration, not only to refer our readers to page 296 of our volume for 1850, where both plan and details appear, but to reprint the main features of the proposal in Mr. Hosking's own words, as presented to the trustees of the Museum in 1849:—

"My project is, then, to build in the middle of the quadrangular court, inclosed by the present main buildings of the museum, in the manner shown in the accompanying plan, a modified copy of the Pantheon at Rome,—that is to say of the cupola-covered rotunda known by that name,—as nearly the full size as possible, consistently with the size of the area, and with the height of the present buildings, and so to form a grand central hall for the exhibition of the finer and more important works of sculpture, and of such other objects proper to the purposes of the Museum as most require that steady and equable light which is so well obtained from the eye of a cupola. A quadrilateral hall, to contain ample staircases, would lead from the present entrance vestibule of the Museum into the grand central hall or rotunda, and by the floor of the rotunda itself, or by a corridor about it to the east, west, and north galleries respectively, through new compartments added to them on the level of the floor of the lower or principal story of the Museum; and the staircases would lead up to a bridgeway or continued landing on the floor of the upper story, where another similar corridor about the rotunda would afford similar facilities of access to the upper, east, west, and north galleries, whilst the bridgeway would also make the communication complete to the south gallery. The formation of staircases in the place and manner indicated would allow the space now occupied by the grand staircase to be restored to the purposes of the Museum, and thus make the circuit complete in both stories, whilst every part would be rendered, by the before-described arrangements, alike accessible from a common centre." * * * *

"The additional room which this project would give to the Museum is, 1st, The great central hall, with one floor of 120 feet in diameter, yielding an area nearly equal to twice the area of the present Athenian or Elgin Marbles Gallery; 2nd, Two inscribing octagonal corridors, each 10 feet wide, and each comprising an area of between four and five thousand superficial feet, and each also presenting niches fit to receive statues, and extensive wall surface fit to receive sculptured reliefs and inscriptions; and, 3rd, The connecting galleries on the east and west sides, each 45 feet by 35 feet, and in both stories; the north connecting gallery 65 feet by 50 feet in the principal story, and 35 feet by 50 feet in the upper story, and the site of the present staircase in both stories. This additional room may, the author believes, be obtained at a cost not exceeding that of any one of the existing sides of the Museum."

LIMERICK MARKETS COMPETITION.

The trustees, after some adjourned meetings, have come to a decision respecting this competition. Out of fourteen designs, the committee selected *four* for final consideration, and have awarded the first premium of 75*l.* to Mr. Atkins, of Cork; the second, 35*l.* to Mr. Neville; and the third, 15*l.* to Mr. Nagle. From the proceedings of the trustees, the press was excluded, and of this the local journals complain much; but we know that, previously to the decision being come to, Mr. Atkins came forward and pledged himself that his plan should be executed for the stipulated amount, 10,000*l.* When the intended works are erected, the small city of Limerick will be able to boast of what the metropolis of Ireland cannot. All who know Dublin must be aware that there is not a public market in the city except Smithfield, and this is perfectly destitute of all the requirements for market purposes, which even the *Corkonians* possess on a small but comprehensive scale.

SMALL PIPE DRAINAGE.

METROPOLITAN COMMISSION OF SEWERS.

AT a special meeting of the commission last week, on opening certain tenders advertised for, for works in Church-lane, St. Giles's, Mr. Hosking said he saw that they were rendered necessary by the failure of certain works executed there, not very long since, at a cost of 1,200*l.* He thought that the Court ought to be informed of the reason of the former failure. It seemed to be the result of draining by pipes, not much larger than tobacco-pipes, which had failed, and thus very nearly doubled the expense of draining this locality. He made no reflection upon the way in which the work was done, but he considered the case a very important piece of evidence as to the inefficiency of a certain system which had been applied. He was not quite prepared to say that pipe-drains would not answer in any other locality, but on this occasion the fact of their being unfitly applied was an important consideration. The drainage had failed: the houses had been injured and rendered insecure: the original estimate had been nearly doubled, and now they had to dig up all their works again, and substitute others for them at a large outlay. In order to drain these houses they had laid down pipes, erected a large water

tank, and incurred a ground-rent, and now, they were required at a great expense to dig up all this and alter it. As this was so, he required a succinct history of the case—the failure of the pipes, and the reason of the failure.—It was accordingly ordered that this should be prepared.

We have had a shower of letters on the subject, including statement respecting Croydon and Rugby, and must find an opportunity to look at the whole together.

AERIAL NAVIGATION.

FLYING MACHINERY AND AIR ENGINEERING.

The first partially successful attempts have now been made to obtain such dominion over the air as man has long exercised in shipping over the ocean; and although still in a very rudimental state, there is every prospect of a complete accomplishment of this grand desideratum, of which we have always been sanguine; more especially so soon as the steam or other engine could be made practically available.

At the Parisian Hippodrome, according to *Galignani*, an experiment in aerial navigation recently took place. The aerostatic machine, which was to ascend on this occasion, is the invention of M. Giffard: it is an oblong cylinder, somewhat in the form of a fish, of about 120 feet in length, and about 20 feet in diameter at its thickest part, and gradually tapering off at both ends. The directing apparatus is a very small and, it is said, beautifully-finished steam-engine, setting in motion a propeller, resembling in form the screw used in steam-vessels: this is suspended at about 20 feet beneath the balloon, from a long boom, which is attached to it, and which supports, at its extremity, a triangular sail. The preliminary preparations having been completed, the machine rose and went rapidly before the wind. Suddenly, by the action of the apparatus, its course appeared to receive a check, and it slowly veered round, thus proving some command of the aeronaut over his aerial vessel. It then, however, steadily and gradually proceeded in the direction of the wind, until lost in the distance.

A first step in the science of practical aeromotion, however, has thus been made; and had the propeller, which seems to have been a very inefficient instrument, been better adapted to its new uses, doubtless something more than mere turning might have been in this case effected. But, in truth, this propeller seems to have been nothing more than a mere steering apparatus, and the engine may be said to have had no proper apparatus at all through which to exert its force in such an element as the air.

A somewhat better and more hopeful idea, so far as regards screw propelling, appears to have been entertained in the design of a flying ship now on the stocks at Hoboken, near New York. In this case the floats or oblong cylinders containing the gas appear to be converted into a sort of screw propellers themselves, and are intended to revolve by means of straps, communicating to them the power of a steam-engine suspended from them below, along with the car which is 64 feet in length, very sharp at either end; width, 6 feet; height, 6 feet 4 inches; the whole composed of a strong light wooden frame, covered with canvas, with doors and glass windows. The boilers are of copper, on the tubular plan, and occupy a space equal to 4 cubic feet. The engines are said to be very perfect, being composed of gun metal and cast steel: they are of twelve-horses power, and are to work 20 inches stroke sixty times per minute, and will give 400 revolutions of the floats, which are placed on a substantial framework on the top of the car. There is sufficient room for twenty-five passengers, with fuel for four hours. The float is 260 feet in length, of a cigar-like shape, 24 feet diameter in the centre, and has a gas capacity equal to 95,000 cubic feet, which gives a lifting power equal to 6,500 lbs. The entire weight of the car, floats, and fixture, is about 4,000 lbs. leaving 2,500 lbs. surplus. It is designed to run about 200 feet above the surface of the earth, at a rate of speed varying from 25 to 50 miles per hour. The engines are a curiosity, their weight being 181 lbs. They are to be worked with coke and spirits of wine. The inventor of this machine is a Mr. Robjohn. He has expended 5,000 dollars already on his project, and has thus entirely exhausted his means, and awaits the help of some sanguine capitalist to enable him to wing his way to California or elsewhere.

A still farther and more decided step in advance than that already made at the Hippodrome, Paris, has quite recently, it seems, been made on the French frontier, at Luchon, by an aeronaut named Molés, who is said to have actually travelled five to six miles in a definite direction and back within half an hour to the spot whence he set out, besides wheeling in the air, and making a tour round the basin of Luchon and adjoining villages. In this case no engine was used, but if the report of M. Molés's success be true, his apparatus ought to be regarded as, in some sense, a model, by means of which to remedy the defects of M. Giffard's machine.

The apparatus of M. Molés is thus described in the Paris *Constitutionnel*:—"It consisted of a balloon of an ovoid shape, inflated with hydrogen gas, of merely sufficient size to support his weight, and that of the articles he had with him, and at the same time to have an ascensional power. To the net-work of the balloon was suspended a small table, on which Molés lay on his belly, his back being also secured to the net-work. To each of his legs between the knee and the instep was attached a kind of umbrella, acting freely on its sticks, and the opening of the silk of which was turned outwards. In each hand was a sort of hand-screen of silk, opening with hinges, and expanding or contracting at will. A rope from the valve of the balloon was placed round his neck, and round his body was a belt containing sand, and about six or seven pounds of shot as ballast. When the signal for letting go was made, the balloon rose gently to a height of about 200 yards. The aeronaut then began to make use of his means of impulsion. His legs were alternately crossed, and then put out at full length, the first motion closing, the second opening the umbrella, giving a *point d'appui* upon a large surface of compressed air, and causing the balloon to advance, whilst the arms were moving in the same direction. The atmosphere being at this time calm, the aeronaut found no difficulty in directing himself in a straight line on the axis of the valley towards the north, and the speed appeared to increase progressively as the apparatus worked better. * * * Returning to his starting-point, he came to the ground slowly in the same meadow from whence he had risen. It is more easy to conceive than express the enthusiasm and excitement of the crowd of persons who had assembled. The aeronaut was conducted in triumph to his residence, and he has announced a second ascent for Sunday next. It is to be hoped that there will be then a little wind, in order to ascertain whether that will not prove an insurmountable obstacle. Antonio Molés has assured us that he has the means of overcoming any difficulty of that sort, as readily as the best vessel on the ocean."

We hope we shall hear no more of such absurd exhibitions as those of late imported from Paris. The only good they have latterly done, perhaps, is to familiarise the mind with the idea of a quarter to a half hundred people being transported through the air in one machine. The American one, which is to carry twenty-five passengers, is thus far no novelty. As for the manœuvres of acrobats and such like exhibitions, they are still worse than the suspension of mere cows and horses, and in the same rank must be placed a recent project for ascent while merely holding on by the keeper of a magnet hung below the car.

Mr. Jas. Fillans, Sculptor.—We are sorry to have to announce the death of this able sculptor. We have a strong recollection of a noble head of Professor Wilson executed by him.

IMPROVED DWELLING-HOUSES FOR THE WORKING CLASSES AT NOTTINGHAM.

About two acres of building ground have been purchased at Nottingham by an association formed some time since for the improvement of dwellings for the working classes, and building operations are to be immediately commenced. Tenants are already appearing before a single stone has been laid. The dwellings at present inhabited by the working classes in Nottingham are much overcrowded, and exceedingly defective in every respect, while the rents are high, and the poor people are often even obliged to pay bonuses for the privilege of entry. The *Nottingham Guardian* thus speaks of the plans on which the new dwellings are to be erected:—"The first step taken was to advertise for plans for two descriptions of houses—one kind to cost 130*l.* in the erection, and the other 100*l.* Two prizes—one of 20*l.* and the other of 10*l.*—were offered for the best designs. Seventeen sets of plans were sent in. At length it was resolved to award the first prize to Messrs. C. C. and A. Dennet, and the second to Mr. J. S. Norris. The first set of cottages designed by the Messrs. Dennet—those costing 130*l.*—are two stories in height. Each contains four bed-rooms, one parlour, a kitchen and pantry, a scullery, and a place for fuel, while behind there is a separate yard, with privy and other conveniences. The exterior is proposed to be executed in stucco with cement dressing. The rooms are large and airy: provision is made for a regular and copious supply of hard and soft water: the ventilating arrangements are excellent, as are also those for washing and other domestic operations. The ground plan of the 100*l.* houses is precisely the same as that of the others, the only difference being that the rooms will be a little smaller: in other respects the plans are identical, down to the minutest detail. Upon the ground floor of the more costly houses, in Mr. Norris's designs, there are an entrance lobby, a parlour, a kitchen, a pantry and place for fuel, with an enclosed yard at the back. The chamber story consists of four bed-rooms. As the houses are proposed to be set back from the street, there is thus allowed a small garden to each, of about 10 feet in width, enclosed in an iron pallisade. Each kitchen is provided with a copper and sink stone, with water tap over, and also with a moderate-sized range. Much care has been bestowed with respect to ventilation. The plan of the 100*l.* houses differs from the above only in the diminished size of the kitchens, and in each dwelling having only three instead of four bed-rooms."

OUR ESTATE AGENTS OF 1852.

Many of your readers imagine the days of the George Robins style of advertising house property are gone for ever, but an occasional perusal proves that there yet remain a few who endeavour to tread worthily in the footsteps of their great departed leader. The *Times* a few days since contained some choice tit bits that ought to be remembered and cherished by your readers as quotations that cannot fail to be useful to them when obliged to resort to "puff." The following are all from a "West-end agency office, whose aim is by advice and system, and *conflux* of intelligence, to accomplish the utmost wishes of his applicants," and therefore are "the special newspaper announcements subjoined:" First, "A *semi-suburban semi-provincial* residence, *hireable* * * * near the incomparable resort * * that five-arched stone bridge spanning yonder wide, refreshing river, *meandering* with *majestic* course through a *fertile happy valley* till lost in woodland *rural* scenery. * * * The *enjoyable home* contains * * * * and a *category* of erections * * * garden almost overpowering with brilliancy and fragrance * * * lawn of *beauteous herbage* * * * kitchen garden burdened with fruitage, and cumbrous in vegetative productions!" Second, "A gentleman's cottage * * * with a cow in full milk." Third, "A small country seat * * * situate on the rise of a picturesque hill * * * with *luxuriant orchards, rich*

paddocks, pre-eminently combining the attractions most alluring to the lover of country life." Fourth, "*Autumnal retreat* * * * *hireable for a few weeks.*" Fifth, "Mansion and manor * * * with a *mahogany* staircase and *hall*." Sixth, "Part of a house at * * * a happy town embosomed in the antiquated domain of * * * the great seat of the noble house of * * * The advertiser seeks for an agreeable occupant * * * to enjoy the common delights of the favoured colony." Seventh, "Legislator's metropolitan seat. The district of * * * has long ago won the prize of all the *segments* of London in pre-eminence of situation for families of fashion, but especially for hereditary and representative rulers of the land, whose places of assembly are *proximation* * * * is distinguished by an exterior and portico of more than mediocrity, while capaciousness conjoined with refined taste characterises the interior, which numbers duplicate *recherché* * * * besides a four-bedded attic, all procurable at a low rent." H. WEBSTER.

HOURS OF BUSINESS IN BUILDERS' OFFICES.

YOUR strenuous advocacy of the cause of labour induces me to address you upon a subject of much importance—the hours of business in builders' offices. There is, perhaps, no class of clerks of whom so much is expected as those connected with building, and who are so indifferently remunerated.

We are expected to be fully competent to fulfil the several duties of architect, builder, and artizan, to be thorough draughtsmen and accountants, and yet be practically acquainted with work. We are to be thus qualified and fully up to the latest improvements in the science and art of building, and yet to be worked early and late. We are not allowed sufficient time after business to attend the learned societies or unite for self-cultivation. My present object is to call attention generally to the subject, with the ultimate aim of reducing the hours of business to the uniform standard of from nine to six, believing that between these hours a man may do a fair day's work for a fair day's pay (when he can get it). A BUILDER'S CLERK.

Notices of Books.

A Treatise on Investments; being a popular Exposition of the Advantages and Disadvantages of each Kind of Investment, and of its Liability to Depreciation and Loss. By ROBERT ARTHUR WARD, Solicitor, Maidenhead, Berkshire. Second Edition, greatly enlarged. London: Effingham Wilson, 11, Royal Exchange.

THE first edition of this useful book, it appears, has been rapidly exhausted,—a clear confirmation of the correctness of our estimation of its merits in bringing it under the notice of our business and our moneyed readers. Much additional matter has been inserted in this edition of the work. New chapters have been added, on the consequences of the gold discoveries on the value of property, on joint-stock undertakings, building societies, turnpike bonds, mining speculations, and railway shares. A suggestion is thrown out in the chapter on partnerships for carrying out schemes of *quasi* partnerships with limited liability under the present state of the law. A quotation of the whole of the latter portion of this chapter may be useful.

"The liability of a retiring partner ceases on his dissolving the partnership, removing his name from the firm, and giving proper notice of the dissolution. If the retiring partner do not remove his name from the firm, he gives strangers cause to disbelieve his notice of dissolution, and he will, therefore, notwithstanding it, continue liable; although, if the non-removal of his name be not the result of his own negligence, but the consequence of a wrongful perseverance by his late partner in not using it, he will not be prejudiced.

Until the world is made acquainted with the dissolution of a partnership, the retiring partner will remain responsible for the engagements of the firm. Notice of dissolution, published in the *London Gazette*, is sufficient for those persons *who have not been in the habit of dealing with the firm*, because, as they are not *ascertained* individuals, it is impossible to give a particular notice to each; but to those who have transacted business with the firm, *express* notice ought to be given, because they are *known* persons; and the dissolution being for the benefit and accommodation of the retiring partner, he, and not his customers, must have the trouble and expense of making his retirement known.

There is no doubt about the correctness of the rule of law, laid down in the first part of this chapter, that a participation in the profits of an undertaking, as a principal, renders all the participators partners: but such a consequence would not ensue, if a person lent another, say 1,000*l.* at 10*l.* per cent. per annum interest, such interest being liable to be reduced, if the profits of the borrower's business did not amount to a certain annual sum: the rate of interest, which is reserved, or the way in which it is made to depend on the profits of the business is of no importance to the question of partnership: such an arrangement as this *would, in fact, be a partnership with a limited liability*: the lender could not possibly lose more than the sum advanced by him: the amount received by him and paid by the borrower would be regulated by the profit of the concern, in which the capital is embarked.

It strikes me that a joint stock society might perhaps be formed to carry out such a scheme of investment, if the directors were good men of business, their solicitor a good lawyer, and great care was taken in making inquiry into the character of the persons seeking loans and the businesses in which they propose to embark it: losses would sometimes doubtless occur; and for this reason this species of investment could be better carried out by a number of persons than by a single individual, to whom one loss might be a serious matter.

At a time like the present, money might, I think, be advanced in this way with advantage to all parties: the subject is, at all events, one that deserves consideration."

Miscellanea.

ARCHITECTURAL RECORDS.—Our present race of architects are not at all anxious to preserve for posterity authentic records of the buildings which they have executed. The practice—and we will call it the good old practice—of publishing drawings of their own works has been discontinued by the profession, notwithstanding that their productions are particularly subject to all the untoward circumstances of the chapter of accidents—to casual destruction by fire, intentional demolition, and what is something hardly less to be deprecated, alteration. Where is James Wyatt's Pantheon now?—where the Regent-street colonnade?—where Wanstead, or Worksop, or Carlton House? Soane's Scala Regia and Royal Gallery are already expunged—as is also his Board of Trade. Already have shopkeepers ruined the exterior of the Royal Exchange. Already has disappeared a very scenic room, erected not very many years ago by Mr. Cockerell, in the Bank of England, next to the Garden-court; and now, not at all to our satisfaction, we learn that the principal room or office of the London and Westminster Bank, in Lothbury, is undergoing alterations which, however they may increase its material commodiousness, will quite destroy its originally piquant architectural character, by doing away with its *velar* dome. Imperious necessity, or expediency, may perhaps justify similar demolitions, but surely in all such cases a faithful record of the original work might be preserved. —*Athenæum.*

THE NEW PARK AT KENNINGTON COMMON.—The Commissioners of Woods, Works, and Public Buildings have taken formal possession of Kennington Common, and entered into contracts for carrying out the design converting it into a place of recreation. The intended pleasure-grounds comprise an area of 12 acres, and will be laid out in a series of miniature grass-plots, circular walks, and shaded pathways, ornamented here and there with clusters of shrubs and evergreens, and enclosed with an iron palisading 6 feet high.

DRAINAGE, &C. OF TOTTENHAM.—We have been asked to mention, and do so very readily, that the whole of the works here by the Local Board of Health, referred to in a recent number of our journal, were all carried out by Mr. James Pilbrow, their engineer. Lord Shaftesbury complimented him on the way in which they were executed.

PUBLIC BATHS AND WASHHOUSES.—The following is a return for the quarter ending Michaelmas, 1852:—

NAME AND TITLE OF THE ESTABLISHMENT.	BATHS. Number of Bathers	WASH-HOUSES. Number of Washers.	WASH-HOUSES. Number of Hours Washing, &c. &c.	TOTAL RECEIPTS. £ s. d.
METROPOLIS.				
The Model, Whitechapel	64,724	7,805	18,998	1,010 17 5
St. Martin-in-the-fields	66,116	12,534	25,012½	1,126 18 2
St. Marylebone	77,706	6,244	17,823	1,040 2 11
St. Margaret and St. John, Westminster	58,426	11,421	22,521	803 2 9
Greenwich	38,998	812	2,230½	508 9 9
St. James, Westminster	50,166	2,571	6,265½	630 15 9
Poplar (opened July 19)	22,031	143	487½	280 8 0
Totals	378,167	41,535	93,388	5,390 14 9
COUNTRY.				
Liverpool—Cornwallis-street	48,907	...	...	643 18 3
Paul-street	21,817	3,117	28,047	299 15 11
Hull	26,214	1,002	3,310	256 6 7
Bristol	16,607	1,963	3,186	210 19 2
Preston	18,119	992	2,451½	174 17 6
Birmingham	50,947	689	4,338½	834 19 11
Maidstone	17,061	370	912½	151 5 2

DEFECTIVE VENTILATION OF STAIRCASES.—The prevalent practice of constructing staircases defective in ventilation on such houses in Glasgow as are arranged in flats has excited some attention. The staircase (known by the name of the Edinburgh staircase) is generally constructed in the centre of the building: it is aired from the passage leading to the street, and there is a small ventilating-pipe placed in the centre of the skylight. The water-closet windows look into the staircase, and from the contracted nature of the whole, it is impossible that free and pure ventilation can take place. Any gases which may escape from the water-closets find their way into the 'houses' above, and where the water-closets are not ventilated from the roof, there is a constant quantity of poisonous gas floating near the roof, or it is taken up by the water in the cistern; and it is well known that in very many houses this water is used for household purposes. The Secretary of the Board of Health in London, in a communication to a gentleman in Glasgow, says:—"The Board entirely concur with you in condemning the mode of construction described by you, as highly injurious to the health. The subject has, on previous occasions, been under the consideration of the Board, and especially during the last visitation of the country by cholera. It was then clearly shown that these unventilated staircases vitiate the air of all the neighbouring rooms, but particularly of the attic chambers, and accordingly the disease was found to be particularly virulent and intractable in the upper rooms of all these viciously-constructed houses. The Board cannot but regret their want of power to apply any sufficient remedy to the evils complained of."—*Glasgow Gazette.*

THE GREAT MORAL WANT OF THE PEOPLE.—What is the quality in which the improvident masses are so deficient?—*Self-restraint*, the ability to sacrifice a small present gratification for a prospective great one. A labourer endowed with due self-restraint would never spend his Saturday night's wages at the public-house. Had he enough self-restraint, the artisan would not live up to his income during prosperous times, and leave the future unprovided for. More self-restraint would prevent imprudent marriages and the growth of a pauper population. And were there no drunkenness, no extravagance, no reckless multiplication, social miseries would be trivial. —*Social Statistics.*

MR. GRIMSDELL'S PREMISES in Spital-fields, where he carried on business as a builder, were unfortunately destroyed by fire on Sunday evening last. The premises included workshops of great extent, with a large stock of work partly finished, and in the yard there was much timber, which has all been destroyed. Mr. Grimsdell is so well and honourably known in the trade that all will be sorry if loss fall upon him personally.

Baths and Wash-houses for Clerkenwell.—A meeting of the parishioners of St. James's, Clerkenwell, has been held to consider the propriety of establishing public baths and wash-houses, under the statute, and it has been almost unanimously resolved,—"That in the opinion of this vestry, great social and moral benefits and advantages will result from the erection of baths and wash-houses in this populous parish, and they agree to adopt the Act of Parliament, the 9th and 10th Vict. cap. 74, feeling that the carrying out of the Act would conduce to the comfort, health, economy, and happiness of the inhabitants." Mr. Meux, in moving the resolution, said he believed that a sum of about 10,000*l.* would accomplish the object of purchasing the land and erecting the buildings. A penny rate in the pound would be all that would be necessary for two years. But the income would be sufficient to pay the interest and the money borrowed in a few years, when they would have, perhaps, a return of 500*l.* a year from the baths and wash-houses in liquidation of the rates.

French Institute of Fine Arts.—The great prizes offered by the Institute for 1852 have been awarded as follow:—Sculpture: 1st prize, M. Alfred Edouard Lepère (Paris); 2nd prize, M. Jean Baptiste Carpeaux (Valencennes). Engraving "*En taille-douce*," 1st prize, M. Paul Alphonse Bellay (Paris); 2nd prize, M. Claud Ferdinand Gaillard (Paris). Architecture: 1st grand prize, M. Paul René Leon Ginain (pupil of Lebas, Paris); 1st second prize, M. Louis François Douillard (Nantes); 2nd second prize, M. Marie Julien Michel Douillard (Nantes). Painting: 2nd grand prize, M. Felix Fossey (Paris). The architectural designs for a gymnasium are, for the most part, very creditable, and show great skill in the application of colour.

Opening Estimates in Scotland.—We are informed that the Inverness master housecarpenters, appearing to feel aggrieved at the manner they are often treated after bestowing much pains upon plans and specifications, have come to the resolution that "no estimate shall be given for work advertised to be settled by competition, unless the parties giving in offers are allowed to be present when the estimates are opened; the meeting considering it but justice that the several candidates should be made aware of the different names of the competitors, and have the satisfaction of knowing how their several offers stand in comparison with that of the successful candidate."

Drainage of Cardiff.—At a meeting of the Local Board of Health held last week, the drainage question, which has been kept open in an unfortunate manner for the last twelve months, was finally settled in favour of the pipe system against a very strong and to some extent interested opposition. It is sincerely to be hoped that it will be immediately proceeded with, seeing the dreadful state of many streets in this town,—reeking with the most nauseous effluvia,—a state of things which told too strongly and too fearfully at the last visitation of the cholera, some three years past.

Talc as Glass for Greenhouses, &c.—A correspondent proposes to substitute talc, which can be split into extremely thin and light layers, instead of glass, in greenhouses, conservatories, &c. Being so much lighter than glass, he remarks, not such strong frames are required. The article, he adds, would not be so readily destroyed by fire as glass, and neither would hailstorms affect it, not being so brittle. The cost of this article, too, is considerably less than glass, and our correspondent is told it has been tried in several places and found to answer.

The Iron Trade.—At the preliminary meeting of this trade, held at Wolverhampton on Thursday last, a further advance upon the prices of iron of 20*s.* per ton was declared, in addition to the previous 20*s.* originating at the partial meeting held at the same place on the 8th ult.; bringing the price of bars and rods to 8*l.* per ton, hoops 8*l.* 10*s.* and sheets 9*l.* 10*s.* By some this step is considered as rather a critical experiment, while others seem fully satisfied of its stability.—*Aris's Birmingham Gazette.*

The Mechanics' Institution at Ashford.—A musical soirée and festival was held on Saturday in last week for the advantage and promotion of the objects designed in the formation of this institution in connection with the South-Eastern Railway, out of the 600 workmen employed on which only some eighty or ninety have hitherto become members. The library now contains 500 volumes. The soirée was well attended, and it is believed that the present effort to bring the institution more into notice, and to increase its patronage and its utility, will be a successful one. Ashford is marked out for a rising place.

Slab, Oven, and Fountain.—Mr. S. Treweeke, of Helston, sent lately to the Royal Cornwall Polytechnic Society's Exhibition, according to the *Cornish Telegraph*, a drawing and paper relating to a slab, oven, and fountain, all heated by one fire and with one flue. All the fire passes over the oven, none going between the oven and the fire-place and the ash-pit—that side being sufficiently hot when the other parts are heated, without it. The fire, after passing under the oven, goes on under the ash-pit, where there is a piece of sheet-iron, a rib being cast inside the front to take the sheet-iron. The fire proceeds to the fountain, and thence up the chimney.

Plan for Stopping Railway Trains.—Mr. J. P. Wachter, of Rotterdam, civil engineer, has suggested a plan to prevent railway trains from running off the rails, and for stopping them instantaneously. It consists of two distinct parts—a third or middle rail (before suggested), with guides, the object of which is to prevent the carriages running off the line—and a set of brakes which come into operation all at once on every carriage of the train, by turning a screw either on the locomotive or on the tender. The two parts, he remarks, may be applied separately, but he has combined them as the objects are of equal importance.

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TO CORRESPONDENTS.

The Wood Worm.—A correspondent asks for information as to any means of checking the ravages of the wood worm? It is in the tie beams and rafters of the roof of a large house (the wood is of Baltic fir), and threatens its entire destruction in a few years. "T. A. W." "J. B." "The *First* Architect" (declined with thanks), "E. A.," "Y. and Son," "W. S. jun.," "F. L.," "J. W. G." (we are unable to assist), "H. W." (in answer to the question,—No), "H. F. L." "W. E.," "A. C.," "J. E.," "C. C. N.," "F. P.," "An Architect" (declined with thanks), "F. O. W.," "B. C." (under our mark), "M." (ditto), "H. B.," "The Earl of E." "B. F.," "F. P.," and "J. M."

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CYCLORAMA, ALBANY-STREET.—In consequence of the illness of some of the Hungarian company, will be continued for a short time, the seven magnificent Tableaux of the Crystal Palace, Daily, at Three; Evening, at Eight o'clock. Admission, 1*s.*; Children and Schools half-price.

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TO SURVEYORS.

THE Corporation of Coventry, as the Local Board of Health, having resolved to appoint a SURVEYOR of the COVENTRY DISTRICT, comprising a population of 35,000, who is to act as the General Surveyor of the Corporation, with a salary of 150*l.* a year; all persons desirous of the SITUATION, are requested to send applications, in writing, to me, with testimonials of their sufficiency, on or before MONDAY, the 18th day of OCTOBER instant, and will be expected to enter on the duties of the office immediately after the 25th of November next.

THOMAS BALL TROUGHTON, Town Clerk.

Coventry, October 7, 1852.

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Burstall, R. K. esq.	Harding, Mr. W. jun.	Sapwell, Mr. J.
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Bellfield, Mr. A.	James, Mr. J. Jeer.	Stirling, Mr. Thos.
Cubitt, Mr. Alderman	Jackson, Mr. H. W.	Stirling, Mr. Wm.
William, M.P.	Joll, Henry, esq.	Seward, Mr. J. jun.
Cozens, Mr. Thomas	Kendall, H. E. jun. esq. Dist. Surv.	Simkin, Mr. William
Clowser, Mr. T.	Lee, William, esq.	Sanders, Mr. F.
Carter, Mr. Edward	Locke, George, esq.	Stephens, Mr. S. J.
Collins & Stanbury, Messrs. Birming ham.	Myers, George, esq.	Troup, James, esq.
	Myers, David, esq.	Tyerman, Thos. esq.
Dunnage, Wm. esq.	Nash, Mr. Thos. esq.	Tilloth, J. esq.
Day, Mr. Ebenezer	Norris, Mr. William	Turnbull, Mr. Thos.
Estes, Mr. William.	Newson, Mr. J. jun.	Vigers, Mr. E.
Eldred, Mr. J. H.	Oldfield, Thos. esq.	Wastall, James, esq.
Ellis, Wm. esq.	Oldfield, C. Fred. esq.	Webb, William, esq.
Eyre, Walpole, esq.	Outhwaite, Mr. J.	Watkins, Mr. S.
Forest, Robert, esq.	Patrick, Thos. esq.	Watts, Mr. R. jun.
Grissell, T. esq. F.S.A.	Piper, T. jun. esq.	Walker, Josh. esq.
Gardiner, W. J. esq.		

Gentlemen desirous of promoting the interests of the Institution by becoming stewards, will be pleased to forward their names to the Secretary, Mr. A. G. HARRIS, at the Office, 47a, New Oxford-street, of whom tickets may be obtained, 21s. each; also of Mr. GEORGE BIRD, the Treasurer, 38, Edgware-road; the Stewards; and at the Bar of the London Tavern.

PAPER-HANGINGS, by E. T. ARCHER'S patented Machine, Blocks, Cylinders, and Artistical Labour, at his Manufactory for all kinds of papers adapted for internal decorations. PANELLED DECORATIONS fitted up on the walls of the extensive Show Rooms, in every known style, and for all purposes, by artists of known merit.

Always on hand a CHOICE and EXTENSIVE SELECTION of FRENCH PAPERS, from the best manufacturers in Paris.

Attached to the paper-hanging factory there is the choicest assortment of CABINET FURNITURE in London, of the best make, and upholstery goods of the first fabric. Brussels carpet, 2s. 6d. per yard: floor cloths, the best that can be made, cut to any dimensions, 2s. 3d. per yard; silk and worsted curtains, of the finest fabric, 5 feet wide, 8s. per yard, at

E. T. ARCHER'S, 471, Oxford-street.

PAPER-HANGINGS, the Cheapest in London, at CROSS'S Wholesale and Retail Warehouse, 29, Great Portland-street, Oxford street, where builders and the trade can select from a stock of 50,000 pieces, at the following reduced prices:

Good Bed-room Papers	from 6½d. per yard.
Painted Marble, Granite, and Oak Papers ...	from 9d. do.
Superior Dining and Drawing room Papers from 1s.	do.
Satins and Flock	from 2s. do.

TO BRICKMAKERS.

ASHES and **BREESE FOR SALE**; good quality, good measure, and in any quantity.—Apply to MARK I. TOMKINS, Green bank, Old Gravel-lane, Wapping.

G. H. MANNING, Imitator of Woods and Marbles, and House Decorator, 73, Old-street-road, Shoreditch, informs Builders and the Trade, that all orders entrusted to his care will meet with the most prompt attention. Estimates for work to any amount. Orders by post punctually attended to.

THE BEST MATTING and MATS, of Cocoanut Fibre.—The Jury of Class 28, Great Exhibition, awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate-hill, London.

CHURCH BELLS of the highest quality of tone and finish, at 1s. per lb. Peals recast and augmented. House bells, with turned edges and wrought clappers, 10½d. per lb. Cocks at proportionately reduced prices.—Apply to BARRETT and OSBORNE, Bishopsgate Foundry, Skinner-street, London.

TARPAULINS FOR COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Manufactures and temporary Awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore-street, City. Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

LEONARD SUGDEN, Manufacturer of Doors, Sashes, and Frames to the Trade, 59, Grange-road, Bermondsey, begs to inform builders and others that he has always on Sale a large Assortment of DOORS, SASHES, and FRAMES of the best quality, at greatly reduced prices. Doors, 1¼ inch four panel 1½ in. square doors, 3l. 10s. per dozen; 1¼ in. sashes and frames complete, with mortings and mouldings, sashes double hung, fitted in and primed, 8 guineas per dozen.—P.S. A full list of prices may be had on application.

DURRAND'S "BONDED and SUFFERANCE WHARF" TIMBER-PRESERVING WORKS, ROTHERHITHE. BETHELL'S process of preparing timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piers, Docks, Harbours, &c.; and the Admiralty Piankings of Ships and Barges. And also for use in the colonies, as being perfectly impervious to the attacks of all land or marine insects. PAYNE'S, Sir W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and general Building.

Extensive and most complete Machinery for the application of the above process has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.

Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 2, Charlotte-row, Mansion-house, City.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD OF ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's park, and various other public and private buildings; in quantities to finish twenty square yards for 1s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8s. 15s. and 21s. each.

PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 5s.; Greens and Blues, 6s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price: only 2s. per gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. BELL and CO. Steam Mills, 2, Bridge-road-street, Goswell-street, London.

OAK STAINING and VARNISHING.—Staining and Varnishing of Churches, Chapels, &c. done for the trade at 3d. per yard by JOS. WILLSON, High-street, Kingsland.—Oak Stain, 8s. per gallon.

STAINING DEAL TO IMITATE ALL KINDS of WOODS. It requires no sizing, and will stand the severest test to the weather. Price 6s. per gallon. Varnishes for W. NAYLOR'S Stains may be had at the Factory, 57, James-street, Oxford-street.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.

Four years since the proprietors placed their manufacture on a large scale, and put the claims of Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.

In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.

HUBBUCK'S paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT"

and if the cask has not been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit &c. &c.

A clear white full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT.

The VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is, therefore, susceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.

WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well as persons inhabiting newly-painted houses, are subject.

The VIEILLE MONTAGNE COMPANY import the Oxide in casks bearing their mark, VM, without which none are genuine, and it can be obtained dry or ground at the Company's Agents at the following places, viz.: London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, Jersey, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull. It may also be obtained from the Grinding Agents, Messrs. C. DEVAUX and Co. 62, King William-street, City. Wholesale Agents, Mr. Charles Cook, 8, Tenterham-court, New-road, and 80, Upper Thames-street, who sells it in kegs of 14 lbs. 21 lbs. 28 lbs. and upwards, at low rates; and Messrs. R. Anderson and Co. Timber Bush, Leith, wholesale and retail.

The Company also employ a painter, who will undertake any description of painting in Zinc by contract.

Since its introduction into the United Kingdom, the Admiralty and the most eminent professional men have given it their preference. The public is cautioned, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.

For further particulars apply to Mr. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and G. KNIGHT, of Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is its remarkable and very decided superiority of Body; by which term the power of covering surface with a given quantity, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately the covering power as compared with the best White Lead, and they now state the proportion to be as 85 to 100, that is, 85 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable.

The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy, and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 9, Upper Thames-st.
	Mr. Richd. Cooke, 7, Sise-lane.
LIVERPOOL	Messrs. Johnson and McGowan.
MANCHESTER	Mr. James Doudlas.
LEEDS	Messrs. T. and R. G. Jepson.
SUNDERLAND	Mr. John Young.
DEVONSHIRE AND CORNWALL	Mr. Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND EAST COAST of SCOTLAND..	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST of SCOTLAND..	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 31, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun and Co.

LOANS.—Persons desirous of obtaining ADVANCES from 50*l.* to 250*l.* upon approved personal security, repayable by easy and limited, extending over a lengthened period, are invited to examine the principles of the BRITISH MUTUAL SUBSCRIPTION LOAN ASSURANCE CLASSES. Prospectuses, reports, and every information may be obtained on application at the British Mutual Life Office, 17, New Bridge-street, Blackfriars. Rules 6*d.* each copy, or 9*s.* per post. Note. Four new classes are now in course of formation for London, and will immediately commence operations.

MONEY ON LOAN, at 3*l.* per Cent. per Annum.—ARNEWAY'S CHARITY.—NOTICE IS HEREBY GIVEN, that the Trustees of this Charity are enabled to lend out the Trust Money to poor occupiers or traders resident within the City and Liberty of Westminster, that is to say, within the parishes of St. Margaret and St. John the Evangelist, St. Anne, Soho, St. Clement Danes, St. George, Hanover-square, St. James, St. Martin-in-the-Fields, St. Mary-le-Strand, and St. Paul, Covent Garden. The amount of each loan is not to exceed 100*l.* is to bear interest after the rate of 3*l.* per cent. per annum, and is to be secured by the bond of the borrower, with two sureties. Printed Forms of Application, and all necessary information, may be obtained by applying personally, between the hours of Ten and Three o'clock in the day, at the office of the Clerk and Solicitor to the Trustees, No. 14, Great Queen-street, St. James's Park.
By order, EDWARD S. STEPHENSON,
Clerk and Solicitor to the Trustees.

NOTE.—The Trustees meet on the second Wednesday in every month, to consider such applications for loans as have been sent in one clear week at the least before the first day of the month.—The sureties must be unexceptionable.

IMPERIAL LIFE INSURANCE COMPANY,
1, Old Broad-street, London.
Thomas Newman Hunt, esq. Chairman.
John Horsley Palmer, esq. Deputy-Chairman.

A NEW SCALE OF PREMIUMS on Insurances for the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 50 years.

FOUR-FIFTHS, or 80 per cent. of the Profits, are assigned to Policies *every fifth year*, and may be applied to increase the sum insured, to an immediate payment in Cash, or to the reduction and ultimate extinction of future premiums.

ONE-THIRD of the Premium on Insurances of 500*l.* and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at convenience, by which means 1,500*l.* may be insured for the present outlay otherwise required for 1,000*l.*

LOANS.—The Directors will lend sums of 50*l.* and upwards on the security of Policies effected with this Company for the whole term of life, when they have acquired an adequate value.

SECURITY.—These may effect Insurances with this Company are protected by its large Subscribed Capital from the risk incurred by Members of Mutual Societies.

INSURANCES without participation in Profits may be effected at reduced rates.
SAMUEL INGALL, Actuary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament, Capital, 500,000*l.*

TRUSTEES.
Ralph Creyke, esq. Rawcliffe Hall.
John Swann, esq. Askham.
Leonard Thompson, esq. Sheriff Hutton Park.
BANKERS. Messrs. Swann, Clough, and Co. York.
ACTUARY and SECRETARY. Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which it makes between male and female lives.

Extract from the Table of Premiums for insuring 100*l.*

Age next birthday.	A MALE. Whole Life Premium	A FEMALE Whole Life Premium	Age next birthday.	A MALE. Whole Life Premium.	A FEMALE. Whole Life Premium.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 7 6	48	3 11 6	3 3 4
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 1	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 12 6
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 9	66	8 4 0	7 0 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		12 1 9
43	3 6 3	2 17 2	80		15 12 10

* EXAMPLE. A gentleman whose age does not exceed 30, may insure 1,000*l.* payable on his decease, for an annual payment of 22*l.* 10*s.*; and a lady of the same age can secure the same sum for an annual payment of 19*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES
are also effected by this Company, on the most moderate terms.

Agent for London, Mr. THOMAS S. NOBLE, Solicitor, 5, St John-street, Bedford-row.

Agents are wanted in those towns where no appointments have been made. Applications to be made to
Mr. W. L. NEWMAN, Actuary and Secretary, York.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.
7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON.
Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seekings securities, and inexperienced in estimating their value, the Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Deposited Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect both the Debtor and the Creditor from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE.

Assurances may be effected from 50*l.* to 10,000*l.* on a Single Life. Entire profits belong to the Assured, and divided annually. Credit for half the amount of the first five annual Premiums. Medical men remunerated for their Reports. Liberty to Travel, and Foreign residence greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.
PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY.
TRUSTEES.
Jeffery Smith, esq. David Fergusson, esq.
Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.
Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

NON-FORFEITURE OF POLICIES.
Assurers unable, or who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.

Loans granted on personal and other securities, in connection with life assurance.

BONUS.
The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:

No. of premiums paid.	Age when assured.	Annual premium	Sum assured	Bonus added.	Amount now assured.
		£ s. d	£	£ s. d.	£ s. d.
5	50	45 19 2	1,000	24 13 0	1,024 13 0
4	40	33 19 3	1,000	65 0 0	1,065 0 0
3	30	24 15 6	1,000	43 14 5	1,043 14 5

GEORGE THOMSON, Manager.
THOS. MUSGRAVE, Secretary.
5, Chatham-place, Blackfriars.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY. Incorporated by Special Act of Parliament, 16 Vict. c. 25. Head Office, 26, ST. ANDREW-SQUARE, EDINBURGH.

The Report by the Directors to the TWENTY FIRST ANNUAL MEETING, held on 4th May, showed the following to be the position of this Society:—

The Sums Assured amounted to	£3,737,560
The Annual Revenue	136,590
And the Accumulated Fund	688,531

Large Additions have been made to Policies. For example, a Policy for 1,000*l.* dated 1st March, 1832, becoming a claim after payment of the premium in the present year, would receive 1,514*l.*; and policies of later date in proportion.

The next Triennial Bonus takes place on 1st March, 1853, when an addition at Bonus will be declared.

POLICIES RENDERED INDISPUTABLE. The Directors have arranged that Policies may, under certain conditions, be declared indisputable on any ground whatever, after being of five years' endurance, and the Assured be entitled to travel or reside beyond the limits of Europe, without payment of extra premium for such travelling or residence.

ROBERT CHRISTIE, Manager.

*** Medical Referees paid by the Society.

Forms of Proposal, and all other information, may be had (free) on application at the Society's Office, 126, Bishopsgate street corner of Cornhill, London. WILLIAM COOK, Agent.

IMPORTANT ADVANTAGES OFFERED to all CLASSES.—Life Assurance.—At the present time, when so many newly created insurance offices are advertising peculiar advantages, the importance of securing in an office well-established must be obvious; and the Directors of the
PROVIDENT CLERKS' ASSOCIATION
feel confidence in calling the attention of the public to their Institution which was formed in 1840, under the patronage of the Bank of England and the principal merchants and bankers of London and the provinces, and which offers the following peculiar advantages:—

1. Being enrolled under the Friendly Societies' Acts, the sum assured can be secured to the widow, widower, or children, without payment of probate and legacy duty, or the risk of loss by unfortunate circumstances or the reverses of trade.
2. The Mutual principle of Assurance and Division of Profits every five years, among those years participating.
3. An inv sted capital and a large annual income, offering a perfect guarantee.
4. Claims paid immediately under discount, and all policies indisputable except in cases of absolute fraud.
5. Loans on the security of policies of assurance.
6. Policies can be assigned, if the assignment registered.

To Clerks in particular this Association, from its benevolent fund attached, with an invested capital, offers benefits combined with Life Assurance which no other office can present, as will be seen on reference to the prospectuses, which can be obtained at the office in London, or from the numerous agents in the provinces.

By order of the Board.
PHILIP HENRY BYRNE, Secretary.
42, Moorgate-street, August 4, 1852.

TO ARCHITECTS AND OTHERS.

MR. EDWARD L. PARAIRE is desirous of meeting Gentlemen who require COLOURED ARCHITECTURAL DRAWINGS. External, Internal, Isometrical Perspectives got up; outlines of same neatly coloured, with background, on terms that will ensure approval. Temporary assistance given in getting up Plans, Elevations, Sections, Detail, and Working Drawings.—Mr. E. L. P. makes a consideration in his charge where competition drawings prove unsuccessful.—A pupil wanted. Address, 8, Rathbone-place.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishments of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 38, Pall-mall, London.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied, lithographed, or printed.

PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved.

BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto, mounted and continuous. TRACING PAPER and CLOTH; ditto in lengths.

GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.

WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament street, London.
Contracts for the supply of large establishments.

BILLS of QUANTITIES.—DAY and SON, Lithographers to the Queen.—Lithograph Bills of Quantities with the greatest despatch, and at a vast saving on the prices generally charged.

Perspectives got up from Geometrical Drawings, either in Outline or Water Colours.

17, GATE-STREET, LINCOLN'S-INN-FIELDS.

TO ARCHITECTS, TIMBER MERCHANTS, AND BRICK MANUFACTURERS.

THE best and quickest drying of the wood, bricks, and houses, by BOILEVE'S PATENT CALORIFERE, evaporating in twenty-four hours about 6,000 lb. of water, without altering the finest forms or injuring the quality of the most precious articles. The Calorifere works by hot air only, without any machinery or power. Small room is required; no repair necessary for many years. A great deal of fuel, large stores, or wharfs saved, and rent thereby considerably reduced by the use of the above valuable stove. It is in operation at Wood-paving Company's Works, Pimlico; at Mr. Mackenzie's, Architect, of Victoria-street, Westminster; Vegan, Son, and Raymond, Dockhead, and several maisters, millers, and manufacturers in London and country. Apply per post to T. BOILEVE, Engineer for French Flour Mills, Turbines, &c. 147, Fenchurch-street, London.

FAIR HEAD HARBOUR and NORTH OF IRELAND MINING COMPANY.
No further applications for shares will be received in this Company after THURSDAY next, the 13th inst.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by fish-jointing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fish joints have been largely adopted by the Engineers of the following railways, in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Merseyside,
North and South-Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the directors of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

East-Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E. 3, Great George-street, Westminster, or to WILLIAM HOWDEN, Secretary, 26, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25th of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 26th August:—

"The result of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the London, Brighton, and South Coast Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the Continuous road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

FOUNDRY AND IRON WORKS,
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GLOVER, BROS.,
Solicit the attention of the Trade to their extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION, either structural or ornamental.

Patterns of Girders, Columns, Balconies, Railing, Ornamental Carriage and Park Gates, Lamp and Street Posts, Tanks, Pipes, Wheels, Pinions, Lathes, and Steam-engines; Range and Hot-plate Metal. An improved Soot Door adapted for internal work.

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Estimates given for Iron Buildings, Wrought-iron Roofing, Greenhouses, Staircases, Wrought-iron Girders, Fireproof Doors, Book-safes and Strong Rooms, Tanks and Boilers, and every description of Ironwork to specification, and the work executed with every attention to quality and finish.
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168, DRURY-LANE, and CHARLES-STREET.

MACHINERY for SAWING, PLANING, and MOULDING WOOD.—WORSSAM and CO. of Hortulan Works, King's-road, Chelsea, direct attention to the simplicity and economy of their inventions and improvements in the manufacture of the above. An inspection of their stock on hand is requested.

By her Majesty's Royal Letters Patent.

TO BRICK AND TILE MANUFACTURERS.

THOSE Manufacturers desirous of making a better article in Front or Face Bricks or Floor Tiles, by coating their surface with a fine clay of any desired colour, may be put in possession of the same, and the use of BASFORD'S PATENT IMPLEMENTS, which enable the workman to add a smooth surface to bricks or tiles of a coarser or less expensive body, either to hand moulded or the coarse work made by machine from the die. One implement is a bound or clip, the use of it is enable the workman to complete the formation of bricks or paving-tiles; it is made to enclose the brick or tile all round, but so as to leave the face or upper surface open to admit of a fine surface clay being worked on, but in case a layer of clay is to be coated after passing through the die of a machine, then the clip is made to correspond with the length of the layer and clips round sufficiently high to leave a cavity on the top of the layer to admit of a coating of fine clay worked on by the workman, smoothed and polished, and then cut, divided in lengths or sections in shape of bricks or tiles. This process insures a good orifice.

Also, Basford's Patent Chambers are a desiderata (to burn thoroughly silicoloured Face bricks and tiles, &c. or blue, if required, where clays are suitable; where weak clays are employed for chequer bricks, either in ovens or kilns, the advantages are manifest, by the patent chambers, a reduction of spitting and burning bricks in the bottom part of kiln or oven, they are often fused, swollen, or damaged while undergoing the firing process. The patent chambers form a protection where the furnace heat acts immediately upon the goods, and instead of bad bricks, as alluded to, front bricks or floor tiles are fired in the chequer, thus securing the whole kiln or oven of goods from damage, and adding 20 per cent. on the chequer fired goods, over and above the old method of setting and burning bricks in the chequer.

For further information, and licence for same, apply to the Patentee, WILLIAM BASFORD, Longport, Stafford hire Potteries.

The Builder.

SATURDAY, OCTOBER 16, 1852.

AT the present moment the proper size of drains is being discussed as vigorously and as widely as if nothing were known about it: the experiments and evidence on record are ignored, and there seems a disposition to fall back into the old ways even amongst the Metropolitan Sewers Commissioners. It is to be hoped they will first reflect on what they are about to do. We have received, as we said last week, a number of communications on the subject, but can find room only for one at this moment, which steers midway between two conflicting opinions, and will stand for something of what we are about to write.*

"With reference to the shower of letters on the subject of pipe-drainage," says the writer, himself an engineer, "pray let it be remembered that partial failure is incidental to all the works of man. Have there not been failures in brick sewers, in stone culverts, in bridges, in viaducts, in churches, and in houses? Do not steam-engines blow up, and carriages break down? In fact, is there not partial failure even in the operations of nature? if such a complexion may be put upon breakings, burstings, and crumblings.

That *small pipes* have failed, in many instances, is a fact too notorious to be denied. Have not the small pipe drains which were laid down at Whitehall by the Commissioners of Sewers, right in the way, and in the sight of the General Board of Health, failed? Yea, more than once to my certain knowledge; and I have been told of numerous failures in other places, within the jurisdiction of the Commissioners in Greek-street; and I think it is highly probable we shall hear of other failures from the same quarter. Before, however *small pipes* are denounced, these failures should be investigated; and the extent of success should be weighed against the extent of failure. There have been some thousand miles of small pipe sewers laid within the last seven years (upwards of 200 miles in the metropolis), under all sorts of conditions, and there has been bad material, with worse workmanship. Miles of pipes have been used without fall, and refuse of all sorts is crammed into them without care. There are, therefore, partial failures. Small pipes have been crushed, so have brick sewers; small pipes have been choked, so have large sewers. Small pipes have been laid too small, brick sewers have been laid too large. Let us have a fair balance struck."

Some of the statements which have been made by the opponents of the new system are mendacious in the extreme; thus, for example, Cardiff has been placarded, since the determination to adopt pipe-drainage there, summoning the rate-payers to a public meeting, "to consider what steps shall be taken to prevent the carrying out the ruinously expensive system of pipe-drainage, which has been *proved, beyond doubt, to be a failure* wherever the experiment has been tried."

Now, the fact is, no such proof whatever has yet been given in any one place. We do not abandon a useful apparatus because it is put out of order once or twice by improper treatment or through want of knowledge, but first strive to remove the impediments to its successful working. If people will throw bricks, brooms, and babies into a 4-inch pipe, of course the drainage will be stopped; but surely this is not sufficient reason, supposing the great advantages of small drains in other respects, and their complete efficiency when properly used satisfactorily proved, for abandoning the pipe drain which would take away the refuse at once and while innocent, and substituting a monstrous brick receptacle, wherein it may decomposing lie, develope its incipient evil, and distil off its murderous gases.

We have yet to learn the actual facts of what is called the failure in Church-lane, St. Giles's, and which may be so for anything we know to the contrary. That the work was badly done, that some of the houses are occupied by large numbers of trampers and others wholly ignorant of proprieties, and that the drains of many of the houses have been stopped, we have every reason to believe, but if on no other grounds than these the Sewers' Commissioners abandon the pipe drain and go back to the brick receptacle,—prefer "stagnation" to "circulation," as it was forcibly expressed at the Belgic Congress the other day, they will incur a reproach which will grow heavier with the increase of knowledge on the subject.

We are not by any means pledged to th approval of pipes of the minimum size prescribed by theory, knowing the casualties to which ignorance subjects them, and the inconvenience that failure causes. Our hesitation, however, lasts no longer than would admit of the confirmation of theory by practice, and the devising of such means as might prevent the recurrence of stoppages by misuse. It has happened to us, in private practice, to lay down several miles of pipe-sewers and drains, of smaller size, under the orders of the then Commissioners, than seemed to us at the time, and in the place, expedient. But our fears, not that the drains were insufficient for their legitimate purpose, but that they would fail under accidents to which they were liable, have proved needless. Up to this time we are not aware of any inefficiency. The cost under the old system, and this is an important point to bear in mind, would probably have delayed the drainage of the neighbourhoods to which we are alluding several years.

The evidence on record, unless the most extraordinary fabrication ever known, is so conclusive against the old system of sewerage that it seems childish again to discuss it. And there are experiments as to the run of water through pipes, which cannot be talked away. The new "Minutes of Information collected with Reference to Works for Drainage," to which we have previously alluded, contain some important tables prepared by Mr. Roe, which show how erroneous were the formulæ hitherto used—erroneous through not being founded on the right conditions. The first table shows the quantity of covered surface from which circular sewers (with junctions properly connected) will convey away the water coming from a fall of rain of 1 inch in the hour with house drainage, as ascertained in the Holborn and Finsbury divisions. It is so curious in its results that we give it in full:—

DIAMETER OF PIPES AND SEWERS IN INCHES.

	24	30	36	48	60	72	84	96	108	120	132	144
	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.	acres.
Level	38½	67½	120	277	570	1020	1725	2650	4125	5 875	7,800	10,100
¼ inch in 10 feet, or 1 in 480	43	43	135	308	630	1117	1925	3025	4425	6,250	8,300	10,750
½ inch in 10 feet, or 1 in 240	50	50	155	355	745	1318	2225	3500	5100	7,175	9,550	12,400
¾ inch in 10 feet, or 1 in 160	63	113	203	460	950	1692	2875	4500	6575	9,250	12,300	15,950
1 inch in 10 feet, or 1 in 120	78	113	257	591	1200	2180	3700	5825	7850	11,050	14,700	19,05
1½ inch in 10 feet, or 1 in 80	90	165	205	670	1385	2480	4225	6625				
2 inches in 10 feet, or 1 in 60	115	182	318	730	1500	2675	4550	7125				

The second shows the "size and inclination of main house drains for given surfaces, and the number of houses of either rate thereon." In this it is shown, according to Mr. Roe, that nine fourth-rate houses may be drained by a 3-inch pipe, if with a fall of 1 in 20; and ten first-rate houses by a 5-inch pipe, with the same fall! We do not suppose the Board intend to recommend the *adoption* of these sizes in such cases; at all events we do not.

From these tables the Board deduce "that the sewer formerly proposed as the smallest size admissible for the drainage of a "mansion," viz. 15 inches, would, at a fall of 1 in 120, drain 179 of the largest mansions, or 284 of the smallest houses; that a 9-inch drain (the minimum size prescribed by the Building Act, for the drainage of a single house), would, at the same gradient, remove the storm-water from twenty-one of the largest mansions, or from seventy-six of the smallest houses; or, at a fall of 1 in 60, would drain nearly 100 of the smallest, or an area of nearly $2\frac{3}{4}$ acres of covered surface. An 18-inch sewer, less than that prescribed as the minimum size into which a man might crawl for cleansing, would, at an inclination of 1 in 80, remove the storm-water from nearly twenty acres; and a sewer of 3 feet (less than the minimum size formerly recommended for the smallest street) would, at the same inclination, remove the drainage from 295 acres.

The report points out, as a "hydraulic paradox" (the knowledge of which is very important, by the way), the fact that a uniform, sufficiently sloping, open channel, which at its top is freely receiving from a reservoir, or a meeting of currents, so much water as completely to fill its mouth, can yet receive into its stream lower down, large additional quantities of water through lateral inlets, and will then discharge from its bottom opening, which is of the same size as the top opening, even several times as much water as entered at the top. Another of these "paradoxes" is the fact, that if a common funnel, or a short piece of tube with a gaping mouth, be held under a water-cock, and as much water be allowed to fall into it as to maintain it nearly full, and if then a pipe of the same diameter as the lower

* One of the objectors, a medical man, says,—"In my professional duties, among other matters, nothing has appeared to me more important than the perfect drainage of every dwelling-house, particularly in large and crowded towns. The mode of drainage seems yet open to much practical improvement. Pipe drainage in itself is, perhaps, one of the best of recent date; but I consider it has two evils, as now practised: the first, but least, because easily remedied, is the difficulty of opening any part of the course of piping without breaking up and disturbing a considerable portion; this, however, is got over by the use of the half-flanged pipe. The second evil (the Alpha and Omega of this letter) is of the greatest magnitude, viz. the pipes being too small. They tell us, that while a pipe one inch in diameter is quite adequate to supply a moderate-sized house with water, one four inches in diameter will amply suffice to drain it; but such is not the *fact*, as the very discussion at the Sewers' Board plainly shows. They compel builders and persons draining their houses to adhere to certain rules laid down, and furnish them with a pipe-heading of a size by which numbers of people are able to prove their houses will not drain properly. In vain is it for the Sanitary Commissioners to urge the use of drainage, while other commissioners compel the public to adopt so impotent and dangerous a method. I am aware that many persons contend and believe that small pipes are as useful and efficient as the larger ones; but such is found not to be so in practice. They talk of the force of the current being greater in the smaller pipes, &c.; but if the refuse of all kinds thrown down the drains is only held in suspension, and as each portion is poured down separately, it lingers along in a very small and feeble stream, getting weaker and weaker, till it dribbles away into the main sewer, and thus much of the refuse is deposited along the sides of the drain, which, of course, becomes quickly obstructed if but of small size."

outlet of the funnel, or a piece of tube be joined to it so as to lengthen it below, the quantity of water passing through, instead of being lessened by the friction of the additional downward pipe, as happens when an addition is made of horizontal pipe, will be increased in a proportion to the length of pipe added, until that length reach a level of about 34 feet below that of the mouth of the apparatus.

The Minutes of Information contain, it is to be regretted, a repetition of the taunts on "professors of architecture" to which we have before objected in documents from the same quarter, and which have served to array unnecessarily a large amount of feeling against the discovery and progress of truth.

From Croydon statements of failure have been made to us which certainly are not borne out by inquiries on the spot. Out of 1,500 or 1,600 houses, 1,312 are connected with the sewers, and great improvement is observable in various parts of the town. Portions of the work might have been done better; there are occasional stoppages in a few house-drains, of course, and some of the pipes at Broad Green, we are told, have given way; still, as a system, including the supply of water and the useful application of the solid part of the sewage to a certain extent, it appears to be working very satisfactorily. The pipe-drains range from 4 inches to 18 inches, and it is an instructive fact to notice that substances (paper for example) are delivered at the out-fall in a perfect state, whereas, according to the testimony of some who have been long connected with drainage-works, such matters never reach the out-fall of the old sewers, being detained either in the brick house-drains or the sewers themselves until they are disintegrated!

THE POSITION OF ORGANS AND CHOIRS IN CHURCHES.*

The position of an organ will generally depend on that chosen for the choir, and sometimes (but in a smaller degree) the position of a choir must depend on the position of the organ. Occasionally, the position of the choir must depend on that chosen for the minister.

The chief question on which the position of choirs and organs will depend in parish churches is this:—Is the service of our church a Congregational Service, and the prayer *Common* Prayer? Is the choir to be considered as part of the congregation? are we—as I have before ventured to ask in another paper—to lay it down as a fundamental rule in parochial worship, that choirs are not organized to sing to or for us, but *with* us; and should not their position in churches be such as would best conduce to bring about this, the main object of their services? In churches where the congregation is not entirely in the choir, as in cathedrals, but in the nave, as in most parish churches, is the chancel the proper place for a choir? Again, can it be clearly shown, that the organ is so insignificant a part of the *fittings* of a church, or of so little consequence in the due and efficient celebration of Divine service—especially when that service is choral service—that it should be concealed from view as much as possible, and its tones smothered and its whole action and mechanism perilled by being placed (as I understand it is in the beautiful church at Howden) under a low arch, near a dead, damp wall, and surrounded with pillars? By concealing this noble ecclesiastical instrument as much as possible, it has been said, that two very important advantages are gained;—first, an uninterrupted view of the architectural beauties and proportions of the building in which it is placed; and, second, that the tones of the organ affect the congregation more when their source is, as it were, unknown.

The first is, indeed, a most important point, and should always be kept in view both by architects and organ builders; but, if the organ, from its unquestionable superiority over all other instruments, is the instrument most suitable to the majesty of Divine worship, can it with any propriety or reason be placed in such a situation as neither to be fairly seen nor heard? And yet it is a fact that the majority of church architects waive this important consideration in preparing their plans for any new structure; so that if the erection of an organ be not specially named, and is not brought forward till some time after the completion of the church—which is often the case from want of funds and other causes—the architect is astonished and confounded some fine morning at being told that an organ is to stand in a situation which he feels will assuredly ruin the proportions of his building.

Surely, the architect of St. John's, Holbeck, cannot really believe, if he has considered the matter at all, that the hole in the wall over the north porch is a suitable place for an organ? And yet I am told, on credible authority, that it is intended to place an organ there, and such a one as will be worthy of the church, and of the liberality of its pious founders—the choir, it must be remembered, being at the other end of the church.

No person, who is at all acquainted either with music or the principles of acoustics, can imagine that an organ placed under a low arch, with three sides of it close to dead walls—in fact, in a stone box—will produce the same effect as an organ placed in an open situation in the church where the vibration is considerable. "Organ builders," says an intelligent writer on this subject, "well know the difference between voicing an organ for a recess in a small chapel, and one for a central situation in a spacious church. In one case where the obstacles are numerous and close to the organ, it is almost impossible to produce a proper quality of tone, especially from large pipes. Whereas, in the other case, the organ builder soon finds the required tone, owing to all obstacles being at a distance, and the vibration of each pipe not being disturbed but in its 'periphery,' thus causing an agreeable reflection of sound, such as we find on listening to the organs in our cathedrals and other large buildings." It is a singular fact connected with the amount of resonance in different buildings, that the enormous organ built by Mr. Willis, which stood at the west end of the Crystal Palace, and which contained three sets of manuals, an immense number of stops, and a large pedal organ, was not in effect so powerful as an instrument in a church at Islington, with one row of keys and eight stops. This anomalous effect must be attributed solely to the total absence of reverberation from the immense quantity of *glass* in the Great Exhibition.

From what I have stated at the commencement of my paper, it will be seen, I think, that no one position for organs has exclusively been adopted in any age of the church,—though it must be admitted that from about the fifteenth century they have been generally placed, in parish churches, in the western gallery, — and in cathedrals and collegiate churches on the screen which separates the choir from the nave.

The present generation being at liberty, then, to legislate on the subject, I have ventured, as a church organist, to draw up a few rules, which, I hope, may be of some service to those who wish to place organs and choirs in churches in such a position as will best suit the requirements of the choral service—and, at the same time, not disfigure the architectural beauties of the building.

Rule 1. An organ should not play over one choir to another choir.

Rule 2. The people should not be between the choir and organ.

Rule 3. The singers in a choir must not have their backs to the people.

Rule 4. A choir should *never* be in a gallery.

In churches where there is a double choir and an organ, it seems to me that the organ may often be advantageously placed in the centre of a low organ screen, in the old and common position. As a general rule, choirs should as nearly as possible form an equilateral triangle with the organ. It is an important question, and one deserving of close investigation, whether listeners, or those who depend on choirs for assistance, should be east of the choirs; and it is certainly not advisable for the congregation to come between the choir and organ. I cannot help remarking here, that the usual places appropriated to the dignitaries in our cathedrals appear to be the worst in the church, and it is very curious that the chief places should be west of the choir.

I stated in rule 1, an organ must not play over one choir to another choir, as at the Temple Church, and at St. Andrew's, Wells-street. It has a one-sided effect; and, as the organist generally hears one choir above the other, and the choir nearest the organ hears considerably more of the organ than the other choir opposite, it is frequently the cause of serious faults and blemishes in the performance of the music. For this reason the organ should always, if possible, be placed considerably above the heads of the singers,—the tones of an instrument proceeding immediately before a choir will, assuredly, rather confuse than assist them. If, therefore, circumstances require the organ to be placed on the floor of a church, the sound-board should be fixed as *high* as the architecture, or other points, will allow.

It is well known, I believe, that a war has been for some time carried on by architects against cathedral organs, and many of them are being removed from their legitimate place and poked into transepts, galleries, and elsewhere, to the injury of the instruments, and the hindrance of the choral service. A gentleman who takes great interest in ecclesiastical architecture and ecclesiastical music (Sir Henry Dryden, of Canons Ashby), writes me, that the reason of this war "is the noisy tastes of organists, who have got their instruments to such a huge size as to be disfigurements to the building, and at last intolerable, and consequently removed." "Organs of a sufficient size," he continues, "lowered a little more into the organ screen, would be no disfigurements."

In Westminster Abbey, the choir organ remains in its original place, and the result of placing the great organ and swell on either side, is said by some persons to be the most successful example of removal in England.

I understand that the organ in Canterbury Cathedral is made very heavy in the touch (by the distance between the pipes and the keys), and slow in speech (by removal), and is, moreover, lopsided in effect. The Temple organ is muffled in a box, and unequal in its effect: to a great extent the same may be said of the organ at our Leeds Parish Church; and these defects all result from the improper placing of these instruments.

With regard to parish churches, which have commonly chancels—not choirs, as in cathedrals,—and as the chief part of the church is filled with the congregation, I may ask, ought not the service to be *congregational?* It is evident, if the people are to sing, they must in a great measure be dependant on the choir. They, must, therefore, hear the latter as distinctly as possible, and must not, consequently, be between it and the organ.

To those who have thought at all upon the subject of my paper, I need scarcely say that the arrangement of the organ and choir must be greatly regulated by the size and shape of the church; so that no rule can be laid down for the exact position of either. Although it is not to be expected that choral service will be attained in every church, yet it is always desirable to arrange the singers so as to form two choirs; and I may venture to lay it down as an axiom, that service, however musical, is no choral service if there are not *two* choirs. Speaking historically, it seems hardly right to adduce as evidence for the proper position of choirs, any customs which may have prevailed before the Reformation, as the service then was not a congregational service. But since

* From a paper by Mr. William Spark, Organist, Leeds, read before the Yorkshire Architectural Society, May, 1852. The complete paper, with illustrations, is published by Novello, Dean-street.

the Reformation, I believe, there has been scarcely a choral service in a church with only a chancel instead of a choir. Presuming, then, that our service is a congregational service (which is its distinction from all other services), it is quite wrong for the minister to be screened off from the people; he ought, I presume, to be always in the nave (as, indeed, he generally is), except for the Communion Service; and we will suppose the officiating minister to face north or south, except during the reading of the Lessons, when he faces west. Now the people are all the time facing east. This being the case, it seems absurd for a minister placed in the nave to be responded to by a choir in the chancel,—perhaps on the other side of a screen, whilst the people are in the nave.

At Canons Ashby (Northamptonshire), the people face *east*. The two choirs are behind them, and the organ still west, behind the choirs. This plan is good for the singing of the choir, and the people's hearing and singing; but it is objected to on the ground that the congregation might *turn round*, as they but too often do, when the choir is in a west gallery. The organs in Jesus College, and St. John's, Cambridge, are placed, I am informed, in small galleries (appropriated to the organ alone) on the north side of the chancels, about eight feet from the floor; the front of each instrument containing the diapasons projects from an arch: the organ in St. John's is an example of the position of an organ about the period of the Reformation, but now unused, the musical service in this, as well as in several other College chapels in Cambridge, having been for a number of years discontinued; that in Jesus College is after the ancient mode, and is found to be effective.

One plan which I would suggest, is to have the two choirs facing one another, near the desk and pulpit (the people facing east), and to have the organ on *both* sides of the chancel (the conducting tubes and trackers going under the floor), or at the east end of *one* aisle.

We will now suppose the singers to be in the chancel, and assume that the two choirs are on the two sides of the chancel, as at St. Margaret's, Leicester; then the organ (if the chancel is large enough) may be east of the choir, and divided.

This particular organ at St. Margaret's, Leicester, is, however, clumsily managed, and looks ugly and untidy; but there is, of course, no necessity for that. Besides being divided, a part of the organ on the north side is placed in an additional building, which also serves for the vestry. This plan answers exceedingly well, and if the choir *is* to be in the chancel, and the chancel is large enough, it is, perhaps, the best plan. If the organ is small, it may be altogether inside the arch opening into the vestry, so as to make, by its front, an ornamental filling up of the arch. In that case, it would be better to have the player at the *east* side of the organ, and the blower opposite to him.

At Byfield, Northamptonshire, the organ, as in cases named just now, is over the altar, which is, of course, indefensible; but the *musical* effect might be good if the choir was in the chancel. At Cannons, in Hertfordshire, Handel's organ is, or was, in a similar position.

At St. Mark's, Chelsea, there is at present no organ; the choirs face each other in the transepts, and the people face *east* in the nave. This, it appears to me, is just as it should be. It has been proposed, in case an organ is placed in the church, to put it round the apse, between the colonnade and the exterior wall. I have no doubt it would answer very well in that position. If a chancel has aisles, the east end of one aisle might, I think, often be a very good place for the organ, or against the wall of the aisle, especially if elevated.

An organ builder of great experience, gives as the result of his observation, that the most favourable position for sound seems to be where the organ can be placed under a roof which has a pitch or inclination of 45 degrees. A *low* roof, especially when plastered, is generally prejudicial to sound; and a number of angles in a low roof is also most unfavourable to sound. He considers that wood and stone are each as favourable reflectors of sound as chalk and plaster are unfavourable.

In places where neither the principles of architectural societies have penetrated, nor the desire to return to the former customs and uses of our church, either in the celebration of the service or in the fittings of the edifice, has been felt, the place of the choir, as many of us know to our sorrow, is still in the west gallery; and this arrangement is not only objectionable in a *musical* point of view, but, so far as *my* experience goes, it certainly prevents the carrying out of that excellent passage in Holy Writ, "Let all things be done decently and in order."

The most successful example I can adduce of the position of an organ near the choir, and not in a gallery, is in the new church of St. Mary Magdalene, St. Pancras, London, where the organ is placed against the wall, at the east end of the south aisle, on stone corbels about 8 feet high—thus elevating the instrument considerably above the singers, so that both sides of the choirs and congregation hear the organ equally well.

CHRISTIAN ART.—CONCEPTION OF THE VIRGIN.

If I may claim space for a few lines in reply to Mr. Hendrie's second letter on the above subject, I would beg to state that it is because I so highly appreciate the value of iconology as a record of "the various phases of theological history," and so fully entertain the view that "Christian art is nothing less than theology figured;"—it is on this very account that, as an admirer of Christian art, I have ventured to record my protest against any unadvised or hasty change of titles which have been long identified with particular pictures, or rather types of picture.

An artist produces a painting, and calls it "Our Lady of the Immaculate Conception:" posterity, for brevity's sake, call it simply "The Conception," and this goes on for two centuries till some one suddenly discovers that "Conception is a misnomer," and that "Assumption" is the proper term. Now this may be true or it may be not; but is it not manifest that if one generation may change a title, another may take the same liberty? And if one critic is in favour of "Assumption," some future critic may advocate the title of "Beatification" or of "Glorification," for all these are equally applicable to the "Mulier sole amicta," seeing there is no Scriptural authority for any of them. And then where is this to end? And what becomes of the value of iconology as a history of "theological phases?"

No wonder, then, that a proposal of this kind should be received with some hesitation, although emanating from a mind the most profound and deeply versed in the subject-matter to which it belongs. The title of a picture may be the clue to its meaning, and an interpreter of the works of ecclesiastical painters is perhaps the last that can afford to abandon that clue.

Now, whether or not Murillo was himself carried away by the religious enthusiasm of the time,* there can be no doubt that in his vocation as an artist he would regard himself as the exponent of the favourite doctrine of his church and nation, and would accordingly deem it part of his mission, as well as the indispensable condition of success, to portray his Madonnas as free from the "peccatum originale," in the same sense as our blessed Lord himself. The importance of this sentiment in the composition of the picture no one can underrate. The human element is entirely eliminated. There remains the *form* only of woman, the whole *being* is divine. And it is manifest that a painter interpreting this doctrine would approach his subject in a very different spirit from one who might or might not regard the Virgin only as "Blessed among women," and this too, whether a glorified or expectant state were chosen as the medium of representation.

No one denies that Murillo studied, and in the main adopted, the forms and treatment offered to his contemplation in pictures of the "Assumption" by earlier schools, but he might for all this have aimed at infusing into his pictures a new and more perfect spirit of divinity, corresponding to the doctrine in his time so warmly professed; and to mark this change it is more than probable that he would seek for an appropriate title, and what so appropriate as "Our Lady of the Immaculate Conception?" To this title then, I, for one, intend to cling, both out of deference to the painter, and from an apprehension that if pictures of this type are to be merged under the title of the "Assumption," a valuable landmark in the history of art, and of theology, would be sacrificed.

On one point, of minor importance, I must apologise for not having made myself understood. When I asserted that the term "Conception of the Virgin" was a contraction of the full title "Our Lady of the Immaculate Conception," I did not mean that the two terms were logically convertible, but that in popular language the one was frequently substituted for the other in reference to one and the same picture. The very heading of Mr. Hendrie's first letter is a proof of this: he has there stereotyped the term "Conception of the Virgin," as a popular designation of the "Soult Murillo," whilst works of the highest authority prove that the full title is "Our Lady of the Immaculate Conception." If then, this be not a contraction, call it a transposition, if you will, for that makes no difference. It is a patent fact, that in hundreds of cases these two terms are applied indiscriminately to the same pictures; and it is only cutting the knot, and not solving the difficulty, to tell us, as your other correspondent does, that "if there is any meaning in words, St. Anne, and not the Virgin, *must* be the person who figures chiefly in a representation of the Conception of the Virgin," or to tell us that Pacheco made an egregious mistake, or wrote under terror of possible torture. Perhaps, however, the solution may be this,—a "Conception of the Virgin" may either represent a *fact* or a *doctrine*. If it be designed to represent the *fact*, then St. Anne must be the principal figure, with details according to the Athos MS. or the "St. Anna of the Gilded Gate." But if it be designed to represent the *doctrine*, then the Virgin will be the principal figure, with treatment according to the rules laid down by Pacheco.

There is in the Gallery of Bologna a picture (No. 57) with the following descriptive title—"S. Anne adorant la Conception dans la Glorie céleste." It is evident that such a picture could not represent a fact, but a doctrine; and that doctrine it was which Murillo sought to herald in his pictures of the Madonna, and therefore to call them "Assumptions" would be materially to divest them of their theological meaning.

T. F. S.

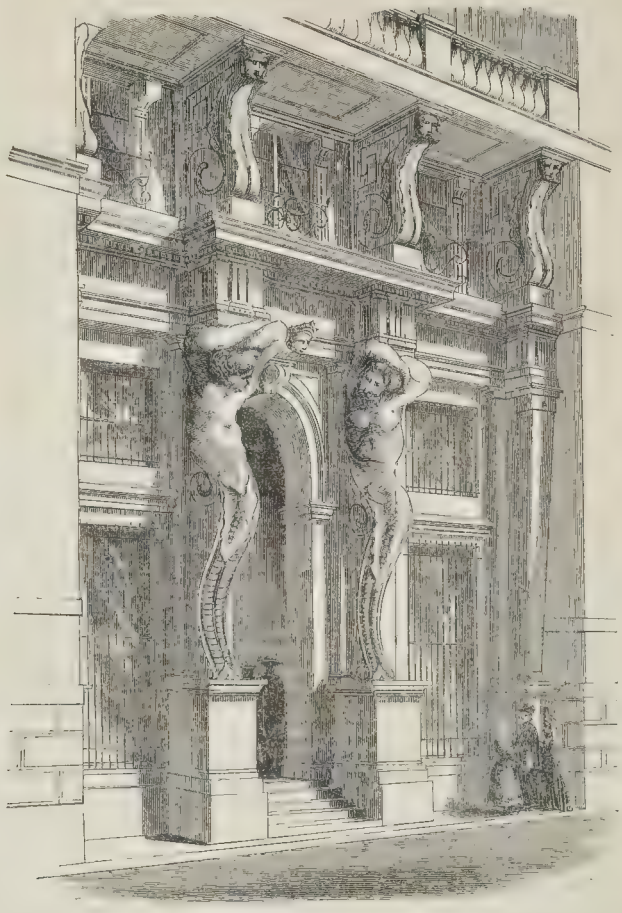
Mag. Coll. Oxon.

* I was well aware that the Immaculate Conception of the Virgin had been promulgated as a discretionary doctrine long before the 17th century; but it was the movement in Spain during that century, and the edicts which that movement extorted from several successive Popes, from the bull "Regis pacifici," of Paul V. in 1616, to that of Alexander VII. "Sollicitudo omnium Ecclesiarum," in 1661, that first enabled the clergy to promulgate it in dogmatic form.

Brick and Tile-making upon Copyhold Lands.

—The question which arose at the Halmote Court, held at Bishopwearmouth, in October last, for the Lord Bishop of Durham's Manor of Houghton-le-Spring, as to the right of the copyhold tenants of this manor to dig clay and make bricks, &c. upon their copyhold lands, has been settled against the tenants having any such rights by the Copyhold Enfranchisement Bill, which is now the law of the land. It stands in substance thus:—After the 1st day of July next, the lords of manors can compel their tenants to enfranchise their surface rights, fines, heriots, &c. in their copyholds, and the tenants have the same power against the lords. All the minerals, including coal, stone, clay, gravel, &c. which are all distinctly specified in the Bill, are reserved as belonging exclusively to the lords, and cannot be worked without their license or authority.—*Durham Advertiser.*

DOORWAY, GENOA.



DOORWAY, GENOA.

This is the doorway to a palace at the end of the Strada Nuova, and exhibits considerable ingenuity of design. The material is white marble from Carara, and it is a fair specimen of the luxury and taste of the merchant princes who gave to Genoa her well-deserved title of *La Superba*. G. T. R.

SOMETHING OF AGRICULTURE AND CLIMATE.

Your advocacy of the rising science of agriculture must have afforded great gratification to many of your more reflective readers. The subject is a most interesting one; and many of your more strictly professional subscribers must see its important bearings on their own future prosperity as professions: of course, I allude to its engineering and its architectural features. There is a vast field opening on them in this direction. Building and engineering operations will yet be as vastly increased in agriculture and horticulture as they have been in other branches of manufacture since "the era of the distaff and the spinning-wheel."

Were I about to enter further on this subject in its engineering and its architectural aspects, I would be walking out of the province of mere "cursory comment and suggestion" on minor details altogether, and preparing an article which ought to be worthy of a separate place in your columns; but such is not my purpose in these preliminary remarks, which I design only as a palliative and a reason for offering in the columns of The Builder a few stray suggestions and comments which might otherwise have been erroneously imagined to be fitter for the columns of the *Gardener's Chronicle*,—so true is your occasional reminder that the interest and the office of The Builder spreads and extends in every direction, and grapples with and comprehends every great question almost that affects human progress. True, what I am going to note down here *would* probably suit the columns of the *Gardener's Chronicle*; nevertheless, it is not unadapted to those of The Builder itself in this more enlightened view of its important functions. If the advancement of agriculture be promotive of the architectural and engineering professions, anything that may tend to promote agriculture itself cannot but be of at least secondary service to these professions, and be quite in place in its present subordinate position. And besides, even apart from its not very distant or secondary bearing on the prospects of the builder, the architect, and the engineer, I think I shall have your permission in my endeavour to aid in rendering an occasional article such as the present as miscellaneous as possible in its nature, and, in fact, a sort of *olla podrida* of useful or amusing fragments in the shape of suggestion and comment, without any special restriction to "the shop." I am the more emboldened in this assurance when I call to recollection the sound and liberal sentiments expressed in a leading article on a recent occasion addressed more particularly to your younger professional readers on the folly of restricting their pursuits and studies to office acquisitions and duties merely, and on the advantage and indeed the necessity of enlightening their minds from every point of view—in every branch of knowledge.

"Not only," you remark, "is it 'desirable' you should get knowledge of this sort, but it is absolutely necessary. A general knowledge of the leading sciences is now so universally possessed, that ignorance of them in any one is a positive disgrace: to the title of architect, especially, you could, without this knowledge, have no claim. Irrespective of its importance to you professionally, it will give you fresh eyes: without it you cannot see what you look at: with it you may see, literally, through a millstone: all Nature's processes are opened,—every substance speaks. * * * And here let us caution you against the common error of supposing that it is *practical* science alone which concerns and benefits industry: practical science is but the application of abstract truths. * * * It is the men who are looking for and eliciting great truths, careless as to whether they will have any *immediate* effect in increasing the resources, enjoyments, and comforts of men, that are providing arms for the coming generation to achieve their triumphs in the industrial struggle of nations."

How entirely these sentiments harmonise with the quotation which I have since given in your columns from the philosophy of Dugald

Stewart, as a reason and an excuse for the suggestion of an occasional article such as the present note will help to form, it is not for me to point out to you. I will, therefore, without further general comment or apology, proceed with the subject of my present note on the progress of agriculture.

In a notice which you took, on 7th September, 1850, of a pamphlet, by Lord Willoughby de Eresby, on his ploughing machine, it is expressed as your belief—

"That an era of agricultural development, as vast and wonderful as that which the present age has already witnessed in manufactures, is not only within the bounds of possibility, but on the eve of advent,—that a time is at hand when our present primitive agricultural implements will be put away as curiosities beside the distaff and the spinning-wheel,—and that the alleged discovery by Daguerre of a mode of rearing three-year plants in three months,—the reported power of some of our market-gardeners to rear a salad (like a mushroom) in a single night,—the alleged power of the Japanese to dwarf the lofty pine into a miniature tree, a few inches only in height,—the traditional story of the monks of Glastonbury Abbey, who could make the hawthorn bloom at Christmas,—or even the trick of the Indian jugglers, who appear to cause a mango seed to spring up out of the soil in course of a few hours, and before the eyes of hundreds, unfolding leaves and flowers and fruit,—are all but, at the worst, vaticinary imaginings, or rudimental typifying *ideas, of actual powers of nature, scarcely less wonderful, and yet to be developed*; just as was the old traditional idea of the magnetic telegraph of separated friends, with its needles and alphabets, but without any record of *its invisible connecting wire*,—alone wanting to reduce it all to credibility. Believing, at all events, as we decidedly do, that a great era of agricultural development is at hand, when even the steam-plough, as it at present exists, may be a rude implement; it is interesting, in such belief, to witness just such beginnings of *this* anticipated era, as were the first steam-engines, or the first spinning and weaving machines, in manufacture—or the locomotive with legs, like a horse, in the railway system."

As if to countenance and corroborate the verisimilitude of these speculative ideas, the *Brussels Herald*, in course of the autumn of the year following on their insertion, that is, of last autumn, reported a strange exhibition of experiments witnessed by Abbé Moigno, whose guarantee, as a "conscientious writer," the *Herald* evidences. In these experiments, which are minutely detailed, it is declared that, by means of a reddish liquid, florists' plants of many different kinds were made to develope and open their buds into full flower, in the presence of a number of spectators invited for the purpose by M. Hebert, the horticulturist or experimenter. I allude to this, however, merely by the way: the report may be a hoax altogether, for all that I know; and, if so, may doubtless be based on or suggested by your own remarks just quoted: it is at least curious, however, and worth noting in this connection; but what I meant to follow up the quotation just given with was not this singular report, but one of a much more authentic description, and in reference to certain little experiments of my own.

Plants are subject to what is called a "sport," and it has been found that if that sport be followed up, it may be not only established as a distinct variety, but be made to yield further sports (or *developements*, rather, as it would really appear), to which it is found to be peculiarly liable. Acting on these facts, a M. Fabre, according to the *Gardeners' Chronicle* itself—to which I must now appeal—has actually succeeded in developing perfect and excellent wheat from one of the common grasses, liable to a sport of which he took advantage by carefully sowing its seeds, and rearing, and again sowing the most remarkable and most developed of the plants so yielded; and thus in twelve successive seasons, developing substantial wheat.

Now, could agriculturists or horticulturists only discover the means of causing or compelling cereals or other useful plants of any description into "sport" at will, immense and rapid improvements might be speedily looked for in the crops already realised; and one of my chief objects in preparing this note was to suggest means whereby this very desirable power may probably be at once obtained.

Being aware that varieties of flowers are often fixed "sports," and having heard from a gardener in the secret that charcoal has a decided power of invigorating the colour of red flowers, the idea struck me that perhaps charcoal might change the colours of flowers altogether, and so compel them to "sport," and thus enable the horticulturist to obtain seeds liable to further sports and varieties, which might then be fixed in the usual way: thinking, moreover, that the succulent dahlia would be a good subject on which to experiment, I chose two,—a white one, with a very slight pencilling of red along the margin of each leaf, and one of an orange hue. These, after planting their roots, I surrounded with rings of charcoal and awaited the result, which is exactly what I had anticipated. The orange has become a vivid red, and the white has exhibited a singular variety of sports: flowers ranging from a splendid and complete red without a vestige of white, through mixtures of red streaked with white, and of white streaked with red, to some like the original white, have appeared simultaneously on one and the same stem. These results I spoke of to some of the working gardeners at the Zoological Gardens, where there is an immense display of dahlias: they had never produced anything of the kind, but I hope the hint will not be lost on them. The practical conclusion, however, which I would desire to draw from the facts is, that if flowers, and hence their seeds, can be thus or otherwise compelled to "sport," so may the seeds of the cereals and of green crops, such as turnips, potatoes, &c. and thus new, and it may be greatly developed, varieties be permanently obtained. I perceive that it has been lately observed that charcoal has a singular power of invigorating and changing or deepening the green colour of the leaves of the potato plant, and I cannot doubt of its having a like influence on its flower and seed. Our present ears of wheat may, for all that we know, be thus or otherwise developable even to the magnitude of Indian corn; which, I find, by the way, grows hopefully in Old Brompton, into a noble plant at least eight feet high, and yields heads as large as any I have ever seen of foreign growth. Even though it were not possible to ripen this corn thoroughly on the large scale and in average seasons in this country, we know that the Americans prefer it for many purposes in a green state, when it has a delicious milky juice which they turn to great advantage in various shapes on the dinner and supper table. What, then, hinders our horticulturists from rearing it in the meantime as a green crop at least? Were varieties that have been cultivated either in the higher or more elevated or in the more northern districts of America tried, they would doubtless speedily become acclimated, and yield abundant and most profitable farm crops in England.

Even apart, I may add, from any artificial means such as those I have indicated of developing and improving the grains of the cereals or indeed of any plant or vegetable whatever, were industry and perseverance displayed by our agriculturists year after year in choosing the finest seeds or grains of the finest plants; and from the plants yielded by these again selecting only the largest and finest, reiterating this process carefully year after year; I believe that wonderful developments would be the result—developments of which we have as yet little conception.

Our moist Climate and its Evils: the influence of Drainage on it.—Most fervently is it to be hoped that you are right in your expectation (expressed on 3rd April last) that the drainage movement throughout the country, agricultural no less than urban and suburban, will be promoted by the information collected by the Central Board of Health, and of which, at that time, you gave a comprehensive abstract. As then truly remarked—

"By drainage the climate will be ameliorated, *and many diseases prevented*. It has long been admitted that he who makes two blades of corn grow where only one grew before is a benefactor to his species. Thorough drainage does more than this. It tends to lengthen life as well as increase the means of living."

The association between that curse of our country, its moist climate, and the prevalence of consumption, and of colds, the fruitful seeds of consumption, is but too well known. Would that anything like a remedy, or even a preventive, were only half as well known. Like epilepsy and hydrophobia, this, as you observe as to the former, "is an opprobrium to the medical profession: they cannot reach it." As to a remedy, however, I have good reason to believe that the faculty are likely now to have it in their power to remove this opprobrium so far as regards various forms of consumption. And it is an interesting circumstance that the hopeful means should emanate from the ultimate source whence so much mischief originates in the dampness of our sea-girt isle—the ocean itself: I allude of course to the use of certain oils obtained from the fishy tribes. My present purpose, however, is to offer all whom it may concern a hint on the subject of prevention as well as cure. Nothing is more difficult often than to cure even a cold: sometimes it is no less difficult to prevent one; and even the most careful are often surprised to find all their prudence and precaution—whether defensive or offensive—whether simply protective or by braving its advent and hardening the constitution against it—to be of no avail. A recent announcement in the *Lancet*, to the effect that rheumatism and inflammatory ailments of various kinds, including even hemorrhage from the lungs, have been cured in a singularly brief space of time by the simple and palatable agency of lemon juice, emboldens me to mention, that lemon juice having been used occasionally for many years by one of the members of my family subject to a scorbutic ailment, and with various collateral benefits of a remarkable, and, at first, of an unlooked-for kind, I am prepared by this and other experience of its benefits, to state that those who dwell either in damp districts or damp houses, and are hence subject to rheumatism, coughs, colds, &c. will find the free use of lemon-juice, where it otherwise does not disagree with them, a most effectual preventive as well as remedy. I have found the regular use of a wine-glassful or two a day so strengthen a very delicate constitution, liable to colds on the slightest occasions, that it in a short time defied not only damp, but every inclemency and all exposure, and, with the subsequent aid of cod liver oil, advised by several physicians, if not, indeed, also partly by means of the lemon-juice, which was simultaneously continued, an individual who was on the brink of the grave has been restored to health and strength.

So far as regards the influence of lemon-juice, it seems reasonable, even *à priori*, to think that if, as declared in the *Lancet*, it speedily cures inflammatory disorders, it OUGHT *both to cure and to prevent the access of colds*, which are diseases themselves of an inflammatory order.

In the simultaneous or alternate use of two such agents as the vegetable acid and the animal oil in question, there is a much more natural adaptability to the composition of the organism and the blood than there is in strictly medical drugs, amongst which, indeed, these can scarcely be classed at all; and if diseases of so dangerous and obstinate a nature as consumptions, colds, &c. as well as rheumatism and other ills, can be overcome by them or by one or other of them, it is assuredly better to resort to such simple and comparatively, or rather positively, harmless agencies than to the nauseous and horrid contents of the "medicine chest."

J. E. D.

ALLEGED STATUE OF THE DUKE OF BRIDGEWATER.—In consequence of a statement in the newspapers that Lord Ellesmere intended to erect in Manchester a statue of the Duke of Bridgewater, at a cost of 10,000*l.* his lordship has publicly contradicted the rumour.

THE ARCHITECTURAL MUSEUM, CANON-ROW, WESTMINSTER.

Having long ago urged the importance of forming a national Museum of Architecture, we can but be glad to hear of the steps which are being taken by the committee appointed some time ago with that end in view. Every one who has been practically engaged in architecture must have felt the need of a collection of casts from the best ancient works of ornamental sculpture, statues, and other objects not capable of being readily or sufficiently represented by drawings. Even if an architect can spare time for frequently travelling from one monument of ancient art to another, which none of us can do to such an extent as we ought, he still needs, when at home, the aid of casts to recal the richer portions of the details to his memory, and he needs them to be arranged in such a manner as to enable him to compare the corresponding features of the different works he has visited. This necessity is also greatly increased by the fact, that the majority of objects which an architect has ordinarily before his eyes, are calculated to corrupt his taste and to deaden his feelings, so that good taste and warmth of feeling in art, are only to be obtained by some stimulant constantly at hand, to compensate for and correct the effect of these adverse agents.

It is quite true that *nature* is the true refuge from the chilling effects of bad and degenerate art; but she has been so long neglected, that we want the example of better times to show us how to use her. At Cologne cathedral, for instance, they compose their ornamental foliage by joint reference to casts from ancient carving and casts from natural leaves: the manner in which they thus learn to use natural objects with such conventionalities as are necessary to adapt them to their situations and to the material made use of, is instructive.

If, however, such a collection as that which we advocate is necessary to *architects*, who have frequent opportunities of visiting original works, how much more is it necessary to the workman who has no such opportunity, and is nevertheless expected to produce works in the same spirit as those which he has rarely, if ever, seen, and who is held up to ridicule if his works fall short in merit of those of artists of the best times.

It is by familiarising their eyes and their minds to fine works that real improvement in the taste of our carvers and decorators may be expected. A workman cannot, however, afford the loss of time and wages, much less the actual outlay, requisite to visiting ancient works, unless close at hand; and employers will very rarely aid him in doing so. Even if this were always practicable, we should still consider the Museum of Casts a necessary adjunct, for the same reasons which we have for its being so to an *architect*. The work, *in its place*, will undoubtedly inspire the noblest sentiment, and will show the propriety of ornament to its position, but the collection of casts is after all the object for constant reference and study, the continual reminder of what has been seen *in situ*, but cannot be visited again. It would be our wish to add to such a Museum, a large collection of casts from natural foliage; nature containing the first principles upon which, though not rejecting necessary conventionalism, we must ever be falling back.

The great difficulty to be met in the formation of such a Museum by individuals arises from the costliness of premises necessary for the object, particularly if in a central position. The committee *have, however, resolved to make a beginning*, though humble, and have taken two or three rooms in Canon-row, approached from Parliament-street. The rooms are of a very rough description, but they have this recommendation, that they will hold a great many casts, and are capable of periodical extension, as the income and collection increase. What they now want is to secure widely extended support, both by annual subscriptions and by donations of casts. When they have funds sufficient, they will endeavour to obtain casts from abroad.

Among the works already contributed are by Mr. G. G. Scott, a fine collection from Ely and the Chapter House, Westminster; Mr. Scoles's casts from Athens and Rome, taken under his inspection while there, the whole of these belonging to the Ecclesiological Society; some fine casts moulded under the superintendence of Mr C. R. Cockerell, R.A.; a noble Greek head from the Louvre, others from Canterbury, by Mr. W. Burgis; from St. Mary's, Reading, by Mr. A. Billing; from Windsor, by Mr. S. Cundy; some panels by Mr. J. L. Pearson, from Wells, &c. by Mr. B. Ferrey; also from Mr. S. Clarke; some fine ironwork from Mr. P. C. Hardwick; the Messrs. Hakewell, Richardson, White, Nash, have been contributors: some have also been secured from the Cottingham collection; and Mr. J. Ruskin has kindly promised some noble specimens of Venitian art taken under his personal inspection.

On the amount of annual subscriptions and donations of casts, depends the whole success of the project, and we wish to enlist our readers in its behalf. By the small endeavours of many, such a collection may be made in the course of a few years as will supply a want under which architecture in this country has long laboured.

THE PAINTED WINDOWS, ST. GUDULE'S, BRUSSELS.

PRINCIPLES OF GLASS PAINTING.

May I beg the favour of a place in the columns of your excellent journal for the following remarks, chiefly descriptive—on the painted windows in St. Gudule's, Brussels, which were the subject of a difference of opinion some weeks ago, between one of your correspondents and myself in the pages of The Builder? I may add that I have just visited them in returning from Germany, and that the remarks I send you were made on the spot.

The four windows in the side of the Chapel of the Miraculous Sacrament (which were those alluded to) date from 1540, and contain each two groups. The lower range consists of portraits of kings of Portugal and Hungary, Francis I. and an Emperor Ferdinand, with their queens, in kneeling attitudes, attended by their patron saints. The upper range are subjects of divers character; the groups are placed under open porches, or in colonnaded covered galleries, recalling a little some of the more decorative pictures of Veronese and Tintorette, or the allegorical pageants of Rubens. A fair and accessible illustration of the architectural treatment may be got from the monuments of Edward VI. Elizabeth, and Mary of Scotland, in Henry VII.'s Chapel, Westminster. Place one above another, filling the space between the pinnacles of the lower, and the base of the upper with panelling, and substituting the groups for the tombs and effigies, and you will have the arrangement, architectural and pictorial, of the windows in the Chapel of the Miraculous Sacrament at Brussels. The surfaces, however, are much enriched with figures and other decorations, and abundant, if not elaborate, detail.

The open ground within the architecture is filled in with considerable masses of pale blue of a lilac tone. There is no vestige of anything like a back-ground, so called,—neither tree, nor building, nor distant object—all flat pale blue. This ground has, I believe, been recently restored, as they say, in exact imitation of the old—that it is nearly like it there is no reason to doubt; but the old would be more broken in tint, for this is indeed *flat* to excess. The groups occupy something less than a third of the whole, exclusive of the tracery. The tracery and points of the openings above the canopies are filled in with white quarry-work, with some heraldry and spots of coloured decoration. The whole effect of the windows is bright and light, which goes far to redeem a very exceptionable character of design. The only part that can be said to have any power of shadow is the ceilings of the canopies, and there it is light in tint, but the extent and flatness make it noticeable as shadow. They are relieved a little by coloured festoons, pendants, and open ornaments. For the rest, shading is nowhere remarkable. The whole of the four, are as light, and even lighter, than late Perpendicular windows are generally, and, as compared with windows of their own date, I should say they are light to exception: white and yellow form at least three-fourths of the entire surface; and so little is contrast of colour a feature of them, that blue, only a tint or two deeper than the ground, is much used, and in large pieces against it; then cool purples, some warm light purples, some light greens, and ruby in small quantities. The ruby, where it is used, looks harsh, partly from its being rather dark in tint, but chiefly because the other colours are harmonized to a cool tone, and the red contrasts unpleasantly.

The drawing is very good, both of the figures and architecture,—I should say especially of the latter; the action of the figures and the expression good, too; the style of painting free, yet careful; the faces and hands are on white glass, slightly tinted. The third window from the transept is the best; the group of Francis I. and his Queen, with St. Francis D'Assise and St. Catherine behind, and the group above it, are conceived and executed in a good style: the figures are simply arranged, and on a single plane, unless a figure kneeling, in front of another standing, can be called foreground and background.

And now, I would leave the whole in the hands of yourself and your readers, and would ask whether (the windows being such as I have described them, and the greatest favour any one could do me in this matter would be to examine them with this description in his hand,) I was not justified in saying, that these windows were incorrectly quoted in support of a system of glass painting whose characteristics were stated to be *complicated foreground groups, receding landscape backgrounds, and the strongest contrasts of colour and of light and shade!*

All is light and glassy, with the exception of the shaded ceilings which I have noticed, though even there the glass is not lost: still, the shaded roof and the careful perspective give an appearance of positive recess, which I should fancy the most partial would allow to be highly injurious to the building at least; the effect being to lead the eye outside and at right angles from the altar in a narrow chapel, with the windows on one side only: this surely, to any sensitive eye, cannot but be most distracting, and would have been avoided had the work been kept within those rules of low relief which are alone suitable to glass in its relation to architecture.

I could wish no more instructive lecture to a glass painter, whose judgment had been tolerably grounded by study of the fine works of the fourteenth and fifteenth centuries, than can be read in the windows of the choir of St. Gudule's. Let him begin at the north transept corner, and examine the windows I have described; then let him face about and look at the corresponding ones in the Lady Chapel opposite, those huge architectural monstrosities, and he will have seen the germ and the tree—the first introduction of false taste, and the rank magnitude of its full-blown excrescence. Those in the chapel of the Miraculous Sacrament have a silvery brilliance and sweetness of effect which, in spite of the preponderance of the architectural accompaniment, stamps them genuine and fine windows; but the recessed roofs and elaborate perspective show clearly the rock on which the opposite artist has split, who, in the Lady Chapel, goes off amain, thrusts up enormous piles of opaque building and columns that make the cathedral itself look fragile and slight: despising balance, he aims at being striking and picturesque, sends off receding terraces and mighty ascending steps, settles his groups into corners, with huge rolling masses of shadow measurable by square yards. Here, indeed, force of shadow has been tried with astounding success—there is scarcely a piece of clear glass or of pot-metal colour in all the four; but those who can admire such things in glass must be left to themselves, for it is impossible in looking at them to command patience enough to be critical.

These are said to have been designed by a pupil of Rubens, and have internal evidence sufficient to prove them of his school, but they are so entirely bad as glass, that I would not have mentioned them here were it not to

illustrate the fact of the evil effect to be feared even at the hands of clever artists, when the principle and purposes of an art are forgotten; and as in glass, the beauty of the material despised, and the composition and effect made an outrage to the architecture that affords them a position.

A practical commentary is to be found in the modern glass: in the window over the altar in the Sacrament chapel, the artist has attempted to give additional relief to his subject by darkening the background with deep shadow; then, having perceived his error, he attempts with better success to avoid it in the small chapel behind the high altar, and has kept the windows more equable and light: but still, improved as these are, the student will observe how far deficient in breadth and brilliancy they remain as compared with those in the chapel of the Miraculous Sacrament; and taking all together, old and new, back to the test of his previous study, he will feel himself in a favourable position to judge how far relief by shadow is admissible in painted windows, and at what point it becomes vicious.

In conclusion, I would simply observe, that the windows in the chapel of the Miraculous Sacrament at Brussels are worthy of a visit from every student of glass-painting, being fine in themselves, and a point in the history of the art, but that they might prove dangerous and delusive as models, were it not for the warning supplied by the extravagant errors in the opposite chapel of the Virgin.

F. W. O.

THE WORKING MASONS OF EDINBURGH.

THE condition of the working classes in our chief towns has of late begun to assume that prominence in the public estimation which is due to it as one of the most momentous and important questions of the age. In order that the way may be paved towards the future elevation and welfare of these classes, a close and searching investigation into their present state and their past history is not only desirable but necessary; and the public are deeply indebted to those who carry out such investigations in a right and impartial spirit. The *Edinburgh News* has begun a series of articles on this subject, with an interesting account of the working masons, as the most prominent members of the building trades who have made Edinburgh what it is, in material and in structure, as a stone-hewn city. The author of this article takes a rapid glance through the ancient and less modern history of the trade, and then proceeds to give some account of the "building mania," as it was called, whereby the New Town of Edinburgh rose into existence. This took place between 1820 and 1826. Previously, or rather in the beginning of the century, the number of masons in Edinburgh was nearly equal to that of the present year. The wages were 18s. per week in summer, and 12s. per week in winter. In 1815 a period of unusual depression reigned throughout the trade. In that year there were only one or two houses building in the whole of Edinburgh and Leith: there were also not above seventy masons in the town. This, however, did not last. The time was fast approaching which involved the most interesting as well as the most painful period in the history of the trade. The conclusion of the war, and the subsequent improvement in commerce, began at length to exercise their good effects on Edinburgh.

"Speculative building began in 1820. In 1823–4 the mania had reached its height. Streets, squares, places, crescents, sprang into existence with unparalleled rapidity. The ground-rent exacted in some cases was monstrous. Population (or, in plain terms, people to live in the houses) was never thought of. In two years masons' wages rose from 18s. to 28s. per week. Workmen from every conceivable quarter of the country poured into Edinburgh. Old masons, who in 1815 had taken to keep provision-shops, and in other ways to eke out a subsistence, once more resumed the 'mell.' Apprentices of two years' standing have been known to receive 20s. per week. It was computed that upwards of 3,000 masons were at this time fully employed in Edinburgh. Towards the autumn of 1825 the first symptoms of a general break-up began to appear."

Into the minutiæ of this catastrophe we need not here enter: a working mason who had been employed throughout the "mania" thus speaks of the whole affair, so far as regarded the interests of the men:—

"My wages were never less than 26s. more frequently 28s. sometimes 30s. per week. When the crash came in 1826, it was a serious thing for us: 2,000 men were thrown idle in a few months. There were hardly a job to be got; and at the end of 1827 there were not 100 masons left in the town. I have worked for 12s. per week in winter—less the broken time, which generally reduced it to 8s.—and 14s. a week in summer, for a number of years. Many good hands were worse off. The system of tasking or sub-contracting had been introduced by the masters, and was all but universally adopted. I have known excellent hewers, who worked sixteen hours on a long summer's day, and very often slept night after night in the shed beside their stone, receive 9s. for their week's wages. A statement of my own wages, which I carefully kept, gives for seven years an average of 11s. 3d. per week. At length, in 1841, the Masons' Union was established in Edinburgh. In three years we had accumulated an available fund of 4,000*l*. We then agreed to have a general strike throughout the trade. It began in 1845. We kept it up for seven weeks; but the strike was most extensive in Glasgow. The masters, instead of listening to our grievances, although they were closely combined themselves, and met regularly with the view of adjusting the wages, petitioned Parliament to suppress our union as illegal. Some of our best hands were put in jail for conspiracy. Although the best-informed among us now disapprove entirely of strikes, yet we still think our first and greatest combination was right, because our demands were just. We at length effected our object. We abolished sub-contracting: we obtained 18s. per week in summer, and 14s. per week in winter. We have often since had partial turns-out, but only one more general strike, and that was in 1847. This was the time of the railway mania, and our wages had for the last two years stood at 26s. The masters published a decree reducing them to 21s.: we resisted this for three weeks, but compromised for 22s. 6d. There was not more work, however, and the wages soon fell to 20s. per week, or 4d. an hour, at which rate they still continue."

A master mason of the time being gives a very different view of the question, however. He declares that—

"There never existed a worse class of men than the masons of that period. They were dissipated: they were idle: they were insubordinate. * * * They have been known to drive to the shed in a hackney coach, put down their tools, and hurry away to drink. They systematically corrupted the apprentices, who were taught the same habits without cost. Four days a week was a good average of their work. They maintained among them a parcel of good-for-nothing fellows who did no work, who were furious drinkers and furious spouters, and who were the everlasting cause of sedition and mischief."

Times are totally changed now, however, both with men and masters.

"The old '26 men—now, alas, few and far between,—speak of their masters with respect. They say the Edinburgh builders of the present day are a credit to society. Very often they possess the power of lowering the wages, but they never use it. A better understanding now exists. Let us hope that this improvement in the trade will for ever render impossible the occurrence of such another period of suffering and misfortune."

There are upwards of 800 masons in Edinburgh and Leith at the present time.

"Fully two-thirds of that number are hewers. Almost all the hewers are bred in Edinburgh; almost all the builders are bred in the country. In the whole number there are not more than 100 apprentices. The period of apprenticeship is five years: the wages begin with 3s. and 4s. per week. Masons supply their own tools: a full 'kit' costs from 2*l*. to 2*l*. 10s. and the masters pay for sharpening them. Each mason has his private mark on his tools; and it is curious to what expedients they are sometimes driven for a novel design. A peculiarity, for the origin of which we must look to the masonic superstitions of the middle ages, belongs to the trade, in their mode of notifying the hours of beginning and leaving off work. In place of ringing a bell or blowing a steam-whistle, the functionary who keeps time retires to the back of the shed and creates the singular repetition of sounds popularly known outside as the 'mason's chap.' It is a tradition in the trade that a mason with his mell in the air will let it descend without striking the chisel when he hears the first sound of the signal. The wages at present are 20s. per week; but, making allowance for broken time in winter, and other causes of loss, we doubt if a mason's wages will average 16s. the whole year."

The statistics of "the masons' trouble,"—phthisis from dust in the lungs,—constitutes a painful topic in the history of the mason craft:—

"Dr. Alison has said that 'there is hardly an instance of a mason regularly employed in hewing stones in Edinburgh living free from phthisical symptoms to the age of fifty.' We can go lower than that—we can state from pretty extensive observation, that there are none but suffer from it at forty. We do not, in truth, know ten hewers (working) in Edinburgh above fifty, and only two above sixty. It is to be observed, however, that the celebrated Craigleith stone, of which the New Town of Edinburgh was built, contributed more largely to this characteristic disease than the softer stones at present in use. An old Craigleith man was done at thirty, and died at thirty-five. Our information is filled with melancholy reminiscences of the ravages of this disease. Out of twenty-seven apprentices—fine, young, healthy men—who began with Forsyth at the erection of Cramond-bridge twenty-six years ago, only two survive. Out of 120 hewers who worked at the High School in '27, we know of only ten survivors. In a squad of thirty stout hewers who began the Edinburgh and Glasgow Bank twelve years ago, only the one-half lived to see it finished. *The stone-cutting and carving of the Scott Monument killed twenty-three of the finest men in Edinburgh.*"

By way of prevention, it is recommended to work the stone damp, and to ventilate the work-sheds. Dr. Alison, too, recommends the Edinburgh hewers seriously to wear moustaches and beards, which are said to have been found in practice abroad to act as respirators. Why not use proper respirators themselves? It is useless, however, to urge what we fear few or none will adopt.

It is gratifying to find that the Edinburgh masons are now nearly as noted for temperance as they once were for its reverse. They are also otherwise improved.

"We have met them—by the way you can always distinguish a 'dorbie' at a glance—with a newspaper or a book, sometimes with a plant or a flower to adorn the window-sill of their bed-room. As to the general intelligence of the trade, that is indisputable. They are moderate in their political opinions; they entertain sound views on political economy generally; and, above all, they are profoundly sensible of the duties which they owe to society and to each other."

NOTES IN THE PROVINCES.

Lincoln.—The gas company here have just declared a dividend of ten per cent.

Rickmansworth.—Gas works for this town have been begun and completed in three months. On Thursday before last the opening of the works was attended with festivities, illuminations, fireworks, oratory, &c. Mr. T. Atkins, C.E. of Oxford, was the contractor for the works. On Friday, the workmen in the employ of Mr. Atkins were regaled with a dinner. The mains are now being extended to Batchworth.

Reading.—Parochial schools for Mr. S. Lawrence, of Reading, are in course of erection here to accommodate 300 children, seated at desks, as directed by the Committee of Council on Education. The site of the schools is within the precincts of the ancient monastery of Reading. The style of the school buildings, which is Early English, and the material flint and stone, is intended to harmonise with the interesting remains of the abbey which still exist. The contract is taken by Messrs. Biggs and Wheeler, at 916*l*. The architect is Mr. John Billing.

Uttoxeter.—The small new church of St. Michael, at Stramshall, near Uttoxeter, was consecrated on Thursday week. It is situated on a knoll of ground at the upper end of the hamlet, and has been erected by Mr. Evans, of Ellastone, from designs by Mr. Thomas Fradgley, of Uttoxeter. It is a stone structure, in the Pointed style of architecture, with buttresses, a wooden porch, and a small bell

tower. Its internal appointments are simple. There is a five-light window in the west end. The building contains seats for about 200 worshippers, and is surrounded by a churchyard of about three-quarters of an acre in extent. The entire cost of the building was 1,275*l.* The site was given by the Rev. J. Ward, of Wath, Yorkshire, besides a subscription to the building fund.

Milton and Culham.—The two almost contiguous churches of Milton and Culham have been undergoing restoration during the summer. The latter, indeed, with the exception of chancel and tower, has been entirely rebuilt through the instrumentality of the vicar (the Rev. Robert Walker) and the parishioners, and is already roofed in, and will be fit for use in the course of next month. The miserable and dilapidated chancel, it was expected that the lessee of the great tithes would have rebuilt. The new arch of the chancel rises up above the roof of the chancel itself. It is hoped, however, that this anomaly will soon be remedied. At Milton, Mr. Bowles, a chief resident proprietor, following the example of Archdeacon Clerke, the rector, who last year built an entirely new chancel at his own cost, and threw the old chancel into the nave —has just rebuilt the north aisle of the same church. This has been made under direction of Mr. Street, the architect of the diocese.

Pershore.—The project for the lighting of this town with gas has been abandoned for the present, from the difficulty of obtaining a suitable site for the works.

Evesham.—Great improvements, according to the *Worcester Chronicle*, have been made in this quiet little town during the last two years. Among these is the new bridge across the Avon.

Bridgnorth.—A public meeting has been held for the purpose of considering the best means of improving the drainage of this town. It is *feared* that the Health of Towns Act will be put in force. On all sides it is granted that something must be done to improve the sanitary condition of the town. The necessity of paying for the necessary improvements, seemingly, is the real source of uneasiness and fear.

Ammerdown.—A column, commemorative of the late Mr. T. S. Jolliffe, is in process of construction on one of the highest points in the uplands of Ammerdown-park, in Somersetshire. The entire structure, with its base, pedestal, and capital, it is calculated, may reach an elevation of 150 feet, and will command from the summit an extensive panorama, comprehending the valley of the Bristol Channel, with the mountains of Wales in the distance, and the undulations of the Wiltshire downs with some of the most prominent objects in the adjacent counties.

Wells.—The restoration of St. Cuthbert's Church is progressing. The chancel roof, and the east window, are now completed; and a window, containing the symbols of the Last Supper, and of the Crucifixion, painted by some ladies of the family of Mr. R. C. Tudway, M.P. has been placed in the north chancel. The present churchwarden, Mr. W. Fry, has also undertaken a continuation of the improvements by the removal of whitewash and plaster disfiguring the columns and arches separating the nave from the north and south aisles. This portion of the restoration will be completed in a short time.

Brecon.—While the ratepayers of the parish of St. David's, Brecon, were discussing the question whether their old church required immediate restoration, or was likely to "stand other fifty years yet," the edifice itself decided the question by tumbling down into a total ruin on Saturday week. A resolution had actually been passed for the erection of a new one, a subscription accordingly opened, and a large sum subscribed, when the resolution was rescinded, on the ground that the old church had half-a-century's good service remaining in its tottering walls!

Liverpool.—On Tuesday in last week the foundation stone of a new asylum for orphan boys in Liverpool was laid by the mayor, and immediately afterwards the foundation stone of a new church, appropriated to the institution, was laid by the Bishop of Chester. The church is to be the free gift of Mr. Harmood Banner, president of the institution. Mr. John Cunningham is the architect, and Mr. A. Miller the builder.

Southport.—The commissioners of Southport have published the details of four months' working with bog-head cannel and water gas, by White's hydro-carbon process. The result, according to a Liverpool paper, shows a clear profit of twenty-four per cent. after paying for all materials, labour, and interest on capital. The gas is charged 6s. 8d. per 1,000 feet. The consumption in the period embraced in the return is said to be under 3,000 feet per day, although 30,000 in winter. The cannel, it is remarked, was brought by railway from Scotland, at a charge of 16s. per ton for freight, whilst on this 3,000 feet per day, there is the same interest on capital, and about the same charge for labour that would be on the 30,000. The Scotch cannels, for this system, are said to be far superior to any English cannels.

Blackburn.—Preparations for the erection of the new Town-hall commenced on Thursday in last week, by excavating the earth for the foundation. The contractors, Messrs. Stones and Hackings, are erecting a fence wall to enclose the ground.

Sheffield.—The second half-yearly meeting of the New Gas Company has been held, from which it appears that the company's works have been let out to various contractors bound to finish them within a short time. Very unseemly proceedings have taken place in consequence of the new company's pipes being laid in the streets. The old company having failed, by a recent announcement that the price of their gas would be reduced to 3s. a thousand cubic feet by March next, to effect the purpose they had in view, in thus doing what they would not do for behoof of the public, namely to destroy the new company, employed about forty men to undo the work of the latter by filling up the pipe trenches as fast as they were opened, and this on the pretence of removing an obstruction in the highway to a cab in which one of their officers pretended to want to go through that part of the street which was trenched; thus incurring the imminent risk of breaking the peace and creating a riot, in which the mob were quite prepared to join. The new company's men, however, were very properly withdrawn (after a whole day spent good-humouredly with their fellows in pitching earth out and in from and to the trenches) until the decision of the magistrates, who were appealed to, should be given, after which they were allowed to proceed without disturbance, at least in the meantime. The works of the old company are said to be quite inadequate to yield the requisite supply to the town, even at their present price.

Newcastle-upon-Tyne.—An addition has been made to Neville-hall (late Westmoreland House), the College of Medicine in connection with Durham University. The addition consists of a complete set of new apartments, to be used for education alone, reserving for the collegiate and domestic purposes of the University the old mansion, which will afford quarters for a considerable number of students, each of whom will be provided with a separate apartment, besides having the use of common sitting and dining rooms, the whole adjoining the apartments of the principal. The additional building, according to the *Gateshead Observer*, which presents its readers with an engraving of it, comprises, on the ground-floor, a library; lecturers', students', and porter's rooms: and all the necessary offices; together with a suite of four laboratories; and, on the first floor, lecture, museum, examination, and other apartments, with an open timber roof, in which lights are introduced. The façade fronts the open ground at the east end of the central station, and has a length of 113 feet. Its appearance is plain. Simple means have been employed to produce an embodiment of the collegiate architecture of the Tudor period. Mr. Dobson was the architect. The works have been executed by Messrs. Wilson and Gibson. The site presents capabilities for enlargement of the building, and is in the centre of the town.

Arbroath.—The foundation-stone of a Scottish Episcopal Church was laid here on Tuesday in last week. The extreme length of the building over walls, according to the local *Guide*, will be 110 feet 9 inches, and width 52 feet. On the Tuesday evening the workmen employed at the erection of the church, to the number of nearly sixty, were entertained to supper in Bruce's Hotel—the expense being defrayed by the managers of the church. Mr. Henderson is the architect, and Messrs. Brand are the contractors; Mr. Anderson, the "inspector," or clerk of works, we presume.

Nairn.—A Secession Church has been erected to the west of the town of Nairn. It is proposed to have several cottages immediately commenced in the vicinity of the church, according to plans by Messrs. Mackenzie and Mathews, architects.

Monikie.—The foundation-stone of a free church was laid here by Lord Panmure on Friday week. The site was granted by Lord Panmure. The building is already considerably advanced. It is situated at the east end of the Dundee Water Company's supply pond, near the monument erected by the tenantry of the late Lord Panmure, and stands on a high elevation. It is to have a belfry, and the front looking towards the south. It will be seated to accommodate about 350, and is to be the Panmure family church when residing at Panmure House. The building is expected to be ready early in spring.

NEW STATE HOUSE AT COLUMBUS, FOR OHIO, U.S.

We alluded some time since to the State-house in course of erection at Columbus. Annexed we now give a view and plan of the building, which is still in progress, from the designs of Mr. W. Russell West, architect.

The State House stands in the centre of an open square of ten acres, on a stone terrace 5 feet high. The floors of the porticoes are 5 feet above this terrace: from these, doors open into halls, 24 feet wide. In the centre, at the intersection of these halls, is a rotunda, 65 feet in diameter and 120 feet high. The rooms on the first floor are to be used as offices by the auditor, treasurer, and other officers of the state, and for the preservation of their records and papers. They are all vaulted with brick groined arches. On the second floor are halls for the Senate and House of Representatives, a library, court-room, and committee-rooms. The large rooms are lighted both from the sides and from the roof, but over the small rooms additional accommodation for committees is obtained on a third floor carried on iron joists.

The material of which it is constructed is a hard limestone, brought directly to the spot by railroad from quarries about three miles distant. Steam is also used on the building and at the quarry for hoisting, pumping, &c. The columns and pilasters in the Senate and House of Representatives are of white marble, Corinthian order; those in the halls are of dressed limestone: the jambs and moulded architraves of the doorways to the rotunda are also of limestone. The arches over these doorways are now finished. On the outside, some of the triglyphs are set. The roof will be entirely of iron and copper.

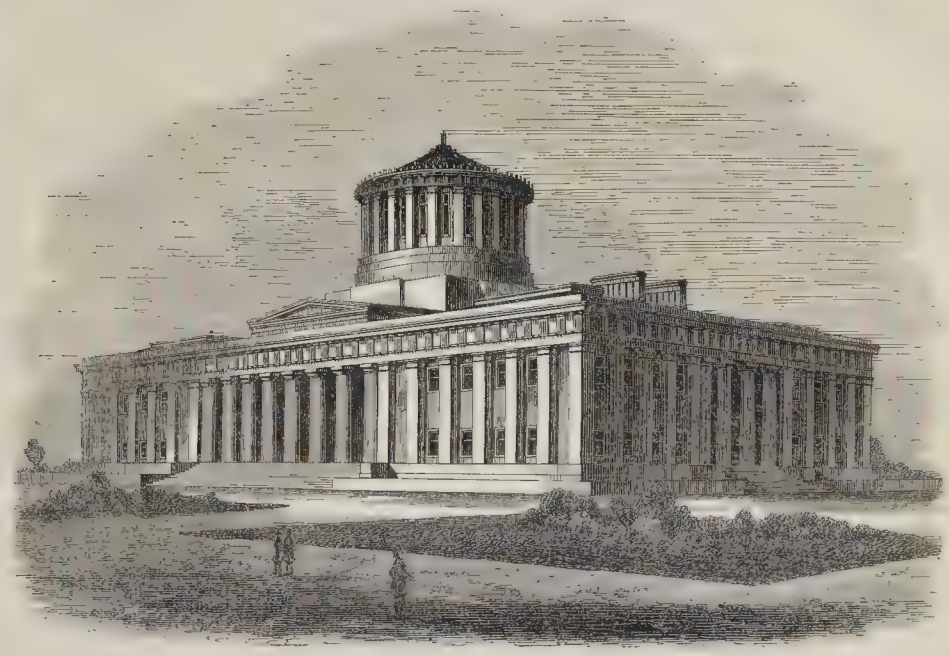
The order adopted, Greek Doric, was prescribed by the Government.

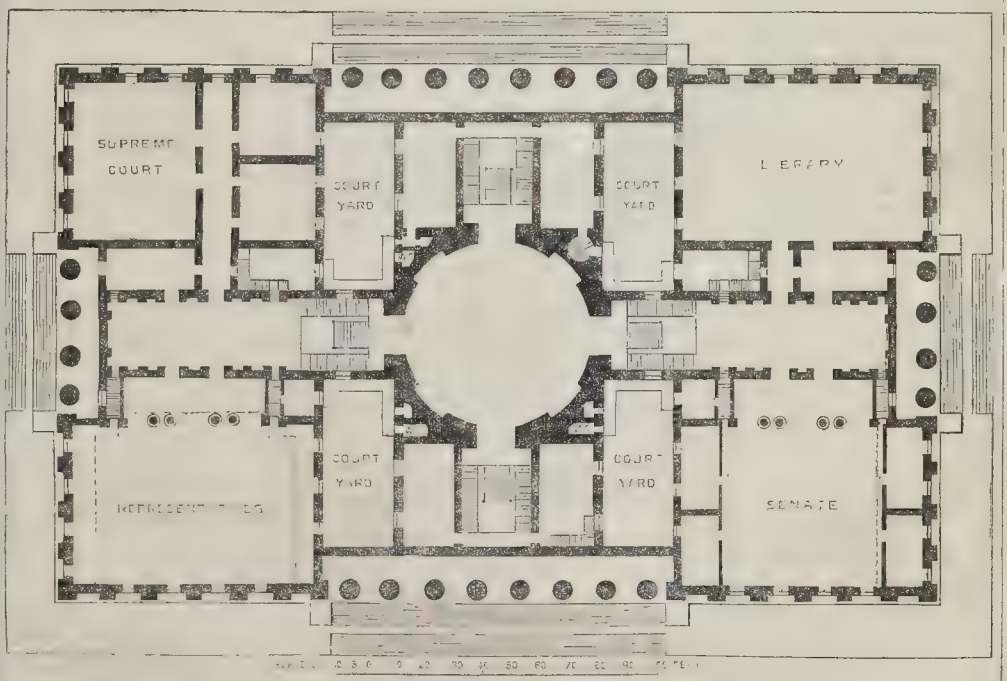
The following are some of the leading dimensions:—Length, 304 feet; breadth, 184 feet; terrace, 340 feet by 220 feet; columns, 6 feet 2 inches in diameter; Senate, 58 feet by 72 feet; House of Representatives, 72 feet by 84 feet; library, 56 feet by 84 feet; court-room, 43 feet by 56 feet: each of the four latter, 28 feet high.

Northumberland House, Strand.—The court-yard, it is said, is about to be extended during the ensuing year. The houses on the west side of Northumberland-court are to be pulled down to admit of the extension.

At the Museum of Ornamental Art Marlborough House, during the month of September, 6,538 persons visited the collection on the public days, and 957 persons on the students' days.

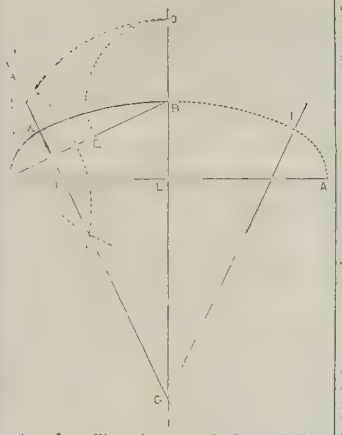
STATE CAPITOL, COLUMBUS, OHIO, U.S.—MR. W. RUSSELL WEST, ARCHITECT.





PLAN OF PRINCIPAL FLOOR.

TO DRAW AN ELLIPSE.



As the ellipse is one of the principal problems, and a subject often uppermost amongst mechanics, especially masons and carpenters, I beg to offer the above for examination to the practical scientific readers of your valuable journal.

Let it be required to draw an elliptical curve through any three given points, ABC: with the radius LC, describe the quadrant CD, cutting the versed line in D: draw BC from the centre B, with the radius BD: describe the arc DE, cutting BC in E: bisect EC: draw GH at right angles to BC, cutting AC in P: from the point F, with the radius FC describe the arc CK, terminating in K: now from the point G, with the radius GK, describe the arc KBI, &c. cutting GD in B, which is one of the points mentioned.

It will be well to observe, that I do not give this problem as purely mathematical, but approximating the section of a cylinder as nearly as the double radii will allow.

Ferdinand Phillips.

THE SANITARY MOVEMENT.

This movement progresses, and will probably increase in intensity till the cholera has come and gone, by which time, however, it is to be hoped that much substantial and permanent good will have been done, as some little compensation at least for the evil which past neglect can scarcely now remedy by forthcoming measures, however active.

At Rochdale, a public meeting has been held to consider the propriety of applying to Parliament for powers to provide public baths, improved drainage, a cemetery, and public walks. Appropriate resolutions were passed by large majorities, and the local commissioners requested to take immediate steps to carry them out.

At Yarmouth, Mr. C. J. Palmer, who is ever occupied with one measure or another for behoof of his town, has written and published a letter to the mayor, urging the formation of a promenade and landing pier, to promote their health and general prosperity, and to be named "The Wellington," in memory of the late duke; the work to be done by public subscription. The side rails of the pier, he proposes to form in the shape of letters, running from end to end, so as to form an open-work inscription to the memory of the duke.

A public promenade for Stonehouse has also been proposed. The parishioners have authorised their Improvement Committee to negotiate with the manor authorities for the rental or use of the Battery-hill for that purpose as a healthful and cheerful site, whence, also, an extensive view of the bay and Sound would be had, as an inducement to recreation; the Board of Ordnance also to be requested to throw open the battery at the top of the hill.

At Windsor the people are astir for the establishment of a cemetery. The Woods and Forests, according to the *Windsor Express*, have offered to present the parish with a piece of low swampy ground on the Spital-road, which, however, the parish officers have refused. If they have an immediate prospect of something better, this refusal may be all right, but otherwise, might not the ground have been drained, or embankments made to keep out the water which is said to swamp it occasionally? The removal of a swamp is itself a good and useful work, and especially so as a preventive or a mitigant of cholera, so that thus a double good might have been at once effected by the formation of a burial-ground on such a spot. The inhabitants, however, want a cemetery disconnected with the parish, and for all religious denominations conjointly. The subject is felt to be a pressing one, in any view, and the *Express* remarks, that some arrangement must immediately be made for the discontinuance of interments, both in the parish churchyard and in the Acre burial-ground.

The subject of a public cemetery is also agitated at Doncaster, where a public meeting of parishioners was lately held, to take into consideration the best means of raising funds for carrying out a liberal proposition of the town council, in establishing a public cemetery for the dead of all denominations. The obstacles to the formation of a cemetery in Doncaster, however, it seems, are almost insuperable. A Government official is said by the local *Gazette* to have admitted the defective state of the law to be such that there is a necessity for immediate legislation, as there is no enactment to empower the rate-payers to tax themselves for the consummation of so laudable a design. A local Act would cost, in parliamentary expenses, little short of 2,042*l.* The Government, however, it is said, will have pressed upon them by the General Board, in the ensuing session, the adoption of a general measure for the establishment of provincial cemeteries. The corporation have obtained the sanction of the Treasury and the burgesses to appropriate seven acres and a half of land, which, according to Mr. Inspector Ranger's opinion, is well adapted in every respect; and the parishioners, to a man, are in favour of a public cemetery. It was determined that a committee should wait upon the corporation to finish the work; that is, enclose the ground by building a substantial wall, erect an appropriate chapel, build a suitable house for the person in charge of the ground, and prepare it for the reception of the dead. The *Gazette*, however, asks where the funds are to come from.

Sewerage, drainage, and water supply are of course amongst the subjects now on the tapis, as indeed they have been for some time past. At Chelmsford, on Friday week, a special meeting of the local board of health was held, for the purpose of taking into consideration a plan prepared by Mr. Fenton, the surveyor, for a complete system of drainage and water supply for the town. The plan proposes that the sewers be constructed with stoneware, socket-pipes, and carried under the river with iron culverts, and in all possible cases below the cellars of the houses. A system of filtering tanks also constitutes part of the plan of Sewerage. The total cost of sewers is estimated at 4,750*l.*; of tanks at 500*l.* For water supply, a reservoir of 80,000 gallons is proposed to be made on the site of Burgess-well, with another at the top of Wood-street, of same size, and an engine to fill the higher from the lower, with pipes from the former throughout the town. The cost of the whole is estimated at 4,845*l.* The plans are under discussion.

The question of sewerage is regarded at Sheffield, as one of so great urgency that it is proposed to authorise the Highway Board to carry out a general system of sewerage without incurring the delay and cost of an Act of Parliament, although the board, in strict legality, have no power to do so.

Preliminaries are being arranged at Darlington towards the immediate commencement of the drainage of the district east of the Skerne, a plan for which has been extra-officially examined and approved of by Mr. Austin, and was shortly to come before the Central Board of Health for their authorisation.

A process of cleansing and whitewashing of the filthy closes in the Canongate, Edinburgh, is in progress, under the authority of the sanitary committee in that city.

At Glasgow, a singular and salutary movement of a somewhat similar kind is taking place, and is thus described in the *Glasgow Gazette*:—

"Within these few days the residue of a former sanitary fund was placed in the hands of Captain Smart (of the City police). That gentleman caused bills to be posted in the worst localities of the city, offering premiums of five shillings each to the possessor of the cleanest house. There were from twenty to forty houses in each small district to which one prize was to be awarded, consequently the individual chance was small. These districts, many of them, for years and ages have been known as dens of squalor and hotbeds of disease and crime, consequently there was an inherent tendency to remain as they were. The day of inspection came round: Havannah, Vennel, Bridgegate, and Goosedubs were visited; close, lane, and tenement, penetrated and ascended,—and to the admiring astonishment of those engaged in this good work, the work of cleansing was found to be universal! Hardly a single exception! Here is a great fact lying at our very door. What can we make of it? The vile, the obdurate were moved. What moved them? Human sympathy. Why, if the money had been proportionally given it would not have been a penny to each house. The money was the symbol that they—even they—were cared for, and virtuous emulation fired their breasts, and gave vigour to their limbs. Surely this can, and will be, followed up. One hundred pounds a year, so distributed, would keep up a perpetual scrubbing and whitewashing."

RAILWAY MATTERS.

On Monday week, the earth on the south side of a cutting near the wooden bridge thrown across the South Yorkshire Railway in Warmesworth Field, tumbled into the cutting below, covering both pairs of rails. The slip extended at least thirty yards along the bank of the cutting, throwing down an immense quantity of materials.——The cost of tunnel-making, says the author of "Our Iron Roads," varies greatly. It is estimated that those formed for the old canals were less than 4*l.* per lineal yard; and that for railways of the ordinary dimensions, they vary from 20*l.* per yard in sandstone rock—which is easy to excavate, and does not require a lining of brick-work—up to 100*l.* and 160*l.* per yard in very loose ground, such as a quicksand, which may render it necessary to have brick-work lining of great thickness.——The formation of the Avignon railway, says the *Vivarais*, having necessitated the removal of the Mountain of Crussol, department of the Ardèche, a mine was formed, and, a few days ago, was charged with 50 quintals (about 5½ tons) of gunpowder. The explosion of this mass shook the earth for miles around, and a quantity of rock of about 25,000 square yards was blown down. It split into blocks of different sizes—most of them of 100 to 300 cubic yards. This great engineering operation was effected without any accident.——It may be useful to note American views on English railway management. It will be seen from the following remarks in the *New York Times*, that the want of communication *between* the carriages in a train, a defect which we have for years insisted ought to be remedied, strikes an American as one of the most obvious and important defects in our management:—

"John Bull is certainly, in many respects, an amazingly slow coach. In whatever relates to railway management especially, it seems impossible for him to keep pace with the rest of the world. . . . . Last summer we happened to be in England, when a spark from the engine set one of the rear carriages of a railrord train on fire, and the inmates of it were soon placed in a very uncomfortable and perilous position. *There was no way of communicating with any other car, or with the conductor or engineer*, for the railway carriages are built now precisely as they were twenty years ago, *each one isolated from every other*. The car was burning at a very rapid rate, the fire being fanned by the speed of the train, and the passengers were beginning to compare the merits of death by fire, with death by leaping from cars running at forty miles an hour, when the state of the case was accidentally discovered by the engineer, and the train was stopped.

The whole English press was at once engaged in a discussion of the case . . . and to this day the discussion still goes on! Another stupidity of the same sort is perpetrated in England in the mode of collecting the tickets upon a railroad train. *As there is no way of passing through the cars*, they must be collected, of course, from the outside; but, instead of doing as the American conductors *used to do* under the *old system*, and as is now done upon the Austrian railways—passing along from door to door on the outside steps while the cars are in motion—the train is stopped a mile or two out of town, and there it stands till the tickets have been collected! *The idea of changing the shape of the cars, so as to allow a passage from one to another, and through the middle of each*, would probably shock John Bull as an innovation certain to prove fatal to the British constitution. The old style of carriages is religiously preserved. . . . . Part of the benches are cushioned; those are the first-class cars for the aristocracy. Others are of hard, plain boards, as comfortless as they can well be made, and these are for the common people! With all their boasted perfectibility the railways in England are not half as comfortable for travellers as those in the United States, and far less so than those of France. John Bull knows all this perfectly well, but he is so obstinately and doggedly conservative, so resolute in resisting change of every sort, that years will elapse before any essential improvements will be made."

——Mr. Derby, an American railway director of some celebrity, gives the following statement of the progress and returns of the railway system in the United States:—

"We number more than 13,000 miles of railway; have crossed the Alleghanies; and are pushing across the fertile fields and level prairies of the West. Since my letter of last year, we have added on an average ten miles per day to our lines, and I see nothing to prevent this rate of progress for five years to come, for our Western lines are constructed with rails of 60 lbs. per yard, and properly equipped for 3,000*l.* to 3,500*l.* per mile, and a traffic of 10*l.* per mile per week gives ten per cent. By the close of next year our great lines will strike the Mississippi, and a railway is already in progress from St. Louis to the verge of civilisation, 300 miles up the Missouri. Lines of telegraph and railway will soon move westward from this point to the Pacific. Our railways are generally successful. The lines of New England average over six per cent. Many of the New York Southern and Western lines pay seven to eight per cent. on bonds, and earn ten to twenty per cent. and besides this are annually gaining in receipts, while success with all seems to be merely a question of time. I think you may estimate that the whole railway investments of the United States will earn this year over seven per cent. on the aggregate capital. While the new lines are moving onward, the older enterprises have improved their tracks, equipages, and speed. Among the more prominent inventions of the day is a machine designed to bore tunnels, one of which is commencing a four mile tunnel in this state under the Hoosac Mountains, at a point where the elevation, 1,200 feet above the railway, render shafts impracticable. This machine has been used for smoothing large slabs of granite with success, and has an engine of sixty-horse power."

WORKS IN CHICHESTER.

The north transept of Chichester Cathedral, which has been used for ages as the church of the extensive parish of the subdeanery, is about to be restored to the cathedral. A new church has recently been erected, in the West-street, for the use of the parishioners, from designs by Mr. R. C. Carpenter, in the style which prevailed in the middle part of the 14th century, and consists of a nave, chancel, north and south aisles. It is built of Caen stone, and the interior is finished, and fitted up with open oak seats of a character that accords with the building. There are sittings for 500 persons, and since it has been consecrated and opened for divine service, the church has been well filled. The foundation of the tower at the west end has been laid in, and this, with other external work, is shortly to be proceeded with. The windows are of the Flamboyant branch of the Decorated style, and that in the chancel, of five lights, surmounted with flowing tracery, has just been filled with stained glass, the work of Mr. Warrington, of London. The centre light, which is somewhat higher than the rest, contains the representation of the crucifixion of our Lord, and at the foot of the cross is Mary Magdalene, tenderly embracing it, and showing her sympathy by stanching the wounds of his bleeding feet. The opening on the right of this contains the figures of the beloved disciple, St. John, supporting the mother of our Lord, and in that on the left Joseph of Arimathea, with Mary, the wife of Cleophas, making up the group of symbolism of the chief subject of the centre. The subjects of the remaining two lights relate to the obituary character of the window; and illustrate the texts, "Joseph shall put his hand upon thine eyes," and "Knowest thou that the Lord will take away thy master from thy head to-day." These texts are introduced on scrolls at the foot of each subject, and beneath the centre one, "Behold thy son; behold thy mother." All these are surmounted by lofty canopies, which terminate in foliated finials, and these are continued by similar ornamentation throughout the tracery, so arranged as to form vesicas, in the principal one of which is the figure of our Lord ascending; in others are angels in Praise and Joy. At the foot of the window runs the following inscription:—"Memorial to Eleanor Braithwaite, aged 67, erected by her son George, Vicar and Subdean, Anno Domini 1852."

Notices of Books.

The Principles and Practice of Hydraulic Engineering applied to arterial and thorough Drainage, the Conveyance of Water, and Mill Power. Second edition. By John Dwyer, C.E. Dublin, M'Glashan; London, Orr and Co. 1852.

Although, in some of the sections, Mr. Dwyer's book more particularly applies to Ireland, all who are concerned in hydraulic engineering, drainage, conveyance of water, earthwork, &c. will find it very valuable. The headings of some of the sections will show the nature of its contents:—On rivers; the quantity of water which annually falls in these countries; catchment basins; to determine the number of cubic feet any catchment basin will yield; proper form of channels, and the velocity of water in them; discharge of water through pipes and sluices; water as motive power; thorough drainage; tables of excavations and embankments. Many undertake works of the kind treated of here without any knowledge of the principles which should regulate them, and the result is, in many cases, disappointment and loss. It would surprise some of these worthies even to be told that the discharge of a 12 inch-pipe, with an inclination of 1 in 100, will be six times that of a 6-inch pipe with the same rate of inclination. Among the tables are some for finding the velocity and discharge per minute of rivers, canals, pipes, &c. calculated from the Chev. de Bûat's formula:—

$$\frac{307\sqrt{d-0{\cdot}1}}{\sqrt{s}-\mathrm{L}\sqrt{s+1{\cdot}6}-0{\cdot}3\sqrt{d-0{\cdot}1}} = \text{velocity per second}$$

The great difference in the quantity discharged by two pipes of the same diameter laid at different inclinations must never be overlooked. Thus, accordidg to these tables, a 4-inch pipe, which, laid with an inclination of 1 in 100, will discharge running half full 7.56 cubic feet per minute,—laid on an incline of 1 in 10, will discharge 30·8 cubic feet per minute.

One of his tables shows, and the result is important as respects the *shape* of conduits for the discharge of water, that while a conduit 4 feet 3 inches deep, with a bottom of 4 feet, will discharge 4,086 cubic feet per minute, a conduit 2 feet deep will require to have a bottom of 18 feet to discharge the same quantity.

Our author's explanation of logarithms is simple and clear:—

"Until lately, the use of logarithms was principally, if not exclusively, confined to the mathematician or astronomer: they are now, with great propriety and advantage, introduced into a variety of calculations, which has the effect of shortening the operations to a degree altogether incredible to those unacquainted with their properties or application. They are a series of numbers in *arithmetical* progression, corresponding to others in a *geometrical* progression, by means of which *addition* supplies the place of multiplication, and, consequently, *subtraction* that of division. The relation of logarithms to natural numbers may, perhaps, be more intelligibly explained by two series of numbers, one in arithmetical and the other in geometrical progression, thus—

Logarithms,	0	1	2	3	4	5	6
Nat. numbs.	1	10	100	1,000	10,000	100,000	1,000,000

In this series it is evident that the addition of any two terms of the upper line together, their sum will indicate that produced by the multiplication of the corresponding terms of the lower line: thus, 2 + 4 = 6, in the upper line, is the index standing over 100 × 10,000 = 1,000,000 in the lower line.

By inspection of the above series, it will be seen that the logarithms are in *arithmetical* progression, while the natural numbers are in a *geometrical* progression. The log. of 1 being 0, the log. of 10 is 1, the log. of 100 is 2, and of 1,000 is 3, and of 10,000 = 4, &c.; hence the logarithms of all numbers between 1 and 10 will be greater than 0 and less than 1; that is, they will be decimals: between 10 and 100 the logarithm will be greater than 1 and less than 2; that is, they will be expressed by 1, with decimals annexed: between 100 and 1,000, they will be expressed by 2, with decimals annexed: between 1,000 and 10,000, by 3, with decimals annexed, and so on."

Mr. Dwyer's book, it will be seen, merits the attention of our readers.

Hand-book of Natural Philosophy and Astronomy. By Dionysius Lardner, D.C.L. *Second Course.—Heat—Common Electricity—Magnetism—Voltaic Electricity.* Taylor, Walton, and Maberly, Paternoster-row.

It was originally intended to include astronomy and meteorology in the present volume of this sterling work; but, judiciously, we think, these subjects have been excluded, and are destined to form a separate volume to follow the present.

This is a strictly elementary work,—so much so that it would be found difficult to quote from it anything not exclusively adapted to that class of readers for whom it is designed, namely, those who desire to learn in a general way the present state of the various elementary branches of physical science, or who, having already done so, wish occasionally to refresh their memories on some one topic or other.

In general each subject is pretty well posted up to its most recent state of advancement, or at least to its latest established facts. On some points, however, we would have liked to have seen a little more of some of the more recent investigations, such as those on magnetism, and diamagnetism, including, by the way, some account of the magnetic, or magneto-electric telegraph, which ought to have been added to the chapter on the electro-magnetic and electro-chemical telegraphs. Of what the class of readers for whom the work is intended, however, most require, a substantial view of the general state of physical science, there is an abundant store, stripped of all mathematical and other details and difficulties.

The New Patent Law; its History, Objects, and Provisions; the Protection of Inventions Act,—14 *Vict. c.* 8, *and* 15 *Vict. c.* 6; *and the Patent Law Amendment Act,*—15 & 16 *Vict. c.* 83. By T. Webster, M.A. Barrister-at-Law. Elsworth, Chancery-lane.

In this pamphlet there is much useful matter in small compass and at a moderate price, the whole overlooked by one long versant, as Mr. Webster has been, with the subject. The new edition of his "Law and Practice of Patents," will be issued so soon as all the necessary forms, rules, regulations, and proceedings shall have been sanctioned. Those already decided on by the commissioners are here given. From what we hear, there seems to be some reason to fear that unless the stipulations of the new law in respect to what constitutes a separate and distinct patent be liberally interpreted by the commissioners, it is capable of giving countenance to much annoyance and unnecessary expense. If so, however, the ultimate thorough reform of the law will only be hastened by such grievances; but we have better hopes of it, even as it is.

Book of Poetical Apothegms. By ANDREW PARK. London: Bogue. 1852.

As Mr. Park originally contributed to our "Miscellanea" two or three of the apothegms which have grown into this little book, we owe it him to say, that it consists of 236 *quaternaries*, on all sorts of subjects, each complete in itself. Though the philosophy of many of these is erroneous, they form useful texts for thought, and are pervaded by a hearty, honest feeling.

Here are a couple of them:—

"ANGER is partial madness, and the fit
Though but of short duration, yet may sit
Like a coiled serpent on the frenzied brain,
And urge to deeds we can't undo again."

"If all the epitaphs of fond regard
Are true, engraved in every lone churchyard,
How bad the living are—how good who die!
Alas! too many rest beneath a lie."

The Cloud with the Silver Lining. By the Author of "A Trap to Catch a Sunbeam." Wright, Pall-mall. 1852.

As we have thus been led into a little light reading, we will take the opportunity to mention a new story by the amiable author of many pleasant tales. All Miss Planché's stories are distinguished by high intention and kindly feeling, and "The Cloud with the Silver Lining" is not an exception. It may be read alike by the young and the old with pleasure and advantage. One of its wholesome inculcations may be given in a sentence:—"There may not be a Sidemoor near us" (the heroine and her husband are setting to work to reform a dissolute village of that name), "but there is work for us to do fitted to our powers, if we would but seek for it: it may be very humble, very slight to what others may be called on to do, but if we do it diligently our pay will be the same as theirs." The chief "moral" of the story is told by the title: and there are times when all may be cheered by remembering that the darkest cloud may have a silver lining. The writer of these little books is doing her own good work quietly and unostentatiously, and will, we hope, reap the reward she richly merits.

A Series of Designs for Gothic Monuments, Churchyard Crosses, Slabs, &c. By JOHN GIBBS, Architect and Sculptor. London: Bell, 1852.

TWELVE plates in lithography set forth a number of designs adapted from ancient examples of coped stones, crosses, and monuments, and more accordant with our mediæval churches than those which their walls for the most part exhibit. The majority of the monuments given are arranged to stand in recesses. The volume can scarcely, however, serve for more than a pattern-book for Mr. Gibbs's own employers: if intended for "those whose business or profession it may be," as he expresses it, "to perform the work of a monument," details at large are needed to make it useful.

Miscellanea.

THE SHAFTESBURY LITERARY INSTITUTE.—The *Dorset Chronicle* reports the first meeting of this new institution, which was held on Wednesday in last week, the Marquis of Westminster, president, in the chair, when the Rev. H. F. Yeatman, L.L.B. delivered to a crowded audience an interesting and able inaugural address on the progress of knowledge, from which we may quote the following passage on the architectural and other knowledge of the Egyptians:—"To give you some idea of what their powers of architecture were I would direct your attention for a moment to that wonderful city called Thebes, the capital of Thebais, or Upper Egypt, built by Osiris (who is said to be an Egyptian king, and the same as Menes, or Minæus, the first Egyptian king, and son of Ham), 2,020 years B.C. Osiris was worshipped as a god. Its extent was 420 stadii, or 52½ miles. Homer speaks of its having 100 gates, but it is doubtful whether these 100 gates mean the gates of the city or of its various temples. It was built on the east side of the Nile. Its great temple (according to Diodorus Siculus) was 1½ mile in circumference—45 cubits high, and its walls were 24 feet thick. That is a remarkable circumstance, tending to show the magnificence and grandeur of these temples. Besides this, there was the palace of Memnon, with its columns 40 feet high, and the walls covered with hieroglyphics. The sepulchres of the ancient kings were there to be seen; and these sepulchres contained paintings of the mysteries which the priests endeavoured to conceal. And it is remarkable that, in 1820, these pictures were considered to be perfect, and not much impaired by time. There was a temple at Jharnac, or Carnac, built by Sesostris, 1,500 years B.C. that is, 3,523 years ago. In the portico of one of these temples there were 100 columns, the smallest of which were 7½ feet, and the largest 12 feet in diameter—that is, 36 feet in circumference. If the portico alone contained 100 columns, such as these, I can only leave you to imagine what must have been the magnitude of that temple itself."

GREAT QUARRY BLAST IN ARGYLSHIRE.—At the Furness (or Furnace) Granite Quarry, on Lochfyne, near Inverary, a blast of three tons of gunpowder was successfully fired without the slightest accident on 29th ult. This quarry supplies granite causeway stones such as those with which the main thoroughfares of Glasgow are paved. The material is of the most hard and obdurate description. Several contractors for the blast tunnel gave up the job in despair; but a Welshman named John Rodger at length accomplished it. The work commenced in January last, and was only finished shortly before the blast took place. The quarry rises perpendicularly above the margin of Lochfyne to a height of about 80 feet, and presents a surface to the sea of 100 feet in length. Near the centre of this face, and 70 feet inward or back from the front, a vertical shaft was driven down through the granite mountain to a depth of 60 feet from the surface. It was 3 feet 6 inches square. From the bottom of this shaft two galleries or tunnels, of equal capacity with the main shaft, run each 17 feet in length, in a line, or parallel, with the quarry face. At the extremity of each of these little tunnels was placed a box containing a ton and a half of the strongest blasting power, or giving, in separate divisions, a total charge of three tons. The stemming or filling up of the galleries and shaft was effected by the formation of three inverted arches in each of the galleries, strongly built in with material properly dressed and closely cemented. Independently of these arches in the galleries, the space between, as well as the vertical shaft itself, was firmly packed with solid granite. The blast is said to have been of the most successful character. It is computed that 40,000 tons of granite have been torn up, varying in size from five tons downwards. Where the quarry formerly presented an even surface, there is now a gap 40 feet in width by 35 feet backwards, and the rent, it is believed, extends almost to the bottom of the quarry. The blast was fired by the galvanic spark from a battery only 60 feet from the mouth of the shaft.

PROGRESS OF LIVERPOOL.—The dues on tonnage received during the past year have been 137,754*l.* 0s. 5d.; on foreign goods inwards, 86,402*l.* 3s. 5d.; and outwards, 22,530*l.* 1s. 10d. making a total amount of 246,686*l.* 5s. 8d. The interest on bonds amounts to 202,374*l.* 13s. 3d. leaving a margin for ordinary expenditure of 44,311*l.* 12s. 5d. The balance in the hands of the bankers and treasurer has increased from 103,148*l.* 15s. 11d. to 135,096*l.* 0s. 3d. The Albert Dock warehouses have produced for rates and rent 60,201*l.* 14s. 3d. the working expenditure being 36,258*l.* 6s. 6d. A table embodied with the accounts exhibits a remarkable history of progress. In 1752 the amount received for tonnage dues in Liverpool was 1,776*l.* 8s. 2d.; and in the closing year of the century, 1799, it was 14,049*l.* 8s. 1d. or nearly eight-fold. In the following year it leaped at once to 23,379*l.* 13s. 6d.; and in 1810 it had reached 65,782*l.* 1s. From this point it declined during the next three years, when it began again to increase, and has steadily progressed until we have in the past year an amount of 246,686*l.* 5s. 8d. although, in 1846, a reduction was made in the rates of 38½ per cent. and, in 1844, a reduction in the tonnage dues on East-India vessels of 33 per cent. or about 18 per cent. on the aggregate of foreign voyages; and again, in 1848, a further reduction, amounting to 40,000*l.* In 1800 the number of vessels frequenting the port was 4,746, and the tonnage 450,060 tons. In 1852 the number of vessels had reached 21,473, with a tonnage of 3,912,506 tons, or above eight-fold the tonnage of 1800.

THE GENTLEMAN'S ROOM.—"Far beyond drawing-room or spare-room, and important above almost every other arrangement in your domestic establishment, is the consecration of one room to the especial use of the master of the house, *should his pursuits be such as to render occasional solitude and quiet needful or merely pleasurable to him.* A sound and a lovely policy is that which secures to a husband, in his own family, certain privileges and comforts that he can never find elsewhere, and that are calculated to counterbalance the weight of the many other attractions which his immediate circle cannot offer. A room to himself—a home within his home—*is* such a privilege, and few sacrifices are too great, if they may procure it for him: few advantages are great enough, if they must take it from him: it will keep him from clubs and card parties abroad, or from being 'always about' at home: it will prove a sanctuary from the numerous petty domestic troubles and annoyances that, as few men can comprehend or tolerate, it is much better that they should not see; or, should business or amusement induce a temporary absence, the image of his *own* room, and the gentle loving being presiding over its many indulgences and comforts, will follow him into 'hall and bower,' and, creating a salutary yearning in the midst of greater luxury and wealth, will guide him safely back again, where only he can rest in perfect happiness and safety."—*Home Truths for Home Peace.*

ASSYRIAN ANTIQUITIES.—FURTHER DISCOVERIES.—Letters received in Paris from M. Place, consul at Mosul, report further excavations and successes among the mounds of Nineveh. Besides a large addition of statues, bas-reliefs in marble, pottery, and articles of jewellery, the French explorers have been able to examine the whole of the palace of Khorsabad and its dependencies. They are said to have obtained proof that the Assyrians were not ignorant of any of the resources of architecture. M. Place has discovered a large gate, 12 feet high, which appears to have been one of the entrances to the city; several constructions in marble; two rows of columns, apparently extending a considerable distance; and the cellar of the palace, still containing regular rows of wine jars. M. Place has caused excavations to be made in the hills of Bachieca, Karemless, Teu Leuben, Mattai, Karakock, Digan, &c. on the left bank of the Tigris, within ten leagues from Khorsabad. In them he has found monuments, tombs, jewellery, and some articles of gold and other metal, and in stone. At Dsisiran there is a monument which, it is supposed, may turn out to be as large as that of Khorsabad. At Mattai, and at a place called Barrain, M. Place has found bas-reliefs cut in solid rocks: they consist of a number of colossal figures and of a series of full-length portraits of the kings of Assyria. M. Place reports that he has taken copies of his discoveries by means of the photographic process.

NEW APPLICATION OF WATER POWER.—Mr. T. Ainsworth, of Preston, is about to erect in Ribchester a mill for the manufacture of bobbins. The mill, according to the *Preston Chronicle*, will be worked by water power by means of a turbine, instead of a water-wheel. In this instance there is a fall of 60 feet. The water will be conveyed down a tube, 90 feet in length, at a considerable angle, and the continual flow and pressure of this column as it flows down the tube upon the turbine, makes it revolve. Thus the shaft is driven to work the mill.

THE ELDER PUGIN.—In the remarks in your leader of the 25th ult. upon the loss which the profession has sustained by the death of Mr. A. Welby Pugin, you have alluded to his father as a Romanist. That he was instructed in the Roman Catholic faith in early life is not improbable, but having been resident with him for five years during my articleship, I can certainly bear witness that he did not attend the rites of that church. Though not a communicant of the Anglican Church, he occasionally attended her services and adopted her doctrines, and spoke unfavourably of the Church of Rome. If the elder Pugin lacked religious zeal, it was not wanting in his wife, who was one of the most enthusiastic followers of the late Mr. Irving, and a most determined opponent of Romanism under any form. Enthusiasm was the essence of A. Welby Pugin's nature, but it had no sympathy with his mother's tastes, and was soon engaged in other exciting objects which have been well described by Mr. T. Bury. Many other remarkable incidents in his eventful life might be added to that faithful sketch, but my simple purpose in these lines is to give my impression as to the elder Pugin's religion. I cannot, however, close these remarks without an expression of regret that so great a genius should be taken from us: he was great in everything he undertook, and his power of mastering any subject was truly surprising: being much associated with him in early years, and having accompanied him alone in many of his sketching excursions (when he assisted his father), I had good opportunities of observing the astonishing qualities which will place his name amongst those of the greatest men of this age.—BEN. FERREY.

PRINCIPLES OF DECORATIVE ART.—We perceive that a new feature has been introduced into the department of practical art, in Marlborough House, in the shape of large sheets, to be hung in various parts of the studio, containing the following excellent definitions of the principles of decorative art, as applied to metal works, pottery, and plastic forms generally:—"The form should be most carefully adapted to use; being studied for elegance and beauty of line as well as for capacity, strength, mobility," &c. "In ornamenting the construction, care should be taken to preserve the general form, and keep the decoration subservient to it, by low relief or otherwise: the ornament should be so arranged as to enbance by its lines the symmetry of the original form, and assist its constructive strength." "If arabesques, or figures in the round, are used, they should arise out of the ornamental and constructive forms, and not be merely applied." "All projecting parts should have careful consideration, to render them as little liable to injury as is consistent with their purpose." "It must ever be remembered that repose is required to give value to ornament, which in itself is secondary, and not principal."

AGRICULTURAL MACHINERY.—It is the duty of journalists to place before their readers whatever facts may conduce to the general welfare. We think we are fulfilling this duty in directing our readers' attention to a scheme propounded by Colonel Cartwright, at the recent agricultural dinner at Northampton. The colonel has devised a plan for a parochial district association for the purpose of procuring improved agricultural implements, and thus to save the expense of the large holder, and to place them within reach of the smallest. We believe the leading feature of the scheme is to provide for each parish or district a steam thrashing machine, a winnowing machine, a reaping machine, drills, and, if need be, a tile-making machine, draining plough, &c. &c. The mode of raising the requisite capital is to be by contribution from each shareholder, levied in proportion to the size of his farm. It is calculated that by this means, at an outlay scarcely greater than would be required *for one year's use* of these implements, every proprietor of this joint stock would have it in his power to avail himself of any machinery he might want. Some difficulties there would no doubt be. For instance, how is priority of use to be settled? It would often happen that the same machine would be wanted in several places at once. In times when farmers are told so emphatically (and even by those to whom they looked for relief), to "*trust to themselves*," every mode of cheapening labour must necessarily be adopted; and if Colonel Cartwright's cheap mode of cheapening labour is practicable, we think the sooner some steps are taken the better.—*Leicester Advertiser.*

LARGE DEPOSIT OF GRAPHITE.—At St. John's, New Brunswick, near the new suspension-bridge over the St. John's River, a very extensive deposit of graphite has been opened. The vein or bed is nearly vertical, and inclosed between beds of highly metamorphic schists. The graphite bed has been explored by a gallery over 100 feet, and by cross-cuts at right angles to this some 20 or more feet. All these are in the graphite mass, and, of course, the floor and roof of the levels are of the same mineral. The graphite is not of very superior quality, though portions of it are pure. It has a foliated structure. Iron pyrites is abundantly diffused in it. The chief economical use made of it has been in facing the sand moulds for iron castings. Some of the finer parts are also used to manufacture pencils. Many hundred tons have already been taken out. The vein reappears on the opposite side of the St. John's River, and on the side now opened it has been traced over a mile. The position of the deposit, in conformable metamorphic schists, suggests the conjecture that it may represent a former coal bed.

THE "DIGGINS DIRECTORY."—A curiosity in its way, with the Melbourne and Forest Creek, Victoria, postmarks on it, has been sent us direct from the Australian "diggins" (along with a snug little nest of "nuggets," like the golden goose's eggs, we *might* have had occasion to say, but as yet we *haven't*). "Bryce Ross's Diggins' Directory," printed by him at his "Agency," and "Herald's Office," *on* the diggins, consists of a single sheet, with an ornamental border, and contains references to the chief "stores" and "tent parties" at "Golden Gully," "Gully Flat," and other choice localities in the "Diggin" districts of "Forest Creek," "Fryer's Creek," "Bendigo," &c. &c. at Victoria. Besides miners' tents and general stores, the principal special stores named in this interesting memento of a semi-barbarous state of society, are eating-houses, butcheries, bakeries, and smithies. We are pleased to find amongst them, too, a "teetotal booth:" we hope it is always filled to overflowing. Surgeons seem to be the chief professional men amongst the miners: we observe no trace of lawyers *as yet*. "Wakefield, hairdresser," betokens something like a rising respect to appearances. There is an "Argus Office," no less than a "Herald's." The "Commissioner's Tent," is a grand centre and guide to collateral establishments in each district.

"THE CANADIAN JOURNAL."—We have from Toronto, under this name, a "Repertory of Industry, Science, and Art, and a Record of the Proceedings of the Canadian Institute,"* which promises to be well conducted. The Canadian Institute, when first proposed in 1849, was to be composed mainly of surveyors, engineers, and architects; but ultimately its professional character was changed to one of general description, and a royal charter of incorporation was obtained in November, 1851.

MEETING OF THE NORFOLK ARCHÆOLOGICAL SOCIETY.—The annual excursion of this Society took place on Thursday, in week before last. Buckenham, with its castle built by William de Albini; Harling, with its church and monuments; and Attleborough, of historic renown, offered many features, on which papers were read by members of the society. East Harling church was the first spot visited, and Mr. Harrod read a paper on various objects of interest in East Harling church. Mr. Manning also read a paper on a monument in the south aisle of the church. The company then proceeded to Banham church, and Buckenham castle, when a paper respecting the latter was read by Mr. Harrod. The church of New Buckenham, Besthorpe church, and Attleborough church were successively inspected, and a party of members then adjourned to the New Inn to dinner, where Sir T. B. Beevor occupied the chair.

* Published by Hugh Scobie, Toronto.

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BY GEORGE GODWIN, F.R.S. &c.

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TO CORRESPONDENTS.

"*To purify Sewage-water.*"—A correspondent wants to know the most simple method of purifying sewage-water, to render it clear and pure in taste.

"Curieux," "Mr. B.," (we are unable to comply), "F. T." (thanks for good opinion), "H. J.," "G. R." (we cannot take the responsibility of recommending investments), "C. L.," "G. L.," "C. C. N.," "J. L.," "F. W. O.," "W. P. G." (thanks), "Mr. Serjt. T." (thanks), "C. B. A.," "J. E.," "G. E. H.," "W. H.," "J. F.," "T. B.," "C. F. D.," "B. F." (yes), "Palladio," "Builder's Clerk," "S.," "G. O. L.," "A. W. M.," "C. L. M." (we cannot), "W. B.," "L.," "J. J. A.," "J. N.," "Mr. R.," "J. H.," "E. L. G.," "A. H. G." (no occasion for regret), "Warming Bath" (must depend on local arrangements: employ a competent person), "T. T." (shall appear), "Quondam" (ditto), "F. L."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ON the 24th of September, 1850, died suddenly, at New Orleans, ROBERT DUVAL, Civil Engineer, of London, in the 31st year of his age. This announcement has been long deferred from its certainty being unable to be obtained till the present time.

ADVERTISEMENTS.

STEPHENS'S PATENT PROPELLING PENCILS.—A new kind of ever-pointed Pencil in Wood, lined throughout with lead, requiring no cutting, as the lead is propelled to the point by a novel, easy and ingenious contrivance: is more economical than even the wood pencil, which is destroyed as used, whereas in these pencils the lead only is consumed, the pencil remaining as perfect as at first, ready to be re-filled, as this is required only at long intervals. Prepared and sold by the Proprietor, HENRY STEPHENS, 58, Strand (3 doors), and 59, Aldersgate-road, London. Sold by Booksellers and Stationers; where also may be had his Writing Fluids, peculiarly adapted to Steel Pens.

QUANTITIES, SPECIFICATIONS, SCHEDULES of PRICES, WORKING DRAWINGS, &c. copied, lithographed, or printed.

PLANS, ELEVATIONS, DRAWINGS of MACHINERY, &c. lithographed or engraved.

BUILDERS' and CONTRACTORS' ACCOUNT-BOOKS; DRAWING PAPERS; ditto mounted and continuous. TRACING PAPER and CLOTH; ditto in lengths.

GENERAL STATIONERY, for the use of BUILDERS, ARCHITECTS, SURVEYORS, and ENGINEERS, at the lowest current rates.

WATERLOW and SONS, 65 to 68, London-wall; and 49, Parliament street, London.

Contracts for the supply of large establishments.

TO BUILDERS.

BE it KNOWN to all MEN KEEPING HORSES, either for pleasure or business, that with MARY WILDAKE'S OAT-BRUISERS and CHAFF CUTTERS they may save seven shillings out of every seven pounds spent in food, and the animal will improve in a very short time.—30 per cent. 18, FENCHURCH STREET. Beware of spurious imitations, which destroy the goodness of the oat.

THE BEST MATTING and MATS, of Cocoa-nut Fibre. The Jury of Class 28, Great Exhibition, awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate hill, London.

TO SLATE MERCHANTS.

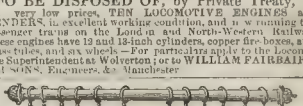
SLATE MERCHANTS can have their SLATES LIGHTERED upon very advantageous terms, by CHARLES STRUTTON, Lighterman, 34, Commercial road, Lambeth.

TO SAW MILL PROPRIETORS.

SAW MILL PROPRIETORS and TIMBER MERCHANTS can have their GOODS LIGHTERED upon very advantageous terms by CHARLES STRUTTON (sole lighterman to the Commercial Dock Company), 34, Commercial-road, Lambeth. Barges let on hire.

TO RAILWAY COMPANIES, ENGINEERS, CONTRACTORS' AND OTHERS.

TO BE DISPOSED OF, by Private Treaty, at very low prices, TEN LOCOMOTIVE ENGINES and TENDERS, in excellent working condition, and now running the passenger trains on the London and North-Western Railway. These engines have 12 and 13-inch cylinders, copper fire-boxes, and brass tubes, and six wheels.—For particulars apply to the Locomotive Superintendent at Wolverton; or to WILLIAM FAIRBAIRN and SONS, Engineers, &c. Manchester.



NOISELESS RINGS.

GUTTA PERCHA CURTAIN and CORNICE RINGS.—These Rings have been much approved by the Faculty, particularly for nervous and aged patients. Owing to the peculiar properties of Gutta Percha, these rings do not make a noise when drawn along the pole or rod. The following sizes may be had, either with or without loops:—Sizes: 1 inch diameter, 1¼ inch ditto, 2 inch ditto, 2½ inch ditto, 3 inch ditto, 3½ inch ditto.

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Wholesale City Depôt, Messrs BURGESS and KEY, 103, Newgate-street.

TO PARENTS AND GUARDIANS

AN ARCHITECT and SURVEYOR, in practice in the City, is desirous of receiving an ARTICLED PUPIL into his Office. With a Youth having a decided taste for the Profession, the premium would be made a very moderate consideration. Apply, by letter, only, to B. J. care of Messrs. Carter and Bromley, 23, Royal Exchange.

BRICK-MAKING.—WANTED, an experienced Person to undertake the entire MANAGEMENT of the necessary work in MAKING BRICKS, about eight miles west of London. Capital will be advanced, and all the bricks purchased at a stated price.—Reply by letter only to A. B. Office of "The Builder," giving a reference to where the party has been engaged in a similar manner.

SURVEYOR and ENGINEER WANTED.—The Local Board of Health of the borough of Macclesfield are prepared to receive applications from candidates for the office of Surveyor and Engineer. The salary will be 300l. a year, and candidates must possess a thorough practical knowledge of all the duties required by the Public Health Act; and in addition to those duties the officer elected will be required to superintend the Borough Water Works and the Corporate Property.—Applications and testimonials addressed to me, may be forwarded on or before the 27th day of October instant.—By order of the Board.
THOMAS PARROTT, Clerk.
Macclesfield, Oct. 7, 1853.

TO SURVEYORS

THE Corporation of Coventry, as the Local Board of Health, having resolved to appoint a SURVEYOR of the COVENTRY DISTRICT, comprising a population of 35,000, who is to act as the General Surveyor of the Corporation, with a salary of 150l. a year; all persons desirous of the SITUATION, are requested to send applications, in writing, to me, with testimonials of their sufficiency, on or before MONDAY, the 18th day of OCTOBER instant, and will be expected to enter on the duties of the office immediately after the 9th of November next.
THOMAS BALL THOUGHTON, Town Clerk.
Coventry, October 7, 1853.

WANTED, by a CONTRACTOR of PUBLIC WORKS, who wishes to extend his business, an experienced PARTNER, with moderate capital. Address, X. A. X. Office of "The Builder," 1, York-street, Covent Garden.

WANTED, immediately, TWO good TUCK POINTERS, to fuel-point twelve second-rate buildings.—Apply, by letter, to W. SMITH, Builder, Maldon, Essex.

WANTED, in an Iron Works, a TIME-KEEPER and GOODS-WEIGHER.—Apply by letter only, stating terms and particulars, addressed to G. B. 168, Drury-lane.

TO BUILDERS' FOREMEN.

WANTED, a competent FOREMAN, who has been accustomed to superintend the erection and finishing of first rate dwelling-houses.—Apply, personally or by letter, to Le Sueur, at No. 23, Hanover-square.

WANTED, a steady active YOUNG MAN, of business habits, in a CONTRACTOR'S and SURVEYOR'S OFFICE. He must be a good accountant, and competent to measure work, and take out quantities. Apply, stating references and salary required, to A. B. Post-office, Rundle.

TO PARENTS AND GUARDIANS

WANTED immediately, an OUT-DOOR ARTICLED PUPIL, by a Civil Engineer in permanent practice in one of the most fashionable parts in the west end of London. A premium expected.—Apply, by letter, F. 88, Office of "The Builder," 1, York-street, Covent-garden.

TO JOURNEYMEN SLATERS.

WANTED immediately, for constancy, a good WORKMAN. One would be preferred understanding the slab department; but he must have a thorough knowledge of the trade.—Apply to A.S. BROWN, Slater, &c., Chelmsford, Essex.—N.B. None need apply but steady characters.

WANTED, immediately, a CLERK of WORKS, who has been accustomed to superintend Gothic building.—Apply by letter, stating salary, to A. B. at Mr. Dixon's, 40, Arlington square, Islington.

TO BUILDERS' CLERKS.

WANTED, immediately, a CLERK, well acquainted with the general routine of a Builder's Office. He must also be capable of measuring work. Apply by letter, to Mr. H. D. AUSTIN, 4, Cleveland-square, Paddington.

TO PRACTICAL ASSISTANTS, CLERKS OF WORKS, AND SURVEYORS.

WANTED immediately, a first-rate practical CLERK, by an architect in a large provincial town; he must be thoroughly acquainted with scientific construction, mechanical manipulation of iron, wood, and stone works, and superintending the execution of buildings; a good draughtsman, very rapid in getting out working and detail drawings, quantities, admeasurements, and calculations (this being an essential requisite), and extremely active and business-like, as he will be required to superintend the office. A knowledge of land-surveying is also desirable. None need apply who have not had from fifteen to twenty years' practical experience, and whose qualifications will not fully meet these requirements. Every letter to be accompanied with unexceptionable references or testimonials, and addressed VITRUVIUS, Office of "The Builder," 1, York-street, Covent-garden.

TO ARCHITECTS AND BUILDERS.

WANTED, by a Gentleman, a SITUATION in an Office of either the above. He has served his articles in a first-rate office, is thoroughly conversant with architectural drawing and designing.—Direct to A. Z. Post-office, Belford, Northumberland.

TO ENGINEERS

WANTED, by a Young Man, an ENGAGEMENT;—is a good Practical Draught-man, and has superintended the erection of gas and water works. Most respectable references can be given.—Address to C. B. F. Post-office, Kennington-cross, Kennington.

TO ARCHITECTS AND OTHERS

WANTED, a SITUATION, as CLERK of WORKS, or FOREMAN to a BUILDER; has had good experience in all the ordinary work. Satisfactory reference can be given.—Address, T. Y. X. Office of "The Builder," 1, York street, Covent-garden.

TO CARPENTERS AND BUILDERS.

A GENTLEMAN wishes to place his Son, a Youth 17 years of age, with a respectable house in the above line.—Address, pre-paid, to J. W. Mr. Settle, 9, Commerce-place, North Brixton.

TO CARPENTERS AND BUILDERS

A respectable YOUTH, aged sixteen, wishes to be APPRENTICED to the above trade, for four years.—Three letters, prepaid, stating full particulars and amount of premium, to G. B. 272, Strand. A small premium only will be given.

A PRACTICAL MAN, a Carpenter and Joiner, who is well experienced in all the branches of the building trade, WANTS a SITUATION as CLERK of WORKS, General Superintendent, or Working Foreman. The country not objected to. Satisfactory reference.—Address, S. P. Egyptian Coffee-house, Sloan-square, Chelsea.

TO BUILDERS AND SURVEYORS.

OPEN for a SITUATION, a Young Man, who has been accustomed to Surveying in all its branches, and understands the routine of a Builder's Office. Has been engaged with one of the largest builders in London for the last thirteen months, ten of which he was time-keeper and general manager of a large job in the suburbs.—Address C. S. care of Mr. Collins, No. 4, Bromell's-road, Clapham.

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AN ARCHITECTURAL DRAUGHTSMAN is desirous of an ENGAGEMENT in town. He has a good knowledge of the Gothic and other styles, colouring, ornamental detailing, and perspective.—Address, I. N. 8, Theberton-street, Islington.

AN ARCHITECTURAL DRAUGHTSMAN wishes for an ENGAGEMENT in town. He is well acquainted with perspective, has a knowledge of colouring, and is accustomed to designing and the preparation of working drawings.—Address, T. A. Post-office 86, Upper-street, Islington.

TO BUILDERS AND CONTRACTORS

TWO or Three days each week EMPLOYMENT is solicited by a practical SURVEYOR and BUILDER'S CLERK. Unquestionable references given. Address, O. P. Q. Mr. Holl's, 8, Smith-street, Thomas-street, Kennington-common.

PEAT, CHARCOAL, and SANITARY REFORM.—NOTICE.—The Inhabitants of Towns and Populous Districts are respectfully invited to an examination of the PLANS of SEWAGE TANKS, CLOSETS, &c. proposed for the CONVERTATION of all DECOMPOSED ANIMAL and VEGETABLE REFUSE into a dry inodorous MANURE, by means of PEAT CHARCOAL; the greatest absorbent known, as it will take up and retain above 84 per cent. of water, and from 500 to 900 volumes of those noxious gases arising from animal decrement, and other putrid matter. Pamphlets, descriptive of its uses and testimonials as to its efficacy as a Manure, from leading Agriculturists, Chemists, Florists, &c. may be obtained gratis, at the Sanitary Engineering Offices, 88, St. James's-street, London, where models of its application to towns, urinals, &c. may be seen. Licenses granted for the manufacture of Peat Charcoal. Plans, Estimates, and Specifications furnished.—Terms for the Sanitary Inspection of Houses, &c with all necessary information, can be obtained of Mr. ROBERT FAIRBAIRN, C.E. at the above Offices.

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Jeffery Smith, esq. David Ferguson, esq.
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Policies indisputable, except in cases of fraud.
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NON-FORFEITURE OF POLICIES.

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Loans granted on personal and other securities, in connection with life assurance.

BONUS.

The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:

No. of premiums paid.	Age when assured.	Annual premium	Sum assured.	Bonus added.	Amount now assured.
		£ s. d.	£	£ s. d.	£ s. d.
5	50	45 19 2	1,000	94 13 1	1,094 13 0
4	40	32 19 2	1,000	65 0 0	1,065 0 0
3	30	24 13 0	1,000	43 14 5	1,043 14 5

GEORGE THOMSON, Manager.
5, Chatham-pl. Blackfriars. THOS. MUSGRAVE, Secretary.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railway arrears made, to the important advantages obtained by fishing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, diminishes the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fish-joints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Morayshire,
North and South Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

East-Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, No. 2, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 26, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25 h of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 23th August:—

"The results of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the Londonderry and Enniskillen Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the cast-iron road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

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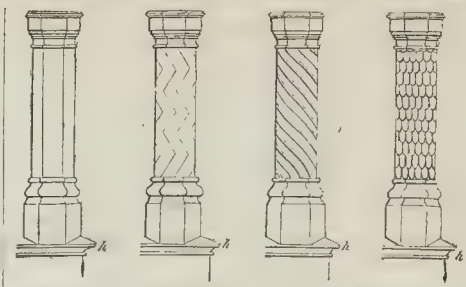
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SATURDAY, OCTOBER 23, 1852.

GOD ALMIGHTY first planted a garden; and, indeed, it is the purest of human pleasures; it is the greatest refreshment to the spirits of man; without which buildings and palaces are but gross handy-works; and a man shall ever see that when ages grow to civility and elegancy, men come to build stately, sooner than garden finely; as if gardening were the greater perfection." So wrote the great Lord Chancellor, who, while giving to the world the *Novum Organum*, could dally with a double violet, and lay down rules for the right ordering of flower-beds. To "garden finely" is still a difficulty; we mean, of course, gardening in the large;—the disposition and laying out of grounds,—landscape-gardening, as it is sometimes termed,—and those who have sought to teach it by books have not done much in furtherance of the object. The study of Burke, and Gilpin, and Payne Knight, and Price, and Whately, and Loudon is very useful, absolutely necessary, indeed, but will scarcely serve to teach what Beauty *is*, still less how to produce it. "Ideas of beauty," says Gilpin, truly enough, "vary with the object, and with the eye of the spectator. Those artificial forms appear generally the most beautiful with which we have been the most conversant. Thus the stonemason sees beauties in a well-jointed wall, which escape the architect, who surveys the building under a different idea. And thus the painter, who compares his object with the rules of his art, sees it in a different light from the man of general taste, who surveys it only as simply beautiful."

We must go into the fields and woods and gardens, study Nature in her ever-varying aspects, and art in its best forms:—

"——— Beauty best is taught
By those, the favoured few, whom heaven has lent
The power to seize, select, and reunite
Her loviest features; and of these to form
One archetype compleat, of sovereign grace."

In Nature, go where we will,—to the plain, the wood, the quarry, or the still shore,—we may everywhere find beauties and picturesque effects, which will impress us and may be garnered up, even if we are not aware that Burke calls *smoothness* the most considerable source of beauty, and that Gilpin finds *roughness* gives that particular quality which we call picturesque." As Mason sings,—

"——— Through this terrestrial waste,
The seeds of grace are sown,—profusely sown,—
Even where we least may hope."

Intimate acquaintance with nature in general will best enable us to judge of the art which seeks to improve her in particulars. Still, we must not neglect the teachers, and here we have before us a fresh book on the subject, by Mr. C. H. J. Smith, of Edinburgh, called "Parks and Pleasure Grounds; or Practical Notes on Country Residences, Villas, Public Parks, and Gardens."* Mr. Smith is a practical man, and his volume contains much useful information and many sensible remarks. The headings of the chapters will make known its scope:—The House and Offices: The Approach: Pleasure Grounds: The Park: Ornamental Character of Trees: Planting: Fences of the Grounds: Water: Kitchen Gardens: Public Parks: The Villa: On the Laying out and Improvement of Grounds: The Arboretum: and the Pinetum. The chapter on the Approach is the best in the book, and his remarks on an ill-judged one will serve to show how he writes.

"*The Fine Approach.*—The species of access to a mansion-house which we have ventured to call *a fine approach* is seldom found connected with large residences or extensive estates, but not unfrequently with such small places as require only one approach and a back road. We may describe it as a carriage-way from the entrance to the house, so laid out as to display all the principal views and leading beauties of the place. It leaves nothing worth looking at to be seen from the windows, and it renders all further inspection from walks or gardens unnecessary. It is in itself a thing of primary importance. Indeed, nothing can rival its ambition, except, perhaps, the vanity of the individual to whom it owes its formation. These approaches are often unnecessarily prolonged. We have seen them following the boundary of the property to a considerable distance from the entrance, the only objects between them and the public road being the park-wall and a belt of shrubs quite insufficient to deaden the noise of carriages outside. In other places they may be seen extending for a mile or more through a narrow stripe of trees planted on the sloping banks and knolls, on the side of a small valley or of a wide glen along which the public road passes. This is, indeed, the favourite position of *the fine approach*. The highest powers of the designer, who is rash and inexperienced enough to undertake the work, are called into exercise. Cuts, and curves, and gradients, and embankments, are all elaborated for the purpose of enabling the approach to occupy the principal points of view. In the limited grounds no room is left for the formation of a good walk. The approach is walk and ride and everything. Seclusion there is none, except that the fine approach is not much frequented, people familiar with it often preferring to go by the back way to the house. It is evident that in such elaborations the proprietor thinks more of securing the applause of strangers than of consulting his own comfort and convenience. He is content to admire and enjoy by proxy. In short, of all the follies committed in the laying out of country residences, *the fine approach* may be allowed to wear the crown."

He is not very well disposed towards an "avenue," seldom recommends the planting of it, for the invalid reason, amongst other reasons, that "it requires to grow for the lifetime of two or three generations before it produces its full effect;" but, nevertheless, he agrees with Mr. Gilpin in venerating an old avenue, with its double or quadruple rows of ancestral trees. He sees no reason, moreover, nor do we, why the old style of gardening to which they belong, with its alleys, terraces, stairs, fountains, and statues should not be reproduced in certain cases. Pope, it will be remembered, ridiculed the formalities and puerilities of the gardens of his day, and the—

"Statues growing that noble place in,
All heathen goddesses most rare,
Homer, Plutarch, and Nebuchadnezzar,
Standing naked in the open air."

Notwithstanding Mr. Pope, a few statues, well placed, have great value in landscape-gardening. Garden seats, summer-houses, terraces, fountains, and other similar adornments, are the province of the architect, as indeed should be the garden also.

The Rev. W. Gilpin dedicated his Essays on "Picturesque Beauty and Picturesque Travel" (1792), to Mr. William Lock, who showed, by Norbury Park, in Surrey, a domain full of beauties and striking effects, his taste and knowledge. A pleasant party were gathered about the present hospitable owner of this beautiful park, when we last saw the sun set behind the magnificent grove of yews there, in a scene which has few parallels, and Mr. William Tooke wrote at the moment on a garden-seat put up to overlook it—

"Here Nature, in her loveliest forms behold,
Sublimely beautiful, and mildly bold;
Each charm combined that pleasure can impart,
Or Nature borrow, from her handmaid, art,
(As in our sparkling circle here we find),
Completed by Grissell, what Lock so well designed."

We have before now referred to some spoilers of God's earth, who, under the title of landscape gardeners, take their five guineas a day to mar and obliterate. Men of this class are cleverly satirised in "Headlong Hall," by Peacock, quoted by Mr. Downing, of America, in his excellent "Theory and Practice of Landscape Gardening," which we introduced to our readers about three years ago. A party are assembled at Lord Littlebrains', and amongst them is one Milestone (intended to caricature "Capability Brown," the great gardener of the day), who is exhibiting his designs for the improvement of the estate:—

"Mr. Milestone.—Here is another part of the ground in its natural state. Here is a large rock, with the mountain-ash rooted in its fissures, overgrown, as you see, with ivy and moss; and from this part of it bursts a little fountain, that runs bubbling down its rugged sides.

Miss Tenorina.—O, how beautiful! How I should love the melody of that miniature cascade!

Mr. Milestone.—Beautiful, Miss Tenorina! Hideous, base, common, and popular. Such a thing as you may see anywhere, in wild and mountainous districts. Now, observe the metamorphosis. Here is the same rock, cut into the shape of a giant. In one hand he holds a horn, through which the little fountain is thrown to a prodigious elevation. In the other is a ponderous stone, so exactly balanced, as to be apparently ready to fall on the head of any person who may happen to be beneath; and there is Lord Littlebrain walking under it.

Squire Headlong.—Miraculous, by Mahomet!

Mr. Milestone.—This is the summit of a hill, covered, as you perceive, with wood, and with those mossy stones scattered at random under the trees.

Miss Tenorina.—What a delightful spot to read in, on a summer's day! The air must be so pure, and the wind must sound so divinely in the tops of those old pines!

Mr. Milestone.—Bad taste, Miss Tenorina; bad taste, I assure you. Here is the spot improved. The trees are cut down; the stones are cleared away; this is an octagonal pavilion, exactly on the centre of the summit, and there you see Lord Littlebrain, on the top of the pavilion, enjoying the prospect with a telescope!"

The few persons who do understand the subject are not employed as they should be: the majority of owners seeming not to know that,—

——"Elegance, chief grace the garden shows,
And most attractive, is the fair result
Of *thought*, the creature of a polished mind."

In some gardens that we have recently seen, every principle of art is disregarded. Those who created some of the absurdities we have in our eye certainly did not think with Bacon that "as for the making of *knots or figures with divers coloured earths*, they may lie under the windows of the house on that side on which the garden stands: they be but toys: you may see as good sights many times in tarts."

Mr. Smith alludes, with justice, to the brief period that is usually conceded to the artist:—"A man may thrust his preconceived fancies on a place as fast as he can stake them out; but if the treatment is to be adjusted to the ground, and if harmony and variety of effect are desired, as they always ought to be, time should be given for the laws of suggestion to come into free play."

Sir Walter Scott has said the same thing:—"The landscape gardener is trotted over the grounds two, three, or four times, and called

* London: Reeve and Co. Henrietta-street. 1852.

upon to decide on points which a proprietor himself would hesitate to determine, unless he were to visit the grounds in different lights and at different seasons and various times of the day during the course of a year." This leads to a degree of precipitation on the part of the artist, who knows his remuneration will be grudged unless he makes some striking and notable alteration, yet has little or no time allowed him to judge what that alteration ought to be. Hence men of taste and genius are reduced to act at random; hence an habitual disregard of the *genius loci*, and a porportional degree of confidence in a set of general rules, influencing their own practice, so that they do not receive from nature the impression of what a place ought to be, but impress on nature at a venture the stamp, manner, or character of their own practice, as a mechanic puts the same marks on all the goods which pass through his hands.

To "garden finely" is still a difficulty, and will continue to be so until people are willing to pay for THOUGHT.

ST. PAUL'S.—THE FUNERAL AND MONUMENT.

HAVING given place to my suggestions on the use of this building, allow me to point out that an opportunity, perhaps unique, now offers itself for testing, at no expense but that of a little thought, I will not say *their* practicability, but the adaptability or non-adaptability of *Wren's* work to its ostensible purpose,—the experimental decision of no less a question than whether what we call by courtesy "the noblest edifice of modern times" be, in its main bulk, a useful or a useless one,—a success or a failure.

On this point, I presume, no one able and willing to give it the least attention, can have any doubt. But, for railroad thinkers and actors, nothing but an experiment will do, and I have shown that the thing cannot be put to experimental proof without stopping, by cloth hangings, the reverberation of certain surfaces I have indicated. The proof, therefore, would be nearly as costly as the permanent execution of this necessary furniture. But an occasion approaches on which it is customary to do the very thing required: the national feeling will not nicely calculate a little black cloth more or less, and its distribution is, as we are accustomed to say, *only* a matter of fancy, a refined synonym for chance. Might it not then hasten a more real appropriation of this "noblest edifice of modern times" to its pretended use, if this cloth were arranged in the manner that would allow an experimental decision of this question? For the dome lining (which is quite indispensable) might be substituted a tent-like velarium attached only at the eye and the cornice; and the remaining hangings are, I think, much the same, in quantity and distribution, as have been usual on great funerals in all cathedrals.

True, the *Times* has propounded the paradox that funeral and monumental honours, though they "may be ornamental, must not be useful" (of which more anon), and may say this would be as bad as Lord Ingestre's sewers, making the hangings useful, and taking back in profit some of what we pretend to waste. Be it so. Is it proposed to make a bonfire of them? or to tie them round the nation's beaver? Have a care: it will require some ingenious supervision even then, to keep them from wiping pens, or some other economical investment.

Well, if I may venture further, one word of the tomb. One great in war alone having pre-occupied the centre, the greater hero, great in all his relations, soldier, commander, politician, universal counsellor, seems likely to be thrust aside into a subordinate place. Now the tomb of Nelson is a thorough example of the above principle,—the *Times'* version of the "Lamp of Sacrifice,"—as far as the unfortunate clash of requirements between a tomb and a monument would permit. Tombs, indeed, have by some strange oversight been made monuments too, in several countries and from very early down to very late times; but this is plainly an antiquated error, to be dispelled by the enlightenment of to-day. For a tomb, you see, *must* serve some use,—it must seclude and secure the body,—while a monument must *not* be useful: we must not take back from what it costs anything whatever in the shape of purpose served, or, according to the *Times*, it does no honour to the deceased. The requirements of the two things, then, are incompatible, and to make this as much of a monument as he could, the artist's only resource, as he could not make it quite useless, was to make it as useless as he could, —serving the bare necessities indeed of a tomb, but as imperfectly as possible. In other times and places, as Egypt, Greece, and Younger England, they fell into the barbarism of making such things answer the tomb-requirements as *perfectly* as they could, and so, for a great man, hollowed the sarcophagus and its lid out of two entire blocks of the strongest, closest fitting, most impervious and imperishable material their land afforded, or the most beautiful among materials equally excellent for these qualities, and then cut the exterior into a general shape suggestive of the form required by the interior, but (if exposed) beautified by the substitution of natural curves for straight lines and planes, and with mechanical high finish, or an epitaph or symbols or imagery, or whatever they could do well, and no mimicry of what others only could do. In sublime contrast to all this, then, we have the wooden coffin merely left on the floor, and walled round with small slabs standing edgewise, made to mimic the peculiar finishings of Italian empty sculpture frames on a pedestal made for something important; and then, on the top, to represent this something, for which so much preparation is made, poor old Wolsey's empty sarcophagus. So Nelson is neither buried, like a little man, nor entombed, like a great one,—has neither a grave, nor a sarcophagus for use, but a handsome second-hand one for ornament; for, since Mr. Bull has developed the refined principle that monuments (and many other things) may be ornamental, but must not be useful, he yet seems to find nothing better for ornaments than other people's cast-off articles of utility, or superfluous repetitions and representations thereof (as all his architecture, Palladian or Puginian, alike shows); and this almost drives me to think there must be some truth in what Mason says, that "Beauty scorns to dwell where Use is exiled," since you are obliged even where she is exiled to make it *appear* she is present, and make your useless things mimic useful ones. Ruskin indeed flatly contradicts the poet, by informing us that the most beautiful things in nature are the most useless, and as I cannot undertake to decide the point, not knowing which of Nature's works (the sun, or any other remarkable for beauty) are the most useless, I must conclude some difference exists between nature and art. Possibly, she may be able to take some liberties we cannot.

We see here then, as in all Mr. Bull's works, since his younger days, that his favourite lamp is "sacrifice;" first, a great sacrifice of the excellence or efficiency of the work (I beg pardon,—the useful part of the work, or rather the useful appendage thereof), to make it appear he can do without something others cannot; and then a tangible sacrifice of something useful or apparently useful, and to remain unused, as an ornament, *i.e.* to show how much work he can afford to waste. And this latter sacrifice, here observe, carries out the perfection of economy, having cost Mr. Bull nothing, but been paid for by Cardinal Wolsey (take care no Cardinal W. gets his bones into it after all!). Well, then (to prevent this), suppose the remains of the great man of duty, instead of being thrust aside into a *second* place, were to repose *here*, centrally, and *over* the fellow-hero whose work he completed, and whose dying words he fulfilled.

If the empty receptacle be insufficient, will Mr. Bull refuse a new one at his own expense, equally noble and perfect in its kind, of Cornish porphyry or Irish basalt, finished with the best of such workmanship as he can do best? (not with mimicry of what he can do worst.) Remember you cannot be first in everything. In what shall the shrine excel,—in size, in elaboration, in sculpture, or in fitness and perfection of mechanism and mechanic finish? If you choose *size* or *elaboration*, you choose things in which it is *certain* to be eclipsed, by the next rich fool that fancies this mode of exposing himself. If you choose *sculpture*, you choose that in which you are equally certain to be laughed at. Do, for once, Mr. Bull, attempt *what you can do well*, and do it thoroughly, and let the tomb of Wellington be a thing not growing old and ridiculous; a thing to be not gaped at, but always honoured, always honourable,—like the things your antiquaries still find lovely and fresh, that six centuries of inventions have not enabled us to smite at or pity.

But will there be room on this to cut the epitaph? Plenty; for this reason: on looking round this and other of Mr. Bull's *campi santi*, we shall observe him to be labouring under a singular error, that the greater the deceased, greater wits are needed to write his epitaph. Now, this is utterly contrary to the fact, as I think an example or two, even among little men, will make plain. Suppose, Sir, you had to write *my* epitaph—don't you think it would be a tough job? I think, to make a good thing of it, it would take (excuse me) a cleverer fellow than you. Now, yours would be much easier: and as for Welby Pugin's, I think you or even I might undertake it. So, you see, the less little the man, the less wit needed for his epitaph; and the length, too, is commensurate with the difficulty. My exploits would require considerable explanation: yours might be far less dilated on. So, also, to what may be called a small great man, you must give all his names and titles in full: to a very great one, a single name suffices; and there may be cases where a single initial would never become ambiguous. Few kings' tombs have even that. I believe it may be taken as a rule, the shorter and easier the epitaph, the more honourable, provided it be understood by all. So, then, you surely would not needlessly lengthen anybody's: you would not cover Wellington *now* with more than one name and one title at the very utmost? You would not surely put more than

"WELLINGTON, THE PEACEMAKER."

Now, let us leave the crypt, not without a thought of the long clear foresight that provided this place for the real shrines of English worthies, when all the trumpery and jobbery that mocks them above shall be in its right place, and worth ninepence a bushel; for, to that it must come—must—*must*,—lest it be said, "The later English were a nation of jobbers and humbugs, living on each other's vanity, and fattening each his brother's foolery for his own table,"—must,—that the boasted "sacrifice" of paying for them be not an empty brag,—that we "take back nothing" in the shape of purse-pride and self-display, any more than of utility to our poor neighbours. Mr. Bull has chosen the kind of "sacrifice:" he must carry it through. He has settled its rules: let him observe them, and finish his sacrifice on the altar of the lime-kiln.

Now, observe, Sir, that many of the greatest men, in the greatest times and places, have had no greater monument than that here proposed, namely a tomb of the most perfect execution and excellent material, in a place of pre-eminent honour in a chief religious edifice. In short, they have been monumented *without waste*, though not without *sacrifice*. The sacrifice and the honour shown have been, not in the amount of superfluities and *useless* things, but the liberal devotion of *unnecessary* and yet useful ones; not in the display of so much (and no more) work thrown away, but the application of *all* the work that could possibly be applied to better the thing; the denial of *nothing* that could make it more perfect; not the building of so many columns, so many feet high, or so many blank windows, or other representations of fragments of useful things, so many laughing-stocks to show how much you can afford to waste in honour of a man to

whom you do not afford even your best coffin.

I cannot but think, then, that the former mode, mediæval and exploded though it be, is a more honourable way of doing honour. For, observe that, in our way, by waste, there is no completeness, nothing perfect. You are always liable to be outdone,—never can say we have given him monuments so great, so nobly wasteful and useless, that no one shall have greater or more useless; whereas, by the old mode, here proposed to be revived, we may say, he has so good a tomb that nobody can ever have a better: the nobleness consisting in *completeness*, in *want of nothing*, it becomes a quality not admitting of more or less, not to be reckoned up in the shopkeeper's mode, by feet, or tons, or pounds, like a Nelson column. The respect shown ceases to be a matter of vulgar arithmetic: they honoured him so much and no more.

But do you want to give more work than can possibly be spent (I mean *used*,—spent improvingly) on such a monument? Then, says Mr. Bull, by his thundering mouthpiece, I must give it in a way that must never be useful. Though half his children be crying for bread or water, or air and pilfered health, for rest of which he has swindled them, for life immolated to his Moloch, and respite of toil wrung out at bloody price for his vanities, —he must show how much he can throw away, how much he can make useless in honour of *a hero*. But alas, Mr. Bull, you attempt an impossibility. You *cannot* make what *you* give useless. *You* give only money, and, spite of all you can do, this *will* be useful,—useful to the jobbers, to those you pay to waste it,—nay, to waste the people's labour for you: that is all you can waste,—not *your own* sacrifice, but what you force out of *them*. If *waste* be your sacrifice, you have none to give of your own, you are obliged to steal it. You can only honour —— with your poor neighbour's ewe lamb.

A long while ago, when Mr. Bull could afford to be more honest,—could afford many things he cannot now,—many real sacrifices and real monuments to the departed,—it is curious to observe his parsimony of useless ones, or rather his total ignorance of them. Though giving men of little renown far nobler and handsomer monuments than Nelson's, he seems never to have taken up more room or material than was *necessary* for a tomb (even then often used as an altar), unless making the monument also a market-cross, well, chapel, conduit, or something else decidedly useful, though not to the builders. Their notion of the sacrificial nature of a monument seems to have been, not that it must be profitless to *others*, but only to *themselves*,—not a piece of useless work, but of unforced useful work,—something that sheer *necessity* would either not have made at all, or not so well. There are abundance of things eminently *useful* that will not pay their doers *five per cent.* (though with Mr. Bull these terms seem synonymous), and that will never be wrung out by the pressure of pure necessity—things that never have been nor will be done but by a Lamp of Sacrifice,—such sacrifice as made Adrian's Bridge, for instance, last to carry you over, when it *need* not have carried Attila, and under Robert Stephenson's engineering would not have carried even Constantine,—such sacrifice as made the Aqua Julia to be drunk in 1852, when it *need* not have been in 52, on Mr. Bull's principles,—such sacrifice as made your market-crosses, *needlessly* but not *uselessly*, as solid and beautiful as churches,—such sacrifice as alone can make *any* human work better than pigs' work, or make any not show to all time that its makers hated it.

Thus, you see, between the old lamp of sacrifice and the new lamp of waste, there is a wide distinction, which it is a pity Ruskin did not more clearly insist upon. The former shows us a vast province of human work, useful and yet peculiarly fit to be monumental; an order of work totally removed from either the modern "monuments," the Nelson Column class of things, or from what Lord Ingestre proposes. For the error of that proposal, evidently originating in the best feeling, seems to me to be not in being *useful*, but in being *necessary*, in being a work required by common honesty. We *must* pay for sewers, whether we pay for a Wellington Monument or not. Therefore, says Lord Ingestre, to save the expense of the latter, let us call sewers Wellington Monuments. It is an expedient thoroughly English; like Mamma's for cheating John out of his birthday and keeping it on Ash Wednesday,—"You know, John, Ash Wednesday only comes once a year, and we can pretend it is the 19th, we can *call* it so." The device is quite characteristic of the country *par excellence* of mendacious names, Crystal Palaces, Waterloo-bridges, and the like.

But is there no step between calling sewers Wellingtons, and hindering sewers in honour of Wellington?—between calling a work of common justice, or a denial thereof his monument? For observe, you cannot break off the connection with sewers, not at least in a monument of waste. They follow you and dare you. What can you give that is not due to sewers or the like? Poor Mr. Bull! You think your column is quite genteel, and has nothing to do with sewers, because the word is not cut on its pedestal. Why, cannot you see that, if not a sewer, it is a *sewer robber*? Do not think you show better taste than Lord Ingestre because it will never be *called* so. Those above look at the thing, not the name. The great Duke would rather be honoured with a great sewer even, than a great robbery of sewers. The Man of Duty would rather have a duty than a delay of duty called after him. Better pretend sewers are his monuments falsely, than have a figure in the next cholera-list his monument's monument truly.

Well, whether commercial enterprise will ever supply sewers (as well as sewer-hindrances) remains to be seen; but this I know, that there are many life-important things it never will. These, however, are the more fit to make monuments on that account. But coming to useful things *not* vital, will it ever supply such a thing as Waterloo-bridge, think you? Or *would* it ever, except by mistake? No: I will tell you what it will supply in that time, *tubular* and *chain-suspended* bridges,—those structures of which Rennie swore before a Parliamentary Committee, that (as any man of common mechanical knowledge can see) they are "always in action," "always at work," always wearing out in the inaccessible joints and points of contact, hour by hour invisibly weaker, till the last feather on the last crossing load destroys them at a moment's warning; those structures of which none can, in the common course of things, go out of use, but by the precipitation of an extraordinary living load; those bridges of which more have *thus* fallen, with mangled crowds, in the half century of their use, than bridges had fallen *harmlessly*, or decayed gradually, in all Europe for twenty centuries before. *These* it will supply, and deliberately count the saving and pocket its per centage out of future trainloads' of mangled limbs; *these*, till it can devise some cheaper expedient to make money in one generation out of the blood of another; *these*, ghastly portentous monuments of latter-day knavery, that stand prepared, like old Britain's basket-work colossi, to immolate human hecatombs to a worse god than Woden. These it will supply: such bridges as Waterloo it supplies only by oversight.

Now, I have heard talk of Mr. Bull taking advantage of this oversight, to buy this monument, so that its name may be no longer a lie; and, by the addition of a few sculptures, or even inscriptions only, obtain a very costly Wellington memorial at comparatively little cost to himself. Of course, though making it his own *commercially*, he could not, though crossing it toll-free from the day of the funeral, call it his own *as a monument*, unless he had paid the full cost price, which I suppose is more than he would afford for any monument, even Wellington's. But what I would observe is, that this payment, supposing it obtainable, would be *no waste*, like column-building, but all pure wasteless liberality. For look you, whatever is wasted work in the bridge, has been wasted already. Mr. Bull would be wasting nothing, causing no loss of labour, only *transferring* a loss from others to himself. But this is not the greatest feature of the change. The loss was theirs *by blunder* only; it is his *by choice*, which makes all the difference between an ignoble loss and a noble expenditure. It not only changes hands, but changes its nature; and in passing to Mr. Bull, from laughable it becomes honourable,—from a monument of mere oversight, a monument of liberality and noble sacrifice.

But if the purchase, at full cost price, would thus be a true lawful and *wasteless* monumental work, of course the purchase at any less price, above the present marketable value, would be equally unobjectionable; provided Mr. Bull explained by an inscription along the frieze that it was not altogether his own, monumentally, and in what proportion not so. And he might still make any sculptural additions. The great want of the design is doubtless *pinnacle* masses, on the tops of the piers; and nothing would be so beautiful or noble for this purpose, if the age could only make them tolerably, as statues about 20 feet high, and standing five or six above the parapet; but rather than make these as *we* should, I fancy the next best thing would be monolithic *flattened obelisks*, of about the same height, filling each recess, with a boldly moulded (or perhaps *leafy*) base where they spring from the present coping; and (as the name suggests rather a Waterloo than a Wellington memorial) panels on each broad face, those toward the road containing lists of the names of all officers, and, if possible, all privates who fell (or at least their numbers in each regiment), and those toward the river, deep-cut medallion-portraits of the commanders.

I. *On the Frieze and Architrave* (the fillet between being effaced):—

1st Arch.	Begun 1815: finished 1818.
2nd ,,	Bought to bear
3rd ,,	the nation's jewels
4th ,,	when she buried
Middle.	WELLINGTON,
6th Arch.	who saved her
7th ,,	with so little loss:
8th ,,	she writes it all
9th ,,	on twenty stones.

The projecting pieces over the piers to be ornamented only, not inscribed.

II. *On the foot of each list on the stones*:—

Fell in saving England, 18th June, 1815.

Thus, Sir, I conceive we have a mode of spending equally well and monumentally, *any* amount, large or small (at least from the present market price of the bridge up to its cost price any amount) likely to be devoted to this great memory; and in any case with equal *completeness* and propriety,—without attaching the hero's name to either a sewer or a *sewer-hinderer*,—without mocking the sons of toil with a display of wasted toil,—without forcing our consciences to a refuge in the deadly sophistry of "making employment,"—without giving work to work-wasters, jobbers, or sham artists,—without taking part in the Satanic occupation (which some of us profess ourselves so near devilhood as to think our *place!* our *office!*) of wasting human labour, and "supporting" labour-wasters.

The notions, then, I would strive to advocate respecting sepulchral and monumental works are these:—

1. That where we afford a permanent coffin or sarcophagus, it is better to place the body *inside* than *outside* the same.

2. That there is no reason whatever (except jobbery), for separating the three functions of a *coffin*, *tomb*, and *monument*,—to hold the remains, to mark their place, and to publish our respect; but that all the noblest sepulchres, in the greatest times and places, have, in a single work, fulfilled all three ends. (And modern science makes this all the more easy, because the two pieces of a sarcophagus can be held together air-tight and inseparably by simply pouring uncontractible type-metal into a pair of dovetail grooves cut round the meeting faces of the two stones.)

3. That in all epitaphs the *name* or *names of the deceased*, be they *one* or *ten thousand*, forms the most essential and only indispensable part of the writing.

4. That a monument should be *no larger* than is absolutely required to hold and preserve the epitaph (and images, if any) of the deceased, these being the sole objects of a monument. And it should have *no* work not conducive to these ends; for even decoration, observe, is highly conducive thereto; many monuments (the Eleanor crosses, to go no further) having been preserved to us solely *by* their decoration, which has thus done what the strength of rocks could not in resisting the spoiler. But a monument has no right to be enlarged for ornament, *i.e.* made larger or costlier, to hold ornament or show the architect's skill, than it need be to hold, show, and preserve *as long* as possible, *as strongly* as possible, and *as beautifully* as possible, the epitaph and images, if any. Thus, I think, the very letters of an epitaph should always be ornamental, as all nations, I believe (with the sole and remarkable exception of the Greeks and Romans), have done in their most artistic times,—the Lombards most successfully with our alphabet. And let me remark on this, that without trial (for the Puginian mimicry is no trial) you have little idea how much art this union of beauty with *legibility* in the eyes of your own age exacts.

In short, then, *do as little as possible*, but *stinting nothing that can ever so little improve it*. Build as little as possible, but with rocks. Cut as little as possible, but in adamant. Write as little as possible, but in lines of beauty. The very least you can write is the name or names of the monumented, but even *this* your Waterloo and Trafalgar jobs with all their absurd waste, fail in.

Is it impossible to collect all the names that fell at the Nile, or Copenhagen, or Trafalgar? If not I would, ere it is too late, ere they become as though they had not been,—now while some may point and call them grandfather, uncle, cousin,—cut them *all* on the respective sides of the Trafalgar-square column's socles, and then, base though it be, it will not be altogether like an abscess or a cancer.

But I submit that the "Waterloo stones," however you may laugh at their archaism, and meet me with the "wants-of-the-age" cant, would better meet the monumental requirements, which are really much the same now as ever. They would but just hold their epitaph,—an epitaph not to be read through, but to speak,—to speak always to the ever-passing throng, on what will be, when free, your city's midmost, most thronged thoroughfare. There they will stand looking down on your Rialto, crowning as with the jewels of a diadem (for I should carefully choose the colours of Scotch granite, white and pink), crowning your fairest and most solid engineering work; and there, day by day, would children be shown where is written on the well-known rock, brought from afar to write it on, the name of a grandfather or a grandfather's grandfather, to be read again a hundred times, and shown again to children's children,—the name that England wrote up there in making up her jewels; and there, even when not one can be claimed as *his*, will the child ask his nurse, "What mean all these endless lists, names upon names, hundreds upon hundreds;" and the nurse will answer, "These are the names of the killed soldiers of Wellington, the peacemaker, to whom England could give nothing else, not a coffin or a grave,—could do nothing more than remember their names. These are a cloud of witnesses that England expects every one to do his duty."

E. L. Garbett.

The Park for Finsbury. — Building speculations are rapidly covering the ground intended for a park at Finsbury, but not a single step has been taken since Mr. Disraeli amused those interested by his encouraging assurances. Meetings are again being held, and an influential working committee is to be formed to urge upon the Government the necessity of taking active and immediate steps to carry out the project at once, if at all. H.R.H. the Prince Consort, it is said, has promised his countenance so soon as the *vox populi* shall have energetically and unequivocally made itself heard.

THE PASSAGE OF THE ALPS.—RAILWAYS INTO ITALY.

In this iron age, when metallic communications are the order of the day—when even Spain and Portugal have started from their lethargic apathy, and are about to take their place in the march of civilization, by forming an iron highway to connect Lisbon with Madrid, and these again with Paris; everything relating to railways deeply concerns the public, and especially that English public who not only first carried out the railroad system in Great Britain, but, singularly enough, has been mainly instrumental in extending railway ramifications throughout the world. It may, therefore, be interesting to the numerous readers of your useful and ably-conducted periodical, the organ both of architects and engineers, to be made acquainted with some of the projects which have been suggested with a view to continue the chain of intercommunication through Savoy into the Italian peninsula.

The works on those portions of the route between Turin and Susa, following the beautiful valley of the Doro, and between Modava and Geneva (where the line will run along the banks of the Arc and the Isère as far as Chambery, thence passing over the high ground by Annecy, and so on into Switzerland, where it will eventually join a prolongation of the Paris and Lyons Railroad), are about to be immediately commenced; and thus a direct communication by rail will, with one sole exception, be in a short time effected between Calais and Genoa, between the mainland of the European continent and the classic cities of far-famed Italy. It would be entirely out of the question to enter here into the advantages which must inevitably result from the complete carrying out of such an undertaking, if it were altogether practicable; volumes written on the subject could not fully detail the vast importance of such a trunk line to the arts, to science, to civilization, to Italy, to England, and to the world; the benefits it would confer upon the whole human race cannot possibly be overrated; and it is not too much to say, that the successful construction of such a line would form a new era in the history of modern advancement.

The passage of the Alps, however, presents a serious difficulty; the mighty barrier interposed by that lofty range of mountains,—the

"Flammantia mœnia mundi,"—

seems to prevent the possibility of effecting a railway communication between Susa and Modava. The Chevalier de Mons, however, an eminent Belgian engineer, who is at present charged by the Sardinian government with the construction of the line between Turin and Genoa, suggested a few years since the possibility of constructing a tunnel nearly seven miles long under the Mont Cenis, and went so far as to devise a very ingenious machine for excavating the earth. A tunnel of such a length would, however, be highly objectionable. The difficulty, expense, and time required to work it; the uncertainty with regard to the nature of the ground to be passed through in forming a passage under the beds of extensive lakes; and the impossibility of sinking shafts from the top of a mountain covered with almost perennial snow; these are but a few of the considerations which at first sight make such a speculation appear extremely hazardous; still I will not yet venture an opinion, for I hope to have the pleasure of meeting M. de Mans in a day or so, and I shall then have an opportunity of ascertaining from him how he proposes to get over those and other difficulties. In the mean time I may inform you that a number of French engineers have been busily at work during the last month in taking levels and examining the country, for the purpose of ascertaining whether the *pass* might not be got over by inclined planes, up which the trains could be drawn by means of stationary engines, while they would descend by their own momentum, as at Liége and elsewhere. This plan has also great disadvantages. The necessity for laying aside the locomotive, and having recourse to a different means of traction, is always extremely inconvenient, while the system of inclined planes is not a little dangerous; but I will send you more particulars concerning this project of the French government at another time.

I will now, however, before finishing these few hurried lines, submit to your readers a system which I would suggest as calculated to obviate the difficulty.

In the first place, I would take the easiest section the country would afford, rising as gradually as possible. On such a section I would then lay down the steepest gradients that a locomotive could ascend—say 1 in 100, or, if need be, occasionally 1 in 80. With such rates of inclination, I would get up as high as the character of the country would permit, without necessitating too great a depth of excavation. I would then have a vertical lift of seven or eight feet, which would answer the same purpose as the locks of a canal. There, where the gradient should be level for some distance on each side, a platform, capable of being raised and lowered by hydraulic pressure or other suitable means, should be established, for the purpose of raising the trains with their locomotives to a higher level. I would then proceed as before until it became necessary to have recourse to another "lift," and so on as far as required. Having in this way attained to a certain height, I would propose a tunnel of about a mile or so in length, which should be formed with two inclined planes meeting beneath the summit of the mountain. This tunnel would be of great advantage; for, besides avoiding the necessity of raising the line to an extreme elevation, it would afford a covered way for the passage of the trains in winter, when, in an open cutting or an unprotected road, the passage would be soon obstructed by accumulations of snow and ice. I would then make the line descend in the same manner at the other side of the mountain.

This is only a rough draught of my idea, but at a future period I will enter more into particulars, and, if possible, send you a section of the route I would recommend, with tunnel "*lifts*," and reaches indicated upon it in proper manner. The adoption of this plan of proceeding in hilly districts would greatly diminish the expense of railways, and extend the range of their usefulness to countries which, in their present adaptation to comparatively level plains, they cannot even reach. By this method we might hope to see a train drawn by an ordinary locomotive from the depths of the silver-mines of Peru to the town of Quito, situated four miles above the level of the sea.

Wm. H. Villiers Sankey.

SCENERY AND PLAYS.

The Lyceum Theatre has opened with a new comedietta, "The Mysterious Lady" (neatly written, and very well played, but turning on an unwholesome idiosyncracy), a rattling farce, "A House out of Windows," and the revival of Mr. Planché's classical extravaganza, "The Golden Fleece," for which there is a well-painted view of the wall of the ancient stage, such as we engraved some years ago when "Antigone" was played at Covent Garden. The closing scene makes a good picture. For the farce, a novel scene has been cleverly contrived.

At the *Haymarket Theatre*, the manager has at present contented himself with the repetition of "Money," "The Road to Ruin," and "The Foundlings," with two new farces, "The Woman I adore," and "Box and Cox Married and Settled," which have not made much call on the scene-painter's services. In the latter Mr. Keeley is well fitted.

We will use the opportunity to mention with commendation a new play, in five acts, "Waldeck, or the Siege of Leyden," by Mr. Angiolo Sious, which has been published by Chapman and Hall. As a composition, it is superior to his former work, "The Templar." It is admirably written, and of unflagging interest.

Lithograph of the Duke of Wellington.—Amongst the slighter memorials of the Duke recently published is a lithographed portrait by Mr. A. Stanesby.* Although the lower part of the face is somewhat exaggerated, it is a characteristic likeness, and deserves a sale.

* Published by Murray and Stanesby, Sloane-street.

CLAPHAM CONGREGATIONAL CHURCH.—Mr. Tarring, Architect.



CLAPHAM CONGREGATIONAL CHURCH.

Clapham now boasts of two lofty spires, neither of which belongs to the "establishment." One is the "Church of our immaculate Lady of Victories" (its title tells to which party it belongs), a very clever work, with some well-executed carvings; the other is the new Congregational Church, opened a few weeks ago, and of which we now give a view. Until very recently Dissenters would not permit any architectural display in their places of worship, and this building must not therefore be tried by comparison with new parish churches, but with those which have been erected for Christians of the same denomination, viewed in which way, it is entitled to considerable commendation. The style of architecture adopted is Gothic, of the decorated period. The walls are built with Kentish Rag and Bath stone on the exterior, and bricks on the interior, finished with stucco.

The pew framing on the ground floor, and the gallery front (a large gallery runs all round), are of oak, with carved ends to the pews, and open work in the gallery front.

The pulpit and staircase, and the communion enclosure are all of carved oak, too, of an appropriate design.

The apse at the end is occupied as a deacon's room, being divided from the church by a screen surmounted by the organ gallery, which is fitted with an organ built by Grey and Davison. The roof is partly open.

The windows in the west end are filled with stained glass, by Ward and Nixon: in the large centre window are full-length figures of the four Evangelists, and in the two small windows are representations of Christ blessing little children, and the miracle of turning water into wine, at Cana of Galilee. These are the dimensions of the building:—Inside height, 113 feet; width, 48 feet; height from floor to ceiling, 44 feet; outside length, 123 feet; width, including buttresses, 57 feet; height of side walls to top of parapet, 30 feet 6 inches; height to top of finials, 41 feet; height of tower to base of spire, 83 feet 6 inches; spire, 87 feet 6 inches; vane, 7 feet; the total height, 178 feet.

At the back of the church are minister's and deacon's rooms, waiting-room, and side entrance porch, and an evening chapel for evening services and meetings, 50 feet long and 20 feet wide. The whole is warmed by hot water, the apparatus for which has been supplied by Mr. Hall, under the direction of Mr. Joshua Field. The church is lighted by two large chandeliers, and brackets under the galleries, and the evening chapel by two smaller chandeliers, executed by Mr. Rothwell.

The ground is enclosed by iron railing and gates, with large stone piers, which are not so satisfactory as some parts of the building.

On the corbels of the external doors are sculptured the heads of Luther, Calvin, Howe, Owen, Baxter, and Bunyan.

The works have been executed by Mr. Myers, builder, from the designs of Mr. John Tarring, architect.

The total cost will be nearly 8,000*l.* and there are seats, it is said, for 1,100 persons.

Some of our readers may perhaps inquire what is a "Congregational Church." The Congregational Union is founded on what is considered the scriptural right of every separate church to maintain perfect independence in the government and administration of its own particular affairs. The objects contemplated in its formation are—quoting the "Protestant Dissenters' Almanack,"—

"1. To promote evangelical religion, in connection with the congregational denomination.

2. To cultivate brotherly affection and sincere co-operation in everything relating to the interests of the associated churches.

3. To establish fraternal correspondence with congregational churches, and other bodies of Christians throughout the world.

4. To address an annual or occasional letter to the associated churches, with such information as may be deemed necessary.

5. To obtain accurate statistical information relative to the congregational churches throughout the kingdom and the world.

6. To inquire into the present method of collecting funds for the erection of places of worship, and to consider the practicability of introducing any improved plan.

7. To assist in maintaining and enlarging the civil rights of Protestant Dissenters."

The Home Missionary Society, the Irish Evangelical Society, and the Colonial Missions, are under the direction of the Congregational Union: it publishes a hymn-book, the *Christian Witness*, and the *Christians' Penny Magazine*; the profits arising from the sale of these being applied to various charitable purposes.

MODERN CYCLOPEAN WALL.

A recent number of the *Allgemeine Zeitung* contains an interesting account of a visit which the writer had made to inspect the progress of building a wall in the manner called Cyclopean, at Düsternbrook, near Kiel, in Schleswig-Holstein. He considers the effect of the work and the style of execution far superior to any of the numerous remains called by the same name which he had seen in Italy, and goes so far as to give it the preference over any other kind of wall, so far as the plain, vertical surface of the material, apart from ornamental accessories, is concerned. He thinks that the polygonal stones, exerting their pressure in all directions, must ensure stronger work than squared stones, however closely jointed, which only act in the direction of gravity.* Indeed, the innumerable many-sided and multangular stones of all sizes seem run together into one compact mass, of which neither time nor age will get the better. Neither mortar nor any other means of binding the stones together is employed; but the greatest care is taken in fitting the granite blocks one into the other, the vacant spaces in the wall as it is carried up being accurately taken off with a lead tape (*bleistange*) forced with a hammer into all the angles of the openings, and then applied to the flat hewn face of the block best suited, and next to be brought to its proper shape by the workman.

From the workmen he learned that the directions given them by the architect were, "Five-sided and six-sided blocks, seldom four-sided; straight lines; obtuse angles; joint upon angle and angle upon joint; all according to the lead tape, and only inclined junctions." In fact, all the junctions between the blocks were found to be in every gradation between the perpendicular and the horizontal, without coinciding with either of them. In this obliquity of the joints the author detected the arch principle of construction as applied to the work, and the workmen pointed out to him, that each stone either pressed or supported, with every one of its sides, however numerous. He was unable to learn the name of the architect. Herr Mahnke was the name of the builder, who had said that the cost of the work was cheaper than a squared stone-wall; that it was much stronger, so that he should have used it in several larger buildings if he had been acquainted with it sooner; moreover, that this kind of building was to be preferred, because every stone, large or small, can be used up in it. Generally, the writer holds this polygonal or Cyclopean kind of building to be especially applicable in, first, hydraulic works, as it offers nowhere a continuous joint to the water; second, in fortifications;† third, for railways in substruction and steep coverings, and in the cellar story and even in the next story of large buildings and palaces. In these mortar would be used, not as a means of connecting the stone, but only as pointing to the joints, so that the immediate contact of the stone should not be interrupted.

In conclusion, the writer recommends the adoption of this method of building according to determined and clearly defined principles and rules, as altogether practical, wherever the material for polygonal blocks is found,—a method which is at least to us a new one, and not simply a more careful execution of the long used rock walls, or an ornamental imitation of an old style, as in the Walhalla, of which practical method, in short, this Cyclopean wall, near Kiel, is the first example that has been executed in Germany.

Our attention was obligingly drawn by the Earl of Ellesmere to the article quoted above, and his Lordship will, we hope, pardon us for transferring to our pages the following portion of his letter on the subject:—

"I do not remember any instance of a similar modern imitation of a style and mode of construction which never fails in any of its various antique examples to make a deep impression on travellers in Greece and Italy. On a small scale, a dyke fence, by a good Galloway builder, comes nearer to it perhaps than anything. The present engineer of the Liverpool Dock Trust builds his sea-walls of small unhewn stones of various sizes, with large and heavy shapeless blocks at irregular intervals, but these are Cyclopean only in respect of irregularity, for they are wedged in cement. The effect is good, and I believe the repair of the face of the wall, when worn with the water, is easier than with regular masonry.

A true Cyclopean wall is, I apprehend, a recent revival; and, by the account I forward, the experiment appears to me to be one of much interest. Egerton Ellesmere."

* This is more than doubtful.

† The translator thinks it has been generally used in the new fortified works at Verona.

SUGGESTED IMPROVEMENTS IN LONDON.

I cannot but think that among the improvements that are being made in our streets, two points involving the greatest delay have been strangely overlooked. I allude to the point where Gracechurch-street passes across the ends of Fenchurch-street and Leadenhall-street. I do not know whether any estimate has been formed of the actual daily delay at these points: I have tried to form a rough guess: taking certain statistical accounts of the traffic in Cheapside as a basis, I think it will be granted that the daily traffic on foot and in vehicles east and west along Fenchurch-street and Leadenhall-street, and north and south along Gracechurch-street, cannot be much under 1,000,000, say as a moderate calculation, 800,000; nor I think is it at all an exaggeration, looking at the very long detention of most vehicles having to pass these crossings in any direction, to suppose that on the average every one loses a minute at each time of passing. This will give an *aggregate daily loss of a year and a half!* I confess I think this is within the mark. How is it to be remedied? We must either divert the traffic or enlarge the channel. It cannot, I think, be doubted that Gracechurch-street is far too narrow for its traffic, and that some day a widening must take place from London-bridge to the wider part of Bishopsgate-street, but I question if this will come first. And I think if any one will look at a map of London he will soon be convinced that the most efficient and cheapest way will be the construction of a new street from the wide part of Fenchurch-street, east of Rood-lane, to Gracechurch-street, about Talbot-court. This will be to the parts east of London-bridge what the new King William-street is to the west, putting Whitechapel and the whole eastern districts in direct connection with Thames-street, London-bridge, and the Borough and the new Cannon-street, and thus with Blackfriars and "St. Paul's" bridges. The immediate relief that this street (with some occasional widenings in the eastern parts of Fenchurch-street) will effect in the west end of Fenchurch-street will be obvious: it will draw off three-fourths of its heavy traffic: it will also materially release Leadenhall-street, by drawing off all the traffic which at present passes along it to Blackfriars.

No one, I think, can look at a map of London without being fully persuaded that some day this change must come.

Then as to the double crossing at the end of Fenchurch-street. Nothing is a more established rule than that all such crossings should be *eased* by the widening of streets and rounding of corners. But here, while only one corner is at all rounded off, *three of the four streets actually are narrowed at the point of junction.* It is marvellous that we should submit to a state of things like this.

Nothing can be more evident than that the west side of Gracechurch-street should be straightened from the London Tavern to St. Peter's-court, and that the corner between Leadenhall-street and Bishopsgate, round which there is so continual a traffic, should be rounded and put back.

It has been more than once suggested to have, at some of these crowded crossings, bridges for the relief of pedestrians. It would seem to me that no point in London could be so eligible as this for a trial of this suggestion; and with these alterations it would be easy to make a bridge from the north side of Leadenhall-street to Cornhill, and another from the west side of Bishopsgate to Gracechurch-street.

But I would suggest, instead, and I think modern engineering would easily accomplish it, a square platform covering the whole crossing, and allowing a free circulation in all directions; and it appears to me, that it might be possible to connect with this a set of first-floor shops at the corners for the lighter trades, which would become a considerable source of revenue.

This plan would necessitate the lopping off a portion of St. Peter's Church; but I think the congregation would well be able, without risk of overcrowding, to spare a portion for the public benefit.

The question will no doubt be asked, How are such plans to be paid for? To which I answer, that the new street from Rood-lane offers as good a chance of repayment as any that could be suggested; that, as regards the other alteration, the corporation are bound to look at it not as a pecuniary matter, but as a public good; and that if the daily loss of time at these points bears any proportion to what I have stated, it is quite time something was done, particularly as the opening of the Crystal Palace will no doubt very greatly increase the traffic along Gracechurch-street, and between London Bridge and the Blackwall Railway. A Pedestrian.

With reference to Mr. Bennock's scheme recently proposed in the Common Council, for a new bridge over the Thames, in which he proposes the northern end to be in a line with Old Change, Mr. Sharp, in a letter addressed to the Lord Mayor, suggests the opportunity that is offered for a fine view ultimately of the cathedral of St. Paul's. "As near as I can judge from Cary's map of London," he remarks, "a line taken through St. Paul's from the centre of south to centre of north doorways, bringing the ball and cross in line of centre of proposed bridge, will give a line to commence at Great Guildford-street, where Maid-lane crosses it on the Surrey side to about Trig-lane, on City side of the Thames, and might branch off east and west at Carter-lane on this side, proceeding eastward along the new street, or up Old Change, and westward into Bridge-street, Blackfriars; and may some day be continued up into St. Paul's yard, the levels to be arranged in rising off the bridge to agree therewith, preserving a terrace round St. Paul's."

The suggestion which was long since made in our columns, that subways for sewers, gas, and water-pipes—to which may now be added for telegraphic wires—were the only effectual remedy for the continual nuisance of breaking up the pavements, is now forcing itself on the public notice through the columns of the daily press.

An experiment with it to a small extent, say a quarter of a mile, is advised by the *Times*, and this is assuredly the most prudent as well as most hopeful plan, and one to which, we are sanguine in our expectation, the City or other authorities will ere long give a fair trial, at least while laying out some new line of street.

There is another cause of destruction to the streets, and hence obstruction to the traffic, besides that for which gas and water pipes are

responsible, to which the *Times* draws attention, namely, the unrestricted and unpaid-for destruction caused by the growing traffic with immense loads of goods between railway and dock or between railway and railway, a traffic of mere passage or transfer, in which the metropolis has no special part or profit, and yet for which its ratepayers pay. The exaction of pretty heavy tolls on such traffic is recommended.

Mr. G. Bird, with reference to this says,—"If the London and North-Western Railway Company would only carry out the engagements entered into by them when they took the lease of the short line of railway called the West London, from Wormwood-scrubs to Kensington-basin, the whole of the heavy goods which now go rolling through our crowded streets might be taken in barges down the river to the docks or pool, ready to be shipped into vessels lying there, and at a much less charge than is now made by the carriers."

NOTES IN THE PROVINCES.

Cambridge.—The materials of houses to be removed to make way for the enlargement of the market are being sold. The old almshouses, called St. Anthony's and St. Eligius's, were sold for 30*l.* Eight other houses went for 425*l.* odd.

Reading.—It is intended to erect a covered market here.

Edinbridge.—The new national school here was opened on Michaelmas Day. The building was designed by Mr. Edmunds, of London. It is in the early English style of architecture, built of white stone. Mr. S. Goodwin, of Maidstone, was the builder.

Ryde.—The new church at Haven-street was consecrated to St. Peter, on Saturday week. The church is built in the Early English style, from the design of Mr. Thomas Hellyer, of Ryde, architect, who has contributed a stained window for its adornment. The cost of the church has been defrayed by public subscriptions, and has been endowed by the Rev. Mr. Kent.

Southampton.—The plans for the new gaol have been approved of at last by Colonel Jebb, and sent up to the Secretary of State for his sanction. Mr. Holland, the contractor for laying down the pipes for the new waterworks, will shortly complete his engagement, and the water supply will then be poured into the town.

Winchester.—The drainage of this town is being spoken of as a necessity, and is recommended in the *Hampshire Advertiser*. Pipe drains, it is thought, would do almost everywhere.

Stow-on-the-Wold.—The Church of Lower Swell, near Stow-on-the-Wold, was re-opened on Wednesday week. The improvements consist in the addition of a north aisle and the restoration of the old Norman nave and chancel. The architect was Mr. Buckler, of Oxford, whose designs were executed by Mr. Fisher.

Burslem.—Trinity Church, Sneyd district, according to the *Stafford Advertiser*, was consecrated on Thursday week. The new church, which is of grey stone, presents a nave with two side aisles, a south porch, a tower at the north-west angle, and a chancel. It affords accommodation for 600 persons, including 100 children, who occupy a gallery at the west end. The style chosen by the architect is the Early English. The amount for which the building has been erected a little exceeds 3,000*l.* The nave consists of five bays, and is divided from the aisles by double chamfered arches, supported by alternately round and octagon piers. It is lighted by a clerestory of alternately quatrefoil and trefoil windows, while the aisles are lighted by a row of double trefoil-headed windows. The chancel has at its east end a three-light, trefoil-headed window, with detached shaft mullions, surmounted by an enriched head. On the south side there are two windows, and on the north one. The two easternmost of these are continued down, and formed into sedile for the officiating clergy. The whole of the roofs are of open timber work. The floor is occupied by open low-backed pews, with centre and side aisles. The pulpit and font are of stone. A stone tablet, placed in the porch, commemorates the grant of 100*l.* from the fund obtained in remembrance of Sir Robert Peel. The exterior of the tower is divided into three stages. The tower will be surmounted by a spire 60 feet high, and will be of stone instead of tiles, as originally contemplated. The whole has been erected by Messrs. Holme, of Liverpool, contractors, from the design of Mr. Robinson, of Wolverhampton, architect. Mr. Ralph Hales was clerk of the works. The gifts towards the erection and fitting up of the edifice have been on a generous scale.

Walsall.—"Whitewash for Nothing."—Thus headed, a large-sized posting-bill has been freely circulated in Walsall by the Improvement Commissioners, who offer to give whitewash and lend brushes for its application to all persons who, at their yard, may request the same. A premium of 5*s.* to the most diligent user of the brushes so lent, as in the instance so successfully carried out at Glasgow, by the police inspector, might have been worth while; and doubtless it would be for the personal interest of the well-doing in this and other towns, to subscribe a few five-shilling premiums for such a purpose.

Stalybridge.—The consecration of Castle Hall Church, Stalybridge, took place on Saturday fortnight, by the Bishop of Chester. The foundation-stone was laid on 21st April, 1851. The church, which is dedicated to the Holy Trinity, is built of stone, in the Perpendicular style of Gothic architecture, and consists of a nave and two side aisles, with a chancel at the east end, a tower at the west end, and a porch on the north side. Externally the aisles are divided into six bays, each bay containing a three-light pointed window of Perpendicular character, a buttress of three stages in height being placed between each window. The clerestory contains six two-light windows, with flat-pointed heads. The chancel, rising nearly as high as the nave, is of the same width, and is divided into two bays, each bay containing a pointed window of two lights. The east end is occupied by a large window of five lights. All the roofs are of a flat pitch, and slated; the chancel, clerestory, and aisles being coped with a plain parapet of ashlar. The tower, which is 70 or 80 feet high, consists of three stages in height, angle buttresses being placed at each corner and carried up to the top, where they terminate by large crocketed pinnacles. Internally the church is also divided into six bays, the nave being separated from the two side aisles by six pointed arches upon each side, supported upon five octagonal stone pillars. The chancel, which is a continuation of the nave, but not so lofty, is divided therefrom by a moulded archway, the floor being slightly raised. The large window in the chancel is enriched with stained glass. The roofs are open timbered, and, together with the pewing, are stained of a dark colour, to imitate oak. At the west end a gallery is erected for children. The church is calculated to accommodate 800 persons, and is 70 feet long by 50 feet in width. The chancel is 30 feet in length by 20 feet in width. The churchyard is enclosed by a plain iron railing. The architect is Mr. E. H. Shellard, of Manchester, and the contractors, Messrs. Eaton and Hollis.

Birkenhead.—Messrs. Brassey and M'Cormick have entered into a contract with the trustees of the Birkenhead docks, for the completion of the whole of the outer works of this great undertaking. The contract has been signed, and the works, which have been so long in abeyance, will be immediately resumed.

Liverpool.—At a recent meeting of the town council, a number of propositions were submitted for improving the town by the enlargement of streets through which there is great traffic, and for making others for better entrances to the heart of the town, and improving its sanitary condition.——Plans and specifications have been prepared for the construction of a new reservoir at Kensington, to contain 9½ millions of gallons, to cost 25,390*l.* and to be constructed by Mr. Thompson, who formed the first reservoir there. Both reservoirs would thus contain 18 millions of gallons. The estimate includes, also, the covering of both reservoirs, which would protect the water from vegetation, and reduce the cost of cleaning, it is said, from 250*l.* to 100*l.* a year.

Salford.—A new and enlarged building is to be erected for the Salford Athenæum and Temperance Hall.

Darwen.—The Darwen waterworks are drawing towards completion. The contractor, Mr. J. Isherwood, is now laying the pipes in market-street.——The Messrs. Walsh, spinners, &c. Darwen, have erected a new chimney contiguous to the Orchard Mill. It is between 60 and 70 yards in height.

Bradford.—The foundation stone of the Richmond-terrace Wesleyan chapel, schools, &c. was laid on Tuesday week, in Norcroft-place, Great Horton-road. The new building will be of the Italian style. Stone will be the material used. The internal dimensions will be 47 feet by 72 feet, and with galleries round three sides, accommodation will be provided for about 1,100 persons. The school premises attached will include, on the ground-floor, an infants' class-room, 20 feet by 12 feet, and an infants' school-room, 18 feet by 62 feet, ove another school-room, 75 feet by 18 feet, with two class-rooms attached, each 20 feet by 12 feet. The master's house will be in the rear, and will include kitchen, parlour, scullery, three bed-rooms, &c. The various rooms will be constructed according to the requirements of the Committee of Council on Education. The total cost will be about 2,800*l.* The architects are Messrs. Mallinson and Healey, of Bradford.

Jersey.—The markets' committee on Thursday last took into consideration three plans submitted to them for the covering-in of the Potato-market, prepared, at the committee's request, by Mr. Edmond Le Gallais, C.E. They unanimously resolved to adopt the one of which the cost was estimated at 1,050*l.* and appointed Mr. Judge Le Gallais and the constables of St. Helier and St. Saviour, as a subcommittee, to carry it into execution.—*Jersey Times.*

BUILDERS' BENEVOLENT INSTITUTION.

THE anniversary dinner of this society was held, on the 14th instant, at the London Tavern, with a result highly gratifying to all interested in its prosperity. About 210 gentlemen were present, and the amount of subscriptions and donations announced in the room was upwards of 700*l.* The chair was occupied by the President of the society, Mr. S. M. PETO, M.P.; and of the large sum subscribed on this occasion, the most remarkable item was the liberal gift by that gentleman of 200 guineas, in addition to an annual subscription of 25*l.* We need hardly say that the announcement of this munificent donation was received with enthusiasm, and it will doubtless materially tend to promote the well-doing of this valuable institution.

Among other well-known members of the trade, the following were present at the dinner; Mr. Grissell, Mr. T. Piper, jun. Messrs. George, Joseph, and Stephen Bird, Mr. W. Lee, Mr. Myers, Mr. G. Spencer Smith, Mr. Locke, Mr. Nesham, Mr. J. Soward, jun. Mr. T. Cozens, Mr. T. Stirling, Mr. Norris, &c.; with Mr. H. E. Kendall, jun. Mr. Gardiner, Mr. Tyerman, Mr. Simmonds, Mr. G. Godwin, &c. architects.

In proposing the health of the Queen, the Chairman trusted it would not be regarded as any imputation on his loyalty, that, in order to preside at that festival, he, as chairman of the Chester and Holyhead Railway Company, had declined a summons from his friend Mr. Robert Stephenson, to meet her Majesty that morning at the Britannia Tubular Bridge.

In giving "Prosperity to the Builders' Benevolent Institution," the Chairman said, that, being surrounded by practical men, he might be excused if, in the first place, he entered into some details of its progress and position. The society was established in 1847, and at the present time ten males and five females received its benefits as pensioners. He regretted to add, that at the last election, in May 1851, there were thirteen unsuccessful candidates, and others had since applied. The

funded stock of the institution was 2,850*l.* the number of subscribers 790, and the total income last year was 560*l.* He would advert with pleasure to the establishment of a branch of the institution at Brighton, which had already forwarded, in annual subscriptions, a sum of 55*l.* 13s. with donations to the amount of 21*l.* Referring again to the unsuccessful candidates, the Chairman stated that some of them were known to him and many others present, as having once been in a position of affluence and comfort. Among those who now received the society's pensions were some whom he had known from his earliest youth, and whom he honoured none the less that, by no fault of their own, they were in a position to need the comforts which it was an honour to that institution to minister to them. Every member of that assembly rejoiced in the possession of a happy home, and of all that contributed to domestic comfort; and the enjoyment of these advantages rendered it their duty to consider the claims of those who had them not. Nothing, he was sure, could be more pleasurable and delightful than to recognise in their own success the reward of their open-hearted liberality to their unsuccessful brethren. He knew them all of old: he had only to say to them that the honour of the craft was in danger, and then he could feel sure that at the next election there would not be thirteen unsuccessful candidates. With a few other remarks, zealously advocating the cause of the Institution, the Chairman gave the toast of the evening, which was received with more than the ordinary demonstrations.

The next toast, "Prosperity to the Brighton Branch," was acknowledged by Mr. W. Beedham, its president (high constable of the town), who observed that it should rather be called a *twig*. In time, however, it might become a worthy *branch* of the parent *stem*; and as its first fruits had been so kindly received, he trusted they would hereafter increase and ripen to a far greater extent.

The Chairman next proposed "The Patrons of the Institution," in connection with the name of his old friend and dear relation, Mr. Grissell, the past president; whom he characterised as a "good fellow," ever ready to assist his struggling brother tradesmen.

Mr. Grissell ably replied, congratulating the society upon its prospects under the president of the day.

Mr. T. Piper, jun. in a very energetic speech, proposed the health of the chairman; who, in his anxiety to discharge a moral duty, in attending the anniversary meeting, had risked incurring the displeasure of his sovereign. If they could be allowed a choice, there was no man whom they would sooner place before the world, to show what a builder was.

The Chairman, in reply, said that he attributed all his success in life to an early course of training in the workshop; and it was his greatest ambition to remain a builder to the end of his life. As all could not achieve the same amount of worldly success, it was incumbent upon those who had been blessed with fortune to assist their less successful brethren. Neither should they forget the industrious artisan, to whose labours they were so much indebted. He hoped they might date from this anniversary, the complete success of the association.

Mr. G. Bird, the treasurer, in responding to a toast coupled with his name, called upon the retired master-builders to do more than they had yet done for the Institution.

In acknowledging the toast of "The Architects and Surveyors," Mr. Godwin expressed the satisfaction he felt that, in one capacity, he had been enabled to advocate the cause of the society from its earliest origin; when but a few gentlemen could be found to support Mr. Cozens, its founder. He congratulated the members on the success which had attended their exertions, and which he hoped they would not relax. Gradually the great capitalist builders had joined their ranks, and they were now presided over and aided by one of the greatest contractors in the world. The example which had been shown in Brighton proved that there was an unworked field in every town in England, and he hoped in a very short time branch institutions would be formed throughout the kingdom. The speaker alluded to the advantages of association, and to the condition of society now and a hundred years ago. To talk of the "good old times" was, he thought, good old nonsense.

In reply to the toast of "The Stewards," Mr. Cozens adverted to his share in the formation of the Society, and to its early struggles and difficulties.

Among the subscriptions announced by Mr. A. G. Harris, the secretary, were the following:—Messrs. Peto and Betts, 50*l.*; Mr. J. Wilson, 21*l.*; Mr. R. Forrest, 21*l.*; Messrs. Locke and Nesham, 21*l.*; Mr. T. Jackson, 21*l.*; Mr. C. Balam, 10 gs.; Messrs. Collins and Stanbury, 10 gs.; Mr. Alderman Cubitt, M.P. 10 gs.; Mr. J. Kelk, 10 gs.; Mr. C. Dixon, 10 gs.; Mr. G. Myers, 10 gs.; Mr. T. Stirling, 5 gs.; Mr. Tildesley, 5 gs.; Mr. Belletti, 5 gs.; Mr. W. Lee, 5 gs.; Mr. F. Nugee, 5 gs.; Mr. G. Bird, 5 gs.; and Mr. Rolt, M.P. 5 gs.

[The proceedings were much interfered with (as they were at a previous dinner) by the behaviour of two or three ill-bred and ill-conditioned persons, which led Mr. Peto at one time to threaten to leave the chair. As they must be known to the committee, tickets should be refused to them on any future occasion. The repetition of such annoyances would force the respectable supporters of the charity to absent themselves.]

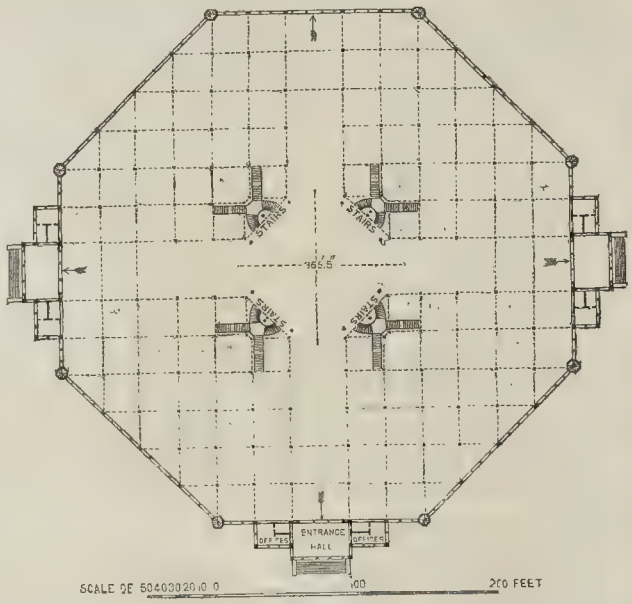
BUILDING FOR THE NEW YORK INDUSTRIAL EXHIBITION.

We have already stated that the design selected for the building for the New York Industrial Exhibition is by Messrs. Carstensen and Gildemiester.

In our present number we give a view and plan of the intended building. The ground floor is a regular octagon, 365 feet 5 inches in diameter. This measurement does not include the three entrance halls, each of which projecting 27 feet, is 40 feet 5 inches wide. On each side of these entrances, offices are attached, projecting 18 feet from the main building, and being 27 feet in width.

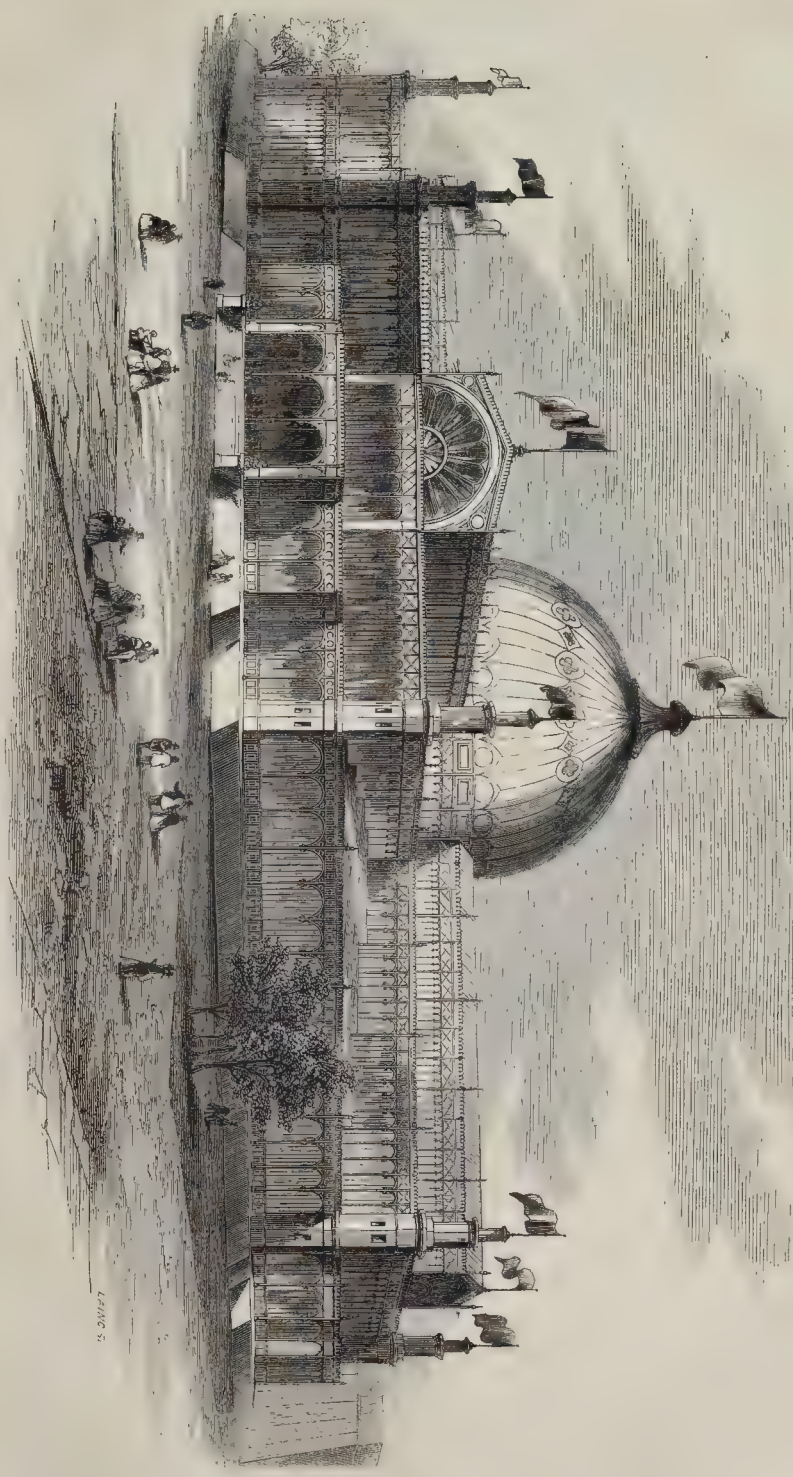
The interior consists of four great divisions, each having a main avenue, with side aisles which are connected on the ground-floor by four triangular sections. These main avenues unite at the dome, and together form a Greek cross, which shape is preserved in the gallery-floor. The materials used in the construction are chiefly iron and glass.

PLAN OF EXHIBITION BUILDING.



The following are the dimensions:—Diameter of dome, 103 feet; height of dome from floor to skylight, 122 feet; height of avenues in the clear, 67 feet; height of first story in the clear, 24 feet; height of second story in the clear, 21 feet; height of aisles, total 45 feet; width of aisles, 54 feet; height of triangular sections, 24 feet; width of avenues, 41 feet 5 inches; width of galleries, 54 feet; width of each front, 149 feet 5 inches; diameter of each of the eight octagonal towers, 8 feet; height of towers above side walk, 75 feet; area of principal floor 111,200 square feet; area of entrances, halls, and offices, 6,000 square feet; area of galleries, 62,000 square feet.

A writer in the New York *Literary World* suggests that a conspicuous department of the exhibition ought to be dedicated to the reception and display of such memorials of those "sons of light," who in their generation did so much to benefit society and advance the world, as can be obtained, either by purchase or loan, from private individuals or from public collections. "Autographs and short letters of Franklin" (he says) "or Godfrey (the inventor of the quadrant), of Fulton, of Oliver Evans (the originator of the railway and rail-car), and of Morse, the author of the electric telegraph, might, doubtless, be procured without much difficulty for the occasion, and might be exhibited (to secure them from injury) in glazed cases—as is done in the British Museum—where many such memorials and relics of the great men of that country are thus preserved and displayed for the gratification of strangers and visitors. To these should be added such busts, portraits, or statues of these distinguished individuals as may exist, or can be obtained for the temporary use of the Exhibition. In the case where portraits are the only mementoes of this kind to be obtained, it would be advisable that plaster casts or busts should be modelled from and substituted for them, as these would be better suited for exhibition than bad or faded paintings, inferior engravings, or mere miniature likenesses."



BUILDING FOR THE INDUSTRIAL EXHIBITION, NEW YORK.—Messrs. Carstensen and Gildemeister, Architects.

FANTASTIC STREET ARCHITECTURE.

RIGID adherence to established orders has given place of late years to a licentiousness in styles that has offended many of your correspondents. Some there are who would cling systematically to the Greek or Roman schools, whilst the majority, who are neither so austere nor scientific, prefer diversity in design, esteeming that most which exhibits lightness and novelty, even although the elements of the composition have no affinity to any thing that Palladians ever sanctioned. A new era certainly dawned on architecture, when the superficial coating of cement superseded the solid block from the quarry, and since facility, cheapness, and promptitude of construction have encouraged the vagaries of ædificators who do not choose to be bound by antiquated dogmas and theories.

The disciple of the severe school is abhorrent from all imitation, intolerant of plaster, and of the mimicry that would *scribe* out coin stones or blockings; insisting on what he calls truthfulness in construction; *i. e.* that every sembling articulation should consist of a separate block. Others hold this to be too tight-laced, and that such adherence to truth would cripple and restrain the ductile imaginings of plastic genius.

Nash first broke loose: he revelled and wantoned in plaster; Regent's-park, with its terraces, are the results: he moulded statues in *false* but perennial solidity, statues still maintaining the lofty pedestals on which they have long stood candidates for the popular suffrage. Only look at Justice how she smiles from the pediment steadily holding the pendulous balance in plaster, whilst the Bath and Portland personations of the Cælicolæ are *scaling* off, and fading away! A change has since been wrought in our thoroughfares; we have no more drear and dingy Harley, Wimpole, and Baker streets; diversity and lightness are now demanded in modern elevations.

The architect approves not such changes, and thinks himself the rightful arbiter in all arrangements of construction; nevertheless the taste for light, though false, exteriors is on the increase. There are amateurs in architecture whose perceptions of the beautiful are good, though not perfectly truthful; just as there are dilettanti in music who, without knowing a crotchet from a quaver, can critically appreciate an opera, and whistle over entire acts.

The increase of varied examples in architecture must lead the public mind to the study of the science, in the same manner that the establishment of a second Italian Opera has induced a more refined ear for song.

It is impossible to view the changes effected of late years in shop-fronts through the metropolis, and to maintain that we are not, in these particulars, in a state of progression. Wholesale and retail marts have arisen like temples—some of them elegant; others, it is true, ridiculous; some tawdry and gilded; some overloaded with most elaborate *imitative* carvings; others massive, dull, and heavy; but the diversity is on the whole pleasing, and tends to the improvement of general taste. There is now a strongly predominant custom of filling in the entire width of the entrance story with enormous sheets of plate glass. In some instances this impalpable material forms the *paries*, if *paries* it may be called, without any one apparent member to sustain superstructures of imposing pretensions.

In a frontage (now in the mind's eye), not far from St. Paul's, over an *invisible* base of this description, is erected a façade, surmounted by a balustrade, then a pediment, next in descending order a pilastered story, highly enriched with medallions of cupids, sustaining *antediluvian shells*,—then a piano nobile displaying columns, and perhaps the order of "*Fenestration*" recommended by the critical commentator of THE BUILDER'S date number; the line of balconies resting on a wreath of roses, extensive enough for a triumphal arch, the leaves and flowrets whereof naturally enough depend from their stems, and as in the growing state hang in air, and seem to rest upon nothing!

Those who are up to the secret know that there is a breastsummer concealed behind the foliage, but all is void to the eye, save the two side houses, in cohesion with which the entire elevation seems to depend, and the effect is necessarily unsatisfactory.

An insurance company has started to protect the spirited proprietors of establishments with 500*l.* panes: it is high time that some speculators should be provident when others are lavish; but there is yet a danger unprotected, and perhaps unforeseen, in the event of an accident, that in a hurrying crowd one should be pushed against the brittle panes; that a matutinal tipler should stagger against it; or that even a smasher (anxious for the good luck of transportation), should viciously assail it with a weighted hand: where is the security for life or lives of those passing under the fall of half a ton weight of glass? gravitating edgewise on the unfortunate delinquent, he must be infallibly beheaded or dicotomised!

Plate-glass vendors are right in holding the mirror up to nature; but they should guard their splendour by a slight trellice (excuse the *raillery*), for in the event of an accident it might turn out that more than one defaulter had a glass too much. QUONDAM.

IRISH WORKS.

THE interior decorations of the R. C. Church, in High-street, Dublin, are nearly completed. A range of Corinthian antæ, surmounted by an enriched entablature, and with semi-circular pseudo-arches in the inter-columns, is continued round the building. Light is obtained through Dioclesian windows over the entablature. The expenditure on the new decorations will be about 2,000*l.* Mr. P. Byrne, architect; Mr. Buckley, plasterer.

A large monastery is in progress of erection at Killarney.

Since 1844 the sums annually expended upon Lough Neagh drainage amount to 114,748*l.*

The Church of Saint Mathias, at Dublin, is being enlarged, and new transepts built thereto. Mr. Louch, architect.

A new masonic hall is to be erected at Armagh, and Lord Dungannon has subscribed 10*l.*

The Boyne Commissioners purpose proceeding with the harbour works at Drogheda, and are negotiating a loan of 15,000*l.* with the Belfast Banking Company.

A new chapel school is to be built by the Board of Ordnance at Fermoy Barracks, similar to those described by us in a previous number.

It is proposed to connect Galway, Tuam, Holymount, Castlebar, and Ballina by means of a trunk line, with branches, to Ballinrobe and Westport.

Steps are being taken for the advancement of the railway to Foynes. The Waterford and Limerick Company have taken 700 shares, the Great Southern and Western 600, Mr. Dargan 1,300, and Lord Monteagle 100, besides some others. We believe Mr. Dargan will be the contractor, and that he has undertaken to have the line finished and opened in eight months after its commencement.

At Galway it is in contemplation to open a continuation of the new street at Williams'-gate, and have a direct line between the docks and the Wood-quay. The street architecture is improving. New shop fronts are being erected, and the Messrs. Farquharson's building is conspicuous.

A commission of inquiry into the state of the markets through Ireland has been issued by the Lord-Lieutenant. The commissioners have been making a tour of the northern counties, and it is to be hoped that their report will be the means of causing improvement, the generality of the town being, in point of market accommodation, in a wretched state.

The Dublin Palace of Industry is progressing. Eighty carpenters are at work, and the total number of men employed is 170. The trellis girders, weighing eight tons each, are nearly all completed: they consist of ten layers of plank, 2 inches thick, connected by struts, bound securely together with screws and bolts. Windlasses, for the purpose of raising them to their destined position, are in course of construction. Abutments, for the support of columns, which are to form nave and aisles, have been built to the required level, and the first column will shortly be elevated in presence of his Excellency the Earl of Eglinton. The wrought-iron girders, manufactured by Mr. Turner, of Hammersmith, have been tested by Mr. Fairbairn, C.E. and a deflection of 1 $\frac{1}{16}$ took place under a weight of 32 tons, which being removed, they resumed their place to within $\frac{1}{16}$ of an inch. None of the columns have yet arrived, but we were informed they are expected shortly. It is in contemplation to throw a light bridge across the road into Merrion-square, to use the latter as a promenade.

The Commissioners of National Education purpose building an agricultural school and model-farm in the vicinity of Cork. The sum required (4,000*l.*) has been promised by Government.

A new R.C. Church is nearly finished at Glan, county Galway. It is built on a small hill overlooking Lough Corrib.

The new R.C. Church at Ballinasloe is progressing, under the direction of Mr. McCarthy, architect. The walls of superstructure are at present several feet high; style, Gothic.

The Killarney Junction Railway Company have received a number of plans in competition for their large hotel. One premium of 50*l.* has been offered.

The Limerick Chapel competition is not decided yet. We should say that the committee have had more than "*ample*" time to make up their minds.

THE PROPOSED INDUSTRIAL MUSEUM.

THE GROVES OF BROMPTON.

WE are informed that the Royal Commissioners have purchased that portion of the Harrington estate in Old Brompton which, in a recent division, was allotted to the trustees of the Baroness De Graffenried Villars, namely, 47½ acres, for the sum of 150,000*l.* The land is subject to a charge of 18*l.* a-year for the alms-house inhabitants, and 1*l.* per annum for the Good Fellows Charity. This affords an instance of the rise in the value of land here, and we could give others even more striking. Some eight years since, the whole estate, about 94 acres, was valued at 95,000*l.* by Mr. R. L. Jones.

The conversion of the Brompton Groves, with all their fine old poplar, elm, walnut, chesnut, beech, and orchard trees, into classical groves of learning in art and science, as well as into an exoteric or surrounding area of pleasure gardens for the people, would be a boon. The reservation of this space from being forthwith entirely covered with brick and mortar, as it is assuredly destined, otherwise, to be, would be a compensation for the slices which have already been filched from the parks at the West-end, and remorselessly built upon. It ought specially to be noted that the Brompton Groves constitute an open space nearer by a long way to the centre of the great mass of the metropolis than any other open space still left in private hands and ready to be built upon. Hence its peculiar adaptation as a site for the proposed Industrial University; and hence too the great desirability of reserving it as an open breathing space for the multitude, or at least as an oxygen manufactory and a foul air consumer, even were it to be altogether shut up from the people at large, and entirely devoted—grounds as well as buildings—to the industrial and other students, who will walk in its groves.

NOBLE LECTURERS.—On Thursday in last week, the Earl of Ellesmere delivered at Worsley a lecture to the members of the local library and reading-room, on the "Life and Character of the late Duke of Wellington." Lord Cawdor and other visitors and members of his lordship's family were present.——At a recent meeting of the Bury Mechanics' Institute, the Hon. and Rev. Lord Arthur Harvey delivered a lecture to the members on "History."

THE CHURCH OF ST. MARY-LE-BOW.

The attention of the public and of the profession has been of late directed to this building: I am, therefore, induced to correct the statement of "J. S. I." (page 522, *ante*), if you think this communication of sufficient importance with that object in view.

First, then, the Corporation of London has no more to do with Bow Church than with St. Mary's, Newington, St. George's, Southwark, or any other church throughout the land. The regular guardians of the church, as to repairs, &c. are the united parishes of St. Mary-le-Bow, St. Pancras, Soper-lane, and Allhallows, Honey-lane, and to these parties, or their respective churchwardens, should the attention required by "J. S. I." have been directed. So much for a slap at the City.

In the next place, the iron spindle of the vane is *not* fixed (and never was) on "two cross iron bars," and it is *not* discontinued at "about half way down the obelisk," but is, in fact, carried down as low as the commencement of the said obelisk, that is to say, 21 feet below the upper termination of the masonry. At 2 feet above the lower end of this spindle the ironwork diverges into the form of four inverted brackets, resting upon as many stone corbels, the spindle or stem being as much as 4 inches diameter at the bottom, diminishing regularly to 2 inches diameter above. Now from any or all of these inverted brackets one or two of Newall's copper-wire cords might be attached and carried down even into the well in the church-yard below, at no very great outlay of expense, and no doubt some such provision against accidents by lightning would be a very judicious and prudent measure. One of the pinnacles on the tower of St. Saviour's Church was shattered by lightning a year or two ago, and of course Bow spire may one of these days fall under the like mischance.

As to the split column secured by a gun-metal screw clasp, it has stood securely and without any increase of the fracture for upwards of thirty years: how long it was split before the clasp was applied is unknown: from a careful examination of the whole tower and spire I am unable to perceive or detect the slightest deviation from the perpendicular; and as to cramps *in* the tower, never having seen *them* I am unable to determine of what metal they may be composed,—I should suppose of iron, but in the rebuilding (anno 1820) of 42 feet of the upper part of the spire, not an ounce of iron was used, but wherever cramps were required gun-metal was adopted, floated in with Atkinson's cement, and not run with melted lead.

And now a word or two as to the height of this renowned spire: several have from time to time been given. One gentleman, noted for his many topographical publications, has made it 235 feet, and the minimum, or lowest elevation I have seen (to which the Royal Academy lately awarded one of their prizes), is 217 feet or thereabout, being a variation of *only* 4 feet 6 inches below Mr. Christopher's measurement, whose drawing gained him the highest prize.

Many years ago opportunities of admeasurement were afforded infinitely more favourable than could be obtained by the recent competitors for the silver medal: these opportunities were taken advantage of, and the height eventually ascertained to be 221 feet 6 inches from the paving in the centre of the north front to the highest part of the Dragon's wing. This elevation is *four inches higher* than the original as left by Sir Christopher Wren, and may serve as an answer to rumours still floating about, that it was curtailed even to the extent of 5 feet, as well as to an eminent architect of the present day, who gave it as his opinion that "it *was* a beautiful spire before *they* lowered it."

Mr. Christopher's height varies only a very few inches from the 221 feet 6 inches above mentioned.

In the late so-called *restoration* of the church, the alteration of the columns adjoining the altar, from Lapis Lazuli to Verde antique, may or may not be considered an improvement, but the removal of the elaborately-carved sounding-board can scarcely be called a restoration. (See "*Vestusta Monumenta*," vol. 5, pl. 62.)

Southwark. G. G.

THE LATE W. TIERNEY CLARK, ENGINEER.

Mr. William Tierney Clark, who died at Hammersmith on the 22nd ultimo, had for more than forty years been the resident engineer of the Middlesex Water Works Company. During this period Mr. Clark executed various public works, which gained for him considerable reputation, particularly the Hammersmith Suspension, Bridge. The *Church and State Gazette* gives the following additional particulars of his life. The Shoreham Suspension Bridge, a structure of classical simplicity, was executed by Mr. Clark for his Grace the Duke of Norfolk; and the bridge at Marlow was also his work. The not less beautiful bridge over the Avon at Bath; that at Rochester over the Thames and Medway Canal; and the Gravesend Pier, were other creations of Mr. Clark's.

But his master-piece, and that which has given him a more than European reputation, is the great suspension bridge which, so to speak, he flung over the Danube, between Pesth and Buda. This great work was executed at the command of the Emperor of Austria. German engineers had considered the difficulties insuperable; but the energy and experience of Mr. Clark enabled him to overcome them, and when the work was gallantly accomplished the imperial gratitude was warmly expressed by acts as well as words. Previous to the opening of this bridge to the public, the engineer resolved to test it to the utmost; and while consideration was being entertained as to the best means—these, and of the most satisfactory, offered themselves where they were least expected. The Austrian and Hungarian armies, or such large portions of them as to deserve the name of armies, passed and repassed over the bridge in alternate flight and pursuit. The tramp of large bodies of men, the tread of squadrons of horse, the gallopping of the light and the more tardy progress of the heavy artillery, gave such a trial to the new work as might well have contented the most scupulous of engineers. It fully proved the trustworthiness of the structure.

More recently, Mr. Clark completed the bridge at Welbeck for his Grace the Duke of Portland; and, even while the shadow of death was descending upon him, he was engaged on plans for the construction of works to supply the city of Amsterdam with water from the neighbourhood of the sand-hills of Haarlem. Through life Mr. Clark had been what may be strictly termed "a courageous worker," and even the terrible paroxysms of a most painful malady could not incapacitate him for labour which he resumed with calm cheerfulness during their intervals.

Miscellanea.

The Skeleton Building System in Glasgow.—Responsibility of Builders.—At the Glasgow Circuit of Justiciary on Friday week, an important case, as determining the liability of builders for the materials employed by them in the construction of tenements, was tried before Lord Cockburn. Mr. John Wilson, mason and builder, was charged with culpable homicide, as also culpable violation or neglect of duty, inasmuch as having contracted to execute the mason-work of a tenement in West Bath-street, and having carried on the said work, he culpably and recklessly, and in violation of his duty, executed, or caused to be executed, the same in direct contravention of his agreement, by which the back wall and the middle gable fell or gave way, and in consequence that three individuals were injured, and shortly after died, being thus culpably killed by the prisoner, through the negligence of not attending properly to his business. The prisoner pleaded not guilty. A number of witnesses were examined on the part of the Crown, whose testimony went generally to prove that the fall of the building was not attributable to the subsidence of the foundation, but to the insufficiency of the materials used in building the walls, and the manner in which the mortar had been made. The jury declared the prisoner guilty of culpable neglect of duty, by a majority of ten to five, but unanimously recommended him to the leniency of the court. Lord Cockburn concurred with the verdict. If it had not been for the recommendation of the jury, he should have passed a sentence of eighteen months' imprisonment; but he would now modify the punishment to one year's imprisonment. The *Glasgow Gazette*, in commenting on this case, recurs to its former warnings on this subject, quoted by us at the time, and says,—"The evidence for the prosecution is bad enough; but there is something still more alarming to the public in what is so curiously termed the 'exculpatory proof.' The burden of this exculpatory evidence, if there be any reliance in it whatever, goes simply to prove that Mr. Wilson, mason and builder, was no worse than his neighbours. 'The material,' says Andrew Patrick, mason, 'was the same as I have seen used at other buildings.' Robert Patrick has much the same opinion. 'The materials were as good as those used at other buildings. He did not think they were inferior. The sand used for the lime was rather soft. The lime was good of itself.' Again, John M'Kay, a mason for twelve years, says—'The materials generally were the heaviest that I have built.' What may be exactly meant by that, we cannot tell; but this, and other similar evidence, termed, by courtesy, 'exculpatory,' sounds like a bad report for the durability of Glasgow. We hope that the present case will operate as a salutary warning."

Builders' Clerks.—Your correspondent, a "Builder's Clerk," has spoken in your last week's impression, of a subject which interests a large number of London clerks, namely, the hours of business in builders' offices. I am afraid that our employers do not study their own interests in detaining young men so late at their offices, as it completely puts a stop to any advantage which the employers would derive from a course of study in connection with the business. If some of our leading firms in London were to adopt the plan and close their offices (except on particular occasions) at six o'clock, I am sure it would contribute largely and beneficially to the comfort and interest of the employer and employed. —Another Builder's Clerk.

The Electric Light.—An "Electric Light Company," for the supply of the electric light for public and domestic use, is in course of formation, with a capital of 200,000*l.* and power to increase it beyond that sum. The *Liverpool Courier* states that every practical difficulty connected with the perfect continuity of the light, and the steady successive illuminating power, on Mr. Staite's system, has been overcome; that the products of his different modes of producing continuous electric power will go far to pay all expenses of obtaining the light, if not entirely so; and that several leading gentlemen of Liverpool have for some time been negotiating with a view to the formation of a company to work the patents for Liverpool and elsewhere. The localities named for its use on the river are the Landing-stage and Woodside Ferry, Egerton Docks and Rock Ferry, and Egremont Pier, while the centre of the town can be brilliantly illuminated from the Town Hall. The permanent apparatus is said to be in a forward state, so as to be ready as soon as the necessary erection by the Dock Company can be completed at the back of the Landing-stage. It is stated in the *Illustrated News*, that certain artists have obtained photographic portraits by means of the electric light. Scotland on this point, according to the *Scotsman*, is already abreast of her southern neighbours; one of the Edinburgh photographic artists having established a battery, with which he obtains a light said to produce satisfactory portraits.

Ordnance Survey.—The survey on the six-inch scale is rapidly advancing in various parts of the county of Fife, in Scotland.

MR. DARGAN, THE IRISH CONTRACTOR.—Mr. Dargan has recently made his name generally known in England by his munificent proceedings in respect of the approaching Industrial Exhibition in Dublin. In Ireland it has long been recognised as that of the most enterprising and successful of contractors, frightened by no difficulties, and prepared for any emergency. As we heard one of his countrymen say when we were in Ireland,—"Bedad, he'd bridge the elements, if you'd find the money." The following is from *Lloyd's Newspaper*:—"William Dargan is a self-made man. He was originally a common labourer, and had he only risen to be a carpenter or a stonemason, his friends might have said that he had succeeded in life. But he had a Saxon heart in his Celtic breast, and working his way steadily, soberly, from point to point, making every inch of his road good as he travelled over it, he advanced from bricklayer to builder—from workman to master—from cottage jobs and repairs to contracts for public buildings. He had attained this position before the railway system rose up,—and he, the self-taught man, had won for himself an honourable place among the intellectual and money aristocracy of Dublin. Well, there was a *soirée* given one night at a distinguished house in the Irish capital, when railways became a topic of conversation; and a person present suggested a line between Dublin and Kingstown. Very good: but where was the money to be got? What would it cost? One sum was named—another was hazarded. But what a difference between them! The idea was about to die out in a laugh, when the first speaker said, 'Here's a man who will tell us in a moment. Here, Dargan: yours is the head for a calculation! What would a line of rails to Kingstown cost?' Tablets were out, and a pencil writing down a few hurried figures. In two minutes a result was announced—so low as to astonish every one present; and it was then agreed to meet next day and consider the project. The company was formed, the Act of Parliament obtained, and in due time tenders for the contract were invited. It was the first bit of railway in Ireland, and there were no Brasseys and Petos in the sister country. Most of the tenders were ridiculously high; but William Dargan sent in the same rough draft as he exhibited at Lady ——'s *soirée*, and got the contract. That work laid the foundation of his fortune, and from that hour the self-made man has been the soul of railway enterprise in Ireland."

THE LIVERPOOL ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—At the opening meeting of the season, on the 12th, Mr. Verels, the president, entered into a review of the principal architectural works in the county which had been commenced in the present year. Turning next to the contemplated improvements in Liverpool, he said he should like to know what was intended to be done with the space once occupied by the Islington Market, and, if that hideous St. John's Church were removed, which he said would be an eyesore as long as it remained, suggested that the whole extent of ground might be made into an exceedingly beautiful place, where the people of Liverpool might take their walks. Mr. Picton made some observations upon the proposed town improvements. Mr. J. H. Horner read a paper on the society's late excursion to Manchester, with critical remarks on the various architectural objects which they had inspected. A short discussion followed, after which Mr. Chantrell exhibited an improved hollow brick, intended for wall facings.

VALUE OF LAND AT BIRMINGHAM.—The increased value of land in the centre of this town, consequent upon the alterations for railway purposes, may be judged of from the following list of prices, realised on Wednesday in last week, at a sale at the Union Inn, by Messrs. Cheshire and Gibson, of the surplus lands in High-street and Moor-street, belonging to the London and North-Western Railway:—Lot 1, having a frontage of 15 feet to High-street, and adjoining the land purchased by Mr. Partridge at the last sale, brought 12*l.* 12s. 6d. per yard (121 yards, 1,527*l.* 12s. 6d.). Lot 2, back land, forming part of the site of the Swan Hotel, brought 5*l.* (300 yards, 1,500*l.*). Lot 3, situated on the opposite side of High-street, having a frontage thereto of 38 feet, with the shops Nos. 22 and 23, and some other buildings, brought 12*l.* 15s. (305 yards, 2,613*l.* 15s.). Lot 4, adjoining the last, with a frontage of 15 feet, brought 9*l.* 10s. (108 yards, 1,026*l.*) Lot 5, a similar piece, 11*l.* 7s. 6d. (127 yards, 1,444*l.* 12s. 6d.). Lot 6, having a frontage to High-street of 16 feet, and to an intended carriage-way of 60 feet, 13*l.* 10s. (83 yards, 1,120*l.* 10s.). Lot 7, frontage of 83 feet to High-street, with similar privileges as the last, and having retail shops, Nos. 17 and 18, on it, 10*l.* 17s. 6d. (324 yards, 3,523*l.* 10s.). Lot 8, Mr. Burbidge's shop, with the Lion and Lamb public-house, and spare land, 12*l.* 2s. 6d. (365 yards, 4,425*l.* 12s. 6d.). The Moor-street land realised from 3*l.* to 4*l.* per yard. The average price of the High-street land, excluding the back piece, was 11*l.* 16s. 1½d. per yard: the sixth lot was sold at the rate of 65,340*l.* per acre.—*Birmingham Gazette.*

NEW NATIONAL GALLERY.—We have reason to know that instructions have been issued from the Foreign Office to some of our ministers abroad, and probably to all of them in Europe, directing them to obtain plans and details of the several galleries of pictures, their modes of lighting, arrangement, &c. This is a prudent proceeding, and betokens that the subject is likely to be properly considered. Instead of beginning by determining the architecture and position of the building, sacrificing it to this or that shape of the ground, to a portico on one side, to the line of a street on the other, to barracks in the back, to passages unconnected with the object of the building, &c. making no provisions for increase,—in fact, taking into consideration every point but the one essential, namely, the fitness of the building itself to receive and exhibit pictures,—these prudent inquiries indicate that the arrangement of the pictures and the modes of showing them are, properly, to be the first consideration. The mistakes of the present building ought to be entirely avoided, and we should begin upon a totally different principle. The first thing is to settle what a National Gallery ought to be and become; to provide ample space for this; to make the structure strictly subordinate to the use, and then to allow the architecture to develop itself out of the use and nature of the edifice. It seems to us that the proper course is that the authorities should prepare a ground plan and block model, showing the absolute and indispensable arrangements, size of rooms, size of widows, position of windows, and then invite architects to improve the artistic features if they desire to do so. The past experience of competitions, in which every point of principle is left open, ought to make us wiser when we begin to erect a new National Gallery.—*Times.*

METAL FOR BUILDING PURPOSES.—The patent of Messrs. Morewood and Rogers, of Upper Thames-street, for shaping, coating, and applying sheet metal to building purposes, has now been specified. The first of these improvements consists in causing sheets of iron, or other metal, intended for corrugating, to be rolled of unequal thickness in different parts. The second consists in corrugating sheets of metal diagonally, allowance being made in cutting the sheets for distortion. The third has relation to the application of corrugated sheet metal to roofing, and consists in causing the corrugations to run diagonally, and in placing the wooden rolls, when used, in the same position. The fourth consists of a mode of applying a thick coating of lead, or its alloys, to sheets of zinc or alloys of that metal. For this purpose a mould is used, in which the metal to be coated is placed, and the whole is then immersed in melted lead, or the mould and zinc plate are heated, and the lead poured on to the required depth.

GUILDHALL, WESTMINSTER.—Mr. Serjt. Adams complains loudly of bad arrangements, defective hearing, &c. since the recent alterations in this court. Perhaps some inquiry into this matter might prevent future mistakes of the kind.

ELECTRO-TELEGRAPHIC PROGRESS.—It is proposed to carry the telegraph under Southampton Water to the Isle of Wight and the Royal residence at Osborne.——A third submarine line is being thrown across the Irish Channel. The two former, as our readers are aware, were not successful attempts, and a report of the failure of this third endeavour has been published, but has since been contradicted. This last is being laid between Portpatrick and Donaghadee, for the Magnetic Telegraph Company, by Messrs. Newall and Co. wire-rope manufacturers. A telegraph is being fixed (the posts are already up), along the side of the river Avon, from Bristol, down as far as Pill. It is to signal the shipping as it appears at the mouth of the river, instead of sending a special messenger to the town.

BURY AND WEST SUFFOLK ARCHÆOLOGICAL INSTITUTE.—The nineteenth general quarterly meeting of this Institute was held on Thursday week, Lord Jermyn, M.P. in the chair. Alluding to the extensive excavations now in progress at Pevensey, in Sussex—the *Anderida* of the Romans—under the direction of Mr. Roach Smith, one of the honorary members of this Institute, and of Mr. M. A. Lower,—his lordship observed that these gentlemen had invited the members to witness their operations, which are more extensive and satisfactory in their results than anything hitherto explored in this country. Various presents were announced and articles exhibited, after which the members visited the monastic ruins in the vicinity of their place of meeting, together with the Angel Hill, formerly called the Mustow and the Bury Fair, &c.

SHEFFIELD SCHOOL OF DESIGN.—The annual meeting of the friends of this institution, at the distribution of prizes, &c. took place on Tuesday last, when the Duke of Newcastle delivered a lengthened address to a large assemblage, including many of the gentry, clergy, and nobility of the district. In the course of his address, his lordship, who presided, very truly remarked that in the highest walks of life there is a want of that amount of education in art which shall enable them to appreciate what is excellent, and to purchase what is good and beautiful instead of that which is vicious and ugly. "I do not mean by this," added his lordship, "that they are all to become pupils in these different schools of design, although I do think that there are many who live within the circuit of these schools who would do well to enlist themselves and their children in them."

PERIL FROM RESERVOIRS: HOLMFIRTH, NO WARNING.—Will it be credited that at Holm Styes, near Holmfirth, numerous families are said to continue in the utmost state of excitement during every wet day or night, in consequence of the insufficiency of the embankment of the reservoir at the head of their valley or gorge, which is declared by the *Halifax Guardian* to be quite as dilapidated and insecure as was the one at Bilberry; and that although a comparatively small sum would suffice to diminish the danger, those who have authority in the matter still persist in a system of neglect which so perils the lives of residents that they fly to the adjoining high grounds on every fall of rain a little heavier than usual, and quite lately had to proceed in a body to the reservoir and *compel* those interested to draw off a superfluity of water which it was feared the embankment in its present dilapidated condition would not stand? There is something villanous in conduct such as this.

ROAD-MAKERS' DIFFERENCES.—The following are tenders for making roads and laying stoneware pipe sewers upon the "Blythefield Estate," near Forest Hill Station, Kent, for the Church of England Freehold Land Society. Mr. G. Lawford, architect:—

Coker	£680
Barnes	627
Murray	560
Kamester	525
Kelley and Co.	482
Brown	450
Thompson	444
Becks (accepted)	430—Z.

The Iron Trade.—This trade is still looking up. The nominal advance in price, however, has not exceeded 1*l.* a ton. It is admitted by the *Birmingham Journal* also, that the trade generally are persuaded that the advance now made "must prove injurious to the manufacturing interest, and render very doubtful the success of the competition into which it has been thrown with our foreign rivals." The orders that are still being executed by the ironmasters, however, are most of them, in fact, old orders at the old prices, and the recent stir and nominal advance has induced the coalmasters to propose a further advance in the price charged to the masters for their commodity. The trade at Newcastle, according to the *Gateshead Observer*, is in a most satisfactory condition. There the masters meet occasionally to talk over the state of affairs, but, as remarked in the *Observer*, they are not combined to force prices up unnaturally.

Government Aid to Drawing Schools.—The Board of Trade have resolved that the department of practical art shall have power to assist schools with examples for teaching drawing on condition that the applicants are willing to pay half the prime cost of them; the secretary at Marlborough-house to furnish a list of the examples of drawing copies, models, casts, and materials to be so provided.

Insurance of Workmen's Tools.—A correspondent, who appears to be himself a workman, in allusion to an appeal to the public on behalf of the workmen who suffered by the late fire at Mr. Grimsdell's, expresses his surprise that they had not joined their fellows in the trade who mutually insure their tools, besides reaping other benefits, on paying a small entrance fee of from 5s. to 8s. and a weekly payment of twopence or threepence, a continuance of which payment for twelve months constitutes a member entitled to the benefits thus mutually conferred. Our correspondent very properly recommends self-reliance of this sort to workmen. They require, however, the establishment of some general association in which all could confide.

Launching Life-boats.—An improvement has been carried out at Dundee, on the suggestion of Mr. Ower, the harbour engineer, which ought to be generally known and imitated wherever life-boats are stationed out of water. In this case the boat stands ready on a short railway, or patent slip, on a steep gradient, and fastened, so that on an emergency the boat can be instantly launched, with railway speed, into the water, and thus the first few minutes, which are so all important in most cases where life-boats are called for, can be made effectual use of in the saving of life. The form of life-boats is another point still requiring improvement, as the recent upsetting of the Duke of Northumberland's prize boat sufficiently manifests. A life-boat should be as difficult to upset as a life-raft, and if sails and masts be the cause of such an ill-placed and ill-timed catastrophe, they must be made lower, and other and compensatory means of rapid sailing be devised.

Building a Cairn.—The ceremony of building the "Cairn Clach-Chuimhneachan Balmoral," is said to have taken place on Monday week, on Craig Gowan. Her Majesty laid the first stone, and his Royal Highness Prince Albert, with the rest of the royal family, assisted, each placing a stone upon the Cairn, as did also the different members of the royal household, and the inhabitants living on the estate, who assembled for that purpose.

Cardiff Drainage.—At a recent meeting of ratepayers, numerously attended, it was resolved by a very large majority to urge the Local Board of Health not to proceed with Mr. Rammel's pipe-drainage until the opinion of Mr. Stephenson, or some other eminent engineer, should be obtained; as it had been proved that pipe-drainage in several cases had failed; as many eminent engineers were opposed to it; and for other reasons set forth in the resolution. Cardiff is thus as far off having drainage of any sort as ever.

Kensington Gardens.—The well-remembered Coalbrook-dale gates from the Great Exhibition are being erected at the end of the broad walk in Kensington-gardens.

Liverpool Free Public Library and Museum.—On Tuesday last this valuable institution was opened by a formal public meeting, at which the mayor and several members of Parliament, and many other influential men attended. The mayor, aldermen, and councillors proceeded to the library in procession, and the meeting was addressed in a lucid speech by Mr. Picton, who appears to have taken an active part in the foundation of the library and museum.

Fall of Two Houses.—Two new houses in Lansdowne-street, Brighton, sank to the ground in a mass, on Monday week. One was nearly roofed in, the other was one half wall up; and the mortar was consequently throughout more or less damp. During the whole day, the rain had "poured."

Motive Power.—Mr. A. de Montravel has patented a method of obtaining motive power from atmospheric air or other gas compressed in a cylinder or suitable vessel, by the application, alternately, of heat and cold, whereby the air or gas is alternately expanded and condensed, and a reciprocating motion thus produced on a piston moving inside the cylinder. To make the piston more effectually air-tight, it is packed, so to speak, with fluids such as water, or semi-fluid matters, such as grease, &c.

Advertising Architects.—I enclose you an advertisement taken from a Nottingham journal, which will show that we are progressing in these parts. Drapers and grocers' puffing advertisements are very common, but this is the first architectural puff I have seen. The address given is not far from the *Lunatic* Asylum:—"————, architect, building surveyor, measurer, and licensed valuer of all descriptions of artificers' works connected with building; formerly a resident in Nottingham for many years; late clerk of works to the * * * and other extensive works in various parts of England and North Wales, for the last twelve years. —— respectfully announces that he has commenced in the above profession in all its various branches, earnestly soliciting the patronage of a discerning public, trusting, by unremitting attention, impartial conduct, and reasonable charges, to meet with that support his long experience (upwards of forty years) may merit: he also furnishes every description of architectural designs, plans, elevations, sections, specifications, and estimates, at the lowest remunerative charge, viz. 2*l.* per cent. on the amount of estimate, or final outlay. —— respectfully invites persons going to build to an inspection of specimen drawings."—A. B.

Improvements in Vehicles for Railways and Common Roads.—Some improvements in the construction of the above have been patented by Mr. W. Pidding, among the most noticeable of which are—"1. A mode of constructing carriage-wheels with flexible spokes, composed of whalebone, spring steel, &c. and with divided tyres. The several portions of tyre are covered with a flexible material. 2. The application of catches to the spokes of carriage-wheels constructed as above, for the purpose of combining or centralizing the power of any number of such spokes. 3. The use of friction-roller bearings for axles, by which the necessity for the employment of lubricating materials is dispensed with. The friction rollers are supported in a circle of radially-formed pieces of metal and India-rubber placed alternately, and encircled by a band of India-rubber, which maintains a constant tendency to contract and bind the circle of radial pieces close together and upon the friction rollers. 4. A mode of mounting the elastic-spoked and divided tyre-wheels on axles of unequal length, by which they may be brought close together, and one pair made to overlap or project beyond the other pair. 5. Two modes for employing portable rails to be laid down by a carriage as it advances." If Mr. Pidding has succeeded in this last invention, he has accomplished what many a clever engineer has long desired practically to accomplish. He might thus resolve the problem of common road locomotives. Rail-rims with an elliptical movement in advance of the wheels, the centre of the elliptical orbit coinciding with the axis of the wheel, would appear to be a hopeful *modus operandi* for such an invention.

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"J. M'G.," "J. E.," "W. K." (shall hear from us), "C.C.N." (thanks), "W.B.," "A Mechanic" (we are unable to recommend), "A. B." (we should mislead by advising without personal knowledge), "J. W. H." shall have attention), "A. and C.," "R. F." (against our rule), "A. G.," "R. H." (shall be happy to receive them), "W. S. J.," "R. T. S.," "A Builder," "Delta," "S. C.," "An Old Practitioner," "An Inhabitant," "C. W." (the roof of Westminster Hall is of oak), "C. J.," "A. C." (will appear), "S." (ditto), "G. G." (letter shall appear), "H.," "Mr. C.," "W. M. C."

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A GENT WANTED for the sale of ROOFING FELT. Any person of active and steady habits, and having an acquaintance in the trade, would be preferred.—Apply, by letter, F. S. care of Mr. Allen, Newspaper Agent, 19, St. Martin's-le-Grand.

SHOP FOREMAN WANTED, in a Shop where a few men are kept, a steady and industrious man, with good references.—Address, by letter only, to K. L. stating terms, &c. 9, Angel-terrace, River-lane, Islington.

WANTED, a FOREMAN, thoroughly conversant with Coffer-dams, to take charge of a Public Work in Ireland.—Address J. E. Office of "The Builder," 1, York-street, Covent-garden.

TO BUILDERS' FOREMEN.

WANTED immediately, in a large town in the Midland Counties, an experienced SHOP or GENERAL FOREMAN. He must be fully competent to set out all kinds of joiners' work, and take the management of the shop.—Address, T. S. Office of "The Builder," 1, York-street, Covent-garden.

TO PLASTERERS.

WANTED, a first-rate PLASTERER, one accustomed to cements, either to take work by the piece or day.—Apply by letter, stating full particulars, to E. W. 19, Warwick-court, Gray's-Inn.

WANTED, by a Firm in the Country, a BUILDER'S CLERK and BOOK-KEEPER fully conversant with the duties of the office. He must be able to make out working drawings, &c. State age and salary.—Address, E. and K. Office of "The Builder," 1, York-street, Covent Garden.

WANTED, a RESIDENT CLERK and BOOK-KEEPER in a State Merchant's Counting-house. He must be a steady, active and industrious habits. Unexceptionable references required.—Apply by letter to No. 1, Potter's-fields, Tooley-street, Southwark.

WANTED, a steady active YOUNG MAN, of business habits, in a CONTRACTOR'S and SURVEYOR'S OFFICE. He must be a good accountant, and competent to measure work, and take out quantities.—Apply, stating references and salary required, to A. B. Post-office, Oundle.

TO FOREMEN OF CARPENTERS AND WHEELWRIGHTS.

WANTED, a Steady, Active, MAN, to superintend the Building of Railway Waggons and Contractors' Plant; he must understand drawings and setting out this kind of work generally. A thorough competent person may hear of a permanent situation by applying to Mr. J. PENTON, Chippenham, Wilts, to whom all communications must be addressed, post-paid.

TO ENGINEERS, CONTRACTORS, BUILDERS, AND OTHERS.

WANTED, to take a quantity of BRICKWORK (piece-work); no objection if on the Continent.—Apply, by letter, to C. H. West of England Office house, Waterloo-road.

WANTED, by a Practical Carpenter and Joiner, a SITUATION as FOREMAN. Can give undeniable reference as to abilities and habits.—Address, post-paid "S. W." 33, Hawley-crescent, Camden Town.

WANTED, a SITUATION as FOREMAN by a Young Man, who has had ten years' experience in setting out and measuring up joiners' work. Satisfactory testimonials can be given.—Apply by letter, prepaid, to A. B. at Mr. Purssord's, Clerk-passage, 50, New Cut, Lambeth.

WANTED, by a Young Man, who has had much experience in builder's office, and is conversant with drawing, a SITUATION with a BUILDER, or any branch relating thereto; can give satisfactory reference to the employer he has just left.—Address, S. E. care of Mr. Brownlow, newsvender, 32, Jewin-street, Cripplegate

WANTED, an APPRENTICE to a LIGHT BUSINESS.—Apply to "A. B." Fore's, Bookseller, South Audley-street.

AN Architectural Draughtsman is desirous of an ENGAGEMENT in town. He has a good knowledge of Gothic and other styles, ornamental designing, colouring, and perspective.—Address, J. N. 8, Theberton-street, Islington.

TO ARCHITECTS, BUILDERS, ENGINEERS, &c.

A GOOD ARCHITECTURAL DRAUGHTSMAN would be glad to EMPLOY several hours every evening in any work which might be required to be done. Terms moderate.—Address, by letter, to A. A. A. William Thomas and Co.'s Advertising Offices, 19 to 21, Catherine-street, Strand.

TO ARCHITECTS, &c.

A YOUNG MAN, generally conversant with the business of an Office, and who has been articled to an Architect, is desirous of an ENGAGEMENT.—Apply, C. R. 37, Gracechurch-street, City.

TO ARCHITECTS, BUILDERS, &c.

A YOUNG MAN, aged 23, about leaving his present Employer, wishes for an ENGAGEMENT in either of the above Offices. He is a good of Gothic and Perspective Draughtsman, competent to keep Builders' Books and take out quantities, and has a knowledge of Surveying. Good references. Salary, 80*l.* per annum.—Address, "A. B." 21, Sale-street, Edgeware-road.

A PRACTICAL BRICKLAYER is in want of a SITUATION as FOREMAN; prefers doing the whole of his work by the rod. Satisfactory references can be given from his late employer.—Direct, H. K. 3, Bridport-street, Blandford-square, Marylebone.

TO BRICKMAKERS AND BUILDERS.

A PRACTICAL Man in all its branches, wishes to ENGAGE himself as FOREMAN to manufacture Bricks from the commencement of preparing the brick-earth to the final finish of burning the brick in workmanlike manner. Reference as to character and ability unexceptional.—Address to W. H. No. 23, Welbeck-street, Eaton-square.

TO ARCHITECTS AND BUILDERS.

A GOOD practical Carpenter and Joiner, who can make working drawings and set out work and take out quantities, wishes for a SITUATION as general or shop Foreman, or Clerk of Works.—Address A. Y. 11, Ashford-street, Hoxton. —N.B. No objection to the country.

TO BRICKMASTERS OR PERSONS WISHING TO BECOME BRICKMASTERS.

A PERSON who has had many years' practical experience in brickmaking in all its branches in town and country, is desirous to obtain a SITUATION to superintend a field. Can explionable reference can be given as to ability, sobriety, and morality.—Please to apply by letter (A. M.) at Mr. Heuwood's, 10, Grosvenor-street, Wharf-road, Islington.

TO CARPENTERS, BUILDERS, &c.

THE Advertiser, a person of extensive experience in keeping books, taking out quantities, estimating and measuring up works, &c. wishes for an ENGAGEMENT for TWO or THREE DAYS in the WEEK (or more occasionally, if required), in town or its immediate neighbourhood.—Address, free, to A. B. 2, Philpot-terrace, Philpot street, Commercial-road East.

TO ARCHITECTS.

COMPETITION and other DRAWINGS.—Mr. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen," &c. and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 18, Albany-street, Regent's-park.

DECORATIVE PAINTING.—Mr. FREDERICK SANG, from the Royal Academy of Munich, DECORATIVE ARTIST in FRESCO, and in all other manners of Painting; whose works may be seen in the principal public buildings of the metropolis, begs to inform his patrons, and Architects in particular, that he has considerably increased his Establishment, and is now enabled to undertake, on the shortest notice, the embellishment of private and public buildings, in any part of the United Kingdom, on the most reasonable terms, and in any of the Classical, Mediæval, or Modern Styles.—Apply to F. SANG, Decorative Artist, 83, Pall-mall, London.

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Jeffery Smith, esq. David Fergusson, esq.
Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.

Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

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Assurers who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.
Loans granted on personal and other securities, in connection with life assurance.

BONUS

The following table shows the Bonuses declared on Policies effected with this Society prior to 30th March last:—

No of prems. p'd	Age when assured.	Annual premium	Sum assured	Bonus added	Amount now assured.
		£ s. d.	£	£ s. d	£ s. d.
5	50	45 19 2	1,000	84 13 0	1,084 13 0
4	40	33 19 2	1,000	63 1 0	1,063 0 0
3	30	24 17 0	1,000	43 14 5	1,043 11 5

GEORGE THOMSON, Manager.
5, Chatham-pl. Blackfriars. THOS. MUSGRAVE, Secretary.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament, Capital, 500,000*l.*

TRUSTEES.

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John Swann, esq. Askham.
Leonard Thompson, esq. Sheriff Hutton Park.

BANKERS.—Messrs. Swann, Clough, and Co. York.

ACTUARY AND SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE INSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for insuring 100*l.*

Age next birth-day.	A MALE.	A FEMALE.	Age next birth-day.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums.	
	£ s. d.	£ s. d		£ s. d.	£ s. d.
10	1 7 8	1 5 4	46	3 11 6	3 3 3
13	1 9 3	1 7 0	50	4 1 9	3 15 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 18 8
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 0	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	3 19 9	2 19 0	76		13 2 9
43	3 5 3	3 17 2	80		15 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000*l.* payable on his decease, for an annual payment of 22*l.* 10*s.*; and a lady of the same age can secure the same sum for an annual payment of 19*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agent for London, Mr. THOMAS S. NOBLE, Solicitor, 5, St. John-street, Bedford-row.

Agents are wanted in those towns where no appointments have been made. Applications to be made to

Mr. W. L. NEWMAN, Actuary and Secretary, York.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION.

7, ST. MARTIN'S-PLACE, TRAFALGAR-SQUARE, LONDON.
Established May, 1844.

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seekings securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realizing the highest rate of interest yielded by first-class securities in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS.

Amongst the varied and extensive Tables of this Institution will be found one peculiarly advantageous where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE.

Assurances may be effected from 50*l.* to 10,000*l.* on a Single Life.
Entire profits belong to the Assured, and divided annually
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence specially extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 23, or an equivalent amount in money

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular Individual, or as a resource against the casualties of age, involving, as it does, the uncertainties of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

THE PANTAGRAPHIC CUTTING, CARVING, and ENGRAVING COMPANY.—Provisionally Registered. Capital 50,000*l.* in 5000 shares of 10*l.* each. Each share allotted to be paid in full.—Offices, at the Company's Works, Eaton-lane South, Belgrave-road, Pimlico.

DIRECTORS.

Captain A. Douglas, 116, Gloucester-terrace, Bayswater.
Francis Witham, esq. Director of the Monarch Life Assurance Company, 26, Moore-street, Chelsea.
Daniel Holt, esq. 74, Alder-gate street.
William Hunter, esq. Upper Bedford-place, Russell square.
Francis Wills, esq. Guildford-lawn, Ram gate.

Bankers—Barnett, Hoare, and Co. 62, Lombard-street.
Solicitor—Henry Wickens, esq. 4, Tokenhouse-yard, Bank.
Managing Director—Mr. George Searby, at the Works.
Secretary—Walter Turner, esq. Belgrave-road, Pimlico.

This Company has been formed to carry into practical use a patented invention of extraordinary capabilities, applicable to a great variety of important commercial and mechanical purposes.

The patent is for a machine, which, acting on the principle of the slide-rest or floating bed and directed by the pantagraph, is moved with such facility and exactness in all the directions of the cube, under a fixed tool or tools, that it is capable of producing, in cutting, carving, or engraving, a fac-similc of almost anything which may be presented to its operation.

For perspicuity, it may be mentioned, that the following are amongst those uses to which the machine is most applicable, viz.:—

Architectural carving, in wood and stone, for ecclesiastical and other purposes, carving in ivory, bone, pearl, and metals, seal engraving, wood and metal cutting, saw and other tool handles, engraving on wood and type, metal blocks for paperstainers, calico and handkerchief printers, and floorcloth manufacturers, oak carving for churches, and Gothic furniture, picture daguerreotype frames, open tracery for pianoforte-makers, and lattice and other work for cabinetmakers, engravings in brass, copper, and zinc, for door and window plates, brass letters on shop or other windows, metal-seal engraving, ciphers, &c. carving and mouldings for brush-handles in wood and pearl.

The machine is also adapted to cut and carve ornamental stonework, such as Gothic window heads, sash bars, monumental tablets, and ornaments for churches and other public buildings, which may be multiplied with unerring fidelity. It will also copy carvings in bas-relief, in wood, stone, or metal.

All the above enumerated works are executed with finest finish, and at an economy as compared with hand labour, and from one pattern any size may be produced by a simple and easy adjustment of the machine.

In the sash-handle trade alone, a profit amounting to 15 per cent. upon the whole of the proposed capital of 50,000*l.* will be realised, even at a reduction of 50 per cent. upon the present rates paid to the workmen engaged in that trade, and not employing more than one-tenth of the above capital.

Application for shares and prospectuses to be made to the Secretary, Mr. W. TURNER, at the Works; or to H. WICKENS, Esq. 4, Tokenhouse-yard, Bank, the Solicitor to the Company.

NOTICE.—No further application for shares in this Company will be received after the 30th instant.—By order of the Board,
WALTER TURNER, Secretary.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by fish-jointing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 26th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fish-joints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Merseyside,
North and South-Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

East-Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting of licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E. 3, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 26, Great George street.

Extract from the report of the Directors of the Eastern Counties Railway to the half yearly meeting of Shareholders held on the 26th of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 26th August:—

"The result of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the Londonderry and Enniskillen Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the cast-iron road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

TO BRICKMAKERS AND OTHERS.

WANTED, by Messrs. Brassey and McCormick, about 6,000,000 good, sound, hard burnt GREY STOCK BRICKS, to be delivered on their works at the West India Docks, Blackwall, during the summer of 1853. Or any person having a field of good Brick-earth (with easy access to the River Thames) for Sale or Lease, may be treated with. Tenders and particulars in each case to be addressed to Mr. JOHN MILROY, Welwyn, Herts, from whom any further necessary information can be obtained.—October 14th, 1853.

THE FARNLEY IRON COMPANY, WORTLEY, NEAR LEEDS,

MANUFACTURERS OF

FIRE-BRICKS, PATENT GLAZED STONEWARE DRAIN PIPES, CLOSET PANS, ORNAMENTAL TRUSSES, BRACKETS, MODILLIONS, PEDESTALS, VASES, &c.;

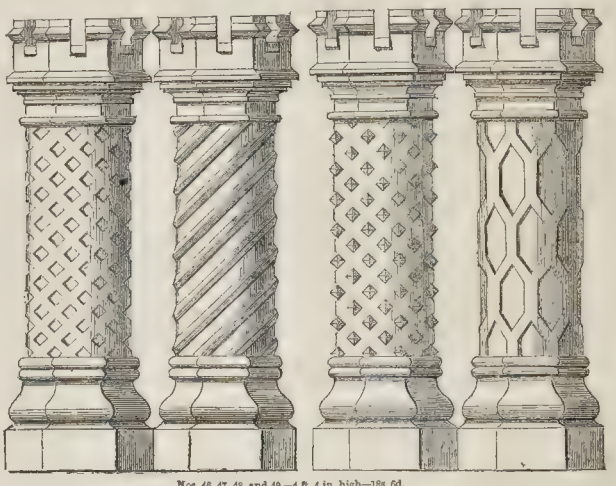
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TERRA COTTA CHIMNEY-TOPS,

In upwards of One Hundred Patterns, of various dimensions and of first-rate design, a few of which are given below,—scale half an inch to a foot.



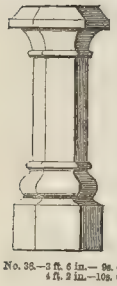
No. 67.—Wind-guard
3 ft. 6 in.—10s.



Nos. 46, 47, 48, and 49.—4 ft. 4 in. high—18s. 6d.
,, ,, 6 ft. 0 in. ,, 26s. 0d.
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No. 65.—3 ft. 6 in.—7s. 6d.



No. 38.—3 ft. 6 in.— 9s. 0d.
4 ft. 2 in.—10s. 6d.



No. 18.—Oblong or Square.
2 ft. 3 in. -2s. 3d.
2 ft. 6 in.—2s. 6d.
2 ft. 9 in.—4s. 0d.



No. 24.—Wind-guard.
3 ft. 6 in.—5s.



No. 3.—2 ft. 0 in.—1s. 6d.
2 ft. 6 in.—2s. 0d.



No. 14.—2 ft 6 in.—3s 6d.
2 ft 10 in.—3s 0d.
3 ft. 8 in. 3s. 0d.



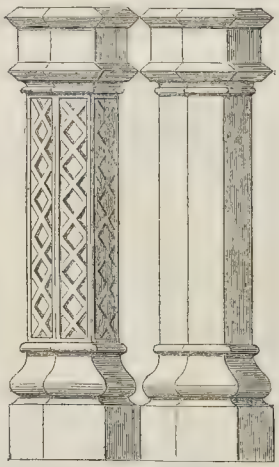
No. 13.—3 ft. 1 in.
4s. 6d.



No. 66. Plain or Wind-guard.
3 ft. 10 in.—10s 6d.
4 ft. 3 in.—12s. 6d.
4 ft. 8 in.—12s. 6d.



No. 76 (round).—1 ft. 10 in. high—2s 6d

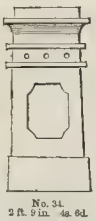




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No. 50.—4 ft. 3 in.—15s.
6 ft. 0 in.—20s.



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2 ft. 9 in. 4s. 6d.



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2 ft. 9. in.—4s.

No. 73.
6 ft.—28s.

No. 74
6 ft. 28s.



No 21.
Oblong or Square.
2 ft. 6 in.—2s. 6d
4 ft. 6 in.—3s. 6d.
3 ft 6 in.—5s. 6d.



No. 4.
2 ft. 8 in.—2s. 6d.



No. 70.
4 ft. 3 in.—15s.

ARCHITECTS' DESIGNS CAREFULLY EXECUTED, AND WITH QUICK DESPATCH.

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BIRMINGHAM .. No. 7, Easy-row; also King Alfred-street, adjoining Bingley-hall, and Lawley-street.
BRISTOL ..... No. 14, Nelson-street.
LIVERPOOL .... No. 9, Russell street, and Shipping Wharf, Leeds-street.
MANCHESTER .. No. 42, Travis-street, and 23, 24, and 25, Birmingham-street, London-road.
HULL ..... No. 2, Humber-street, and Wellington-street.
BRADFORD..... Houghton-lane, Manchester-road
LEEDS ..... Wellington street, adjoining the Midland Station, and Shipping Wharf, Victoria Works, Hunslet.

WHERE DRAWINGS, WITH PRICES, &c. MAY BE OBTAINED.

The Builder.

SATURDAY, OCTOBER 30, 1852.

SCENE, a drawing-room in the house of a Serjeant learned in the law, near Belgrave-square; time, after dinner and before the tea. The walls are covered with pictures,—good ones too,—and the tables with books, into which latter the gentlemen who have just "come up" dive restlessly, while ladies sit around. Have you seen this? and have you seen that? says the worthy host, seeking to amuse. "Here is a bundle fresh from France, but nothing amongst them, I fear, that will do for the *Builder*." "Let us look, worthy sir; there are few books from which you may not get *something*, whatever your field of study may be,"—and the paper-covered books—produce of Parisian presses—were duly overhauled. Amongst these was one headed, "*Caprices et Zigzags*," by Mons. Gautier. What is this about? "Tour in Belgium," "A Journey beyond the Barriers," "A Trip to London." It is useful occasionally to see how we look in another's glass,—to learn what our neighbours think of us, and how the things that are always about us appear when viewed from a foreign point of sight. Not long ago we gave an intelligent Dutchman's opinions of London and its monuments, which certainly were not without their value. Let us see, then, what Mons. Gautier says of London: he honestly premises that he does not know a word of English, and cares less for buildings than for the people who may be in them. It would seem, too, the visit was made some time ago, notwithstanding that the book is but just now published, for he speaks of the hoarding, with huge "posters" upon it, round the Nelson Monument, Trafalgar-square, and of the Thames Tunnel as only in progress. We do not intend to follow him all through our monster metropolis, with its mixed misery and splendour, greatness and dirt, but will skim his pages, and take a morsel here and there. The port of London was a marvel to him, as it is to most foreigners, and he seems to be decidedly of opinion that Englishmen belong rather to the water than the land, and have fins hidden somewhere under their clothes. "Never shall I forget," says he, when he had reached the Custom House, "the magnificent spectacle that presented itself to my eyes; the gigantic arches of London-bridge, on their five colossal piers, traversing the river, stood out gloomily against a background of setting sun, while the disc of the planet, inflamed as a buckler reddened in the furnace, descended exactly behind the middle arch, which traced upon its orb a black segment, of a boldness and vigour incompatable." Strange to say, the great width of the streets struck him forcibly, the lowness of the houses rendering this width more evident; and of course he was horrified by the discoloration effected everywhere by the smoke. "You might think that all the buildings were blackheaded," he exclaims; and he refers, with a sigh, to the buildings in Spain, which the sun has clothed in a robe of purple and saffron. The quick step of the English in the streets, the enormous space occupied by London, the size of the parks, all excite his attention. Waterloo-bridge he calls the finest in the world. "Passing from Charing-cross," he says, "you find at the corner of Trafalgar-square, the *façade* of Northumberland-house, recognisable by a great lion, with his tail in the air, of mediocre character, although novel; this is the Lion of the Percies, and never did heraldic lion more abuse the right that he had to take upon himself fabulous forms. They boast much of the marble staircase which leads to the apartments, and of the collection of pictures, which is composed, like all other collections, of Raffaelle, of Titian, of Paul Veronese, of Rubens, of Albert Durer, of Vandyke, to say nothing of old Franks, Salvator Rosa, &c. I do not wish to throw a doubt here upon the gallery of the Duke of Northumberland, which I have not seen, but I believe there is little dependance to be placed on the ancient pictures which you find in England: although they have for the most part been bought at ridiculously high prices, they are in general merely copies. The number of Murillos which I have seen fabricated at Seville for the sake of the English, has put me on my guard against their Raffaelles. This, however, need not afflict any one: he who imagines he possesses a Raffaelle or a Titian, and who, in reality, has nothing but seven or eight coats of varnish and a rich frame, need not be the less happy for this. It is only Faith that saves."

Thus far our author. Piccadilly, Pall Mall, Regent-street, he finds the most brilliant portion of London; and he goes on to speak of the architecture of the houses, or rather palaces, which form this quarter: grandiose and monumental, although in composition hybrid, and often equivocal. Never has one seen, he exclaims, so many columns and pediments, even in an antique city. The Romans and the Greeks were certainly not *so* Roman and *so* Greek as the subjects of her Britannic Majesty. You walk between two ranks of Parthenons; you only see Temples of Vesta and of Jupiter Stator, and the illusion would be complete if you did not read in the intercolumniations inscriptions of this sort,—'Gas Company,' 'Life Assurance.' The Ionic order is well shown, the Doric still better; but the Pæstum column enjoys a prodigious vogue: they put it everywhere. These colonnades and pediments are not wanting at first sight in a certain aspect of splendour, but all these magnificences are for the most part in Roman cement, for stone is rare in London. It is especially in the new churches that the architectural genius of the English has displayed the most *bizarre* cosmopolitanism, and made the strangest confusion of styles. Over an Egyptian propylon appears a Greek order, mixed up with Roman arches, the whole surmounted by a Gothic spire: it would make the meanest Italian peasant shrug his shoulders. With very few exceptions, all the modern monuments are in this style! The English are rich, active, industrious; they can forge iron, subjugate steam, wrestle with matter in every sense, invent machines of frightful power; they can be great poets; but art, strictly speaking, will always be to them a stumbling block: they feel this, and it irritates them; their national pride is wounded by it; they understand that at the bottom, notwithstanding their prodigious material civilisation, they are but varnished barbarians. [Tolerably cool this.] Lord Elgin, so violently anathematised by Lord Byron, has committed a useless sacrilege: the bas-reliefs of the Parthenon, brought to London, have inspired no one The gift of the plastic arts is refused to the races of the north; the sun which puts objects in relief, shows the outlines, and gives to each thing its true form, lightens these wan countries with a ray too oblique, which cannot be made sufficient by the leaden light of gas. In Protestantism he finds a serious impediment to the progress of art. London, he says, may become Rome, but it will certainly never become Athens: this last fate is reserved for Paris. In the first we have gold, power, material development in the highest degree; a gigantic exaggeration of all that can be done with money, patience, and will; the useful, the comfortable; but the agreeable and the beautiful, no. In the latter, we find intelligence, grace, flexibility, delicacy, facile comprehension of harmony and beauty; in one word, the Greek qualities. The English will excel in all that it is possible to do, and particularly in that which is impossible. They would establish a Bible Society in Pekin, they would come to Timbuctoo in yellow gloves and varnished boots, in a state of the greatest *respectability*; they may invent machines which will produce 600,000 pairs of stockings in a minute, and they would even discover new countries in order to get rid of the aforesaid pairs of stockings; but they could never make a bonnet that a French grisette would put upon her head. If taste could be bought, they would pay well for it. Happily God has reserved to himself the distribution of two or three little things upon which the gold of the powerful of the earth has no effect—genius, beauty, and happiness. [And these, of course, have been wholly reserved for our friends the French. Happy French! especially just now.]

Nevertheless, notwithstanding these criticisms in detail, he proceeds, the general aspect of London has something which astonishes, and causes a sort of stupor—it is in truth a capital in the sense of civilisation; all is great, splendid, disposed according to the last improvements. The streets are too large, too vast, too light; the preservation of material facilities is carried to the extremest degree. Paris, in this respect is at least a hundred years behindhand, and, to a certain extent, must always be inferior to London. The English houses are built very slightly, because the ground on which they stand does not belong to the builders; all the land is possessed, as in the middle ages, by a very small number of lords, or millionaires, who permit it to be built upon for a certain rent; this permission lasts only for a certain time, and the builders arrange that the houses last no longer. From this cause, joined to the fragility of the materials employed, London is renewed every thirty years, and so, as they say, can follow the progress of civilization. The Squares, which are numerous, happily correct the evils of the sewers. The former often communicate one with another, and occupy an immense space. They have built some magnificent squares near Hyde-park, to be inhabited by the nobility. No shop, no warehouse disturbs the aristocratic quiet of these elegant Thebans. It is much to be desired that squares should be introduced in Paris, where the tendency is for the houses to get closer and closer to each other, and where vegetation and verdure will ultimately disappear altogether. Nothing is more charming than these large spaces, tranquil, green, and fresh. It is right to say that I never saw any

one walking in these gardens, so attractive, of which the inhabitants have each a key; it is enough for them that they prevent others from coming in?

The squares and the parks make one of the great charms of London. St. James's park is a delicious promenade. You descend to it by an enormous staircase, worthy of Babylon, at the foot of the Duke of York's column. The Mall, by the side of the Egyptian terrace of Carlton Palace (Carlton-gardens), is large and beautiful. But what pleased me especially is the fine piece of water, tenanted by herons, ducks, and aquatic birds. The English excel in the art of giving to artificial gardens a romantic and natural air."

He thinks, you see, that we sometimes *can* "garden finely."

His remarks in connection with the Duke of Wellington, although they may jar some feelings at this moment, and are to a certain extent erroneous, are not without their teachings. In Hyde-park, he says, which is not a garden, but a country, stands the statue to Lord Wellington, voted by the ladies of London. The noble Duke is idealized and demi-godded under the form of Achilles. I do not think it possible to push the grotesque and the ridiculous farther than this,—to put upon the robust torso of the valiant son of Peleus, and the muscular neck of the conqueror of Hector, the British head of the honourable Duke with his bent nose, his flat mouth and square chin, is one of the most diverting ideas that ever entered the human brain: it is an innocent and involuntary caricature, and for that reason irresistible. The corrective for this somewhat exaggerated apotheosis is close by. By one of those ironical antitheses of Chance, that great banterer of human things, Apsley House, the residence of the Duke, stands at the corner of Piccadilly. Unfortunately Lord Wellington enjoys in England but a very doubtful popularity [Mons. Gautier should step over to London just now]. The mob, he continues, know no greater enjoyment than that of breaking the windows of Achilles, and sometimes with musket shot. Accordingly all the windows of Apsley House are protected by iron plates — the Tarpeian rock, close to the capitol!

We will not say a word about his admiration of Scotch ale, his laugh at what the English ladies put upon their heads (gold fringes, boughs of coral, branches of trees, and banks of oysters!), nor of his praise of Wilkie and Hogarth; nor will we do more than note his enthusiastic admiration of English children. "Those who have not seen an English baby," he exclaims, "do not know what infant beauty is." We have a pretty *oui-oui* thing in our eye at this moment that would prove his case,—

"A rose with all its sweetest leaves yet folded."

"Pale Albion," he continues, "is the bed where blossom most happily those pretty flowers of human flesh that they call Arthur, Bobsy, Mary, Harriet, and other charming names forgotten by the botanists, who persuade themselves that all the roses come from the gardens and are obtained by grafts on the eglantine."

M. Gautier does not pretend, as we said, to be himself an antiquary, and here is what he thinks of some who do. "There are certain travellers," he remarks, "who only interest themselves in Roman ruins and Latin inscriptions: as soon as they see an inequality in a field, they call it *a camp of Cæsar*, and should they meet with a piece of mouldy wall, a mutilated boundary stone, they make out of it a temple or a statue of a goddess. Travellers of this class become editors in quarto, and for the most part end at the Institute. Others think of nothing but measurements: such a monument is so many feet long, and so many feet wide; a mistake in a thousandth part of an inch plunges them into the most profound despair. Some are looking out for curiosities; these for singular echoes; and those for odd optical effects. An Englishman met at Boulogne another Englishman, coming back, like himself, from Italy. They were going to the steam-boat, and entered into conversation. It is not often conversation does take place between Englishmen who have not been introduced to one another by a third person, but they had come from the warm countries, and their British ice was somewhat thawed. 'I have just arrived from Italy,' said the first. 'And you?' 'Oh, yes,' he replied, 'from Italy.' 'You saw St. Peter's?' 'Oh, yes—the 29th June—fifty-seven minutes past one. I noted it in my pocket-book.' 'You put yourself in the good place?' 'Oh, no. Is there a good place?" "Oh, yes. If you put yourself in a certain position, instead of seeing all the colonnade, you will only see one single pillar. It is really very funny.' The second Englishman blushed a little, like a man discovered in a crime, remained pensive some minutes; and then, having made up his mind, said, 'James, go and get post-horses directly; we shall return to Rome. I am going to look at St. Peter's in a particular spot, where you can see nothing of it.'"

And thus Mons. Gautier "zigzags" away, and shows amusingly his own "caprices" as well as ours. Adieu, Mons. Gautier.

And good night, Mr. Serjeant T. You see we have found something that may do for the *Builder*.

THE STUDY AND APPLICATION OF ART.*

When I last had the honour of addressing you on the Study and Application of Art, my remarks were made rather with respect to the moral than the intellectual bearing of the subject. We then looked full in the face at those many requirements of the student which are necessary to lend a firm and even support to his mental attainments, and to make them really beneficial to himself and to the world. We asserted principles of whose vital importance we are all perfectly well aware, and yet do often very little like to be told of or to talk about; nevertheless, we did discuss them, and while doing so, were conscious of a feeling of satisfaction that the pursuit of art was proved to be in no small degree encouraged and advanced by our seeking in its behalf some ray of light from the vivifying lamp of eternal virtue. We will now take another view of the case. We will consider those qualities of the mind which are more immediately concerned in following the arts; and will then proceed to investigate right modes of applying these qualities to the work of the age. At the very outset in all composition we discover the need of imagination and fancy. The poet, painter, sculptor, musician, architect, all have to wait upon these sovereign powers: it is they who grant the noble epic, the speaking picture, the godlike statue, the solemn chorus, the mighty edifice, which generations read, behold, admire, hear, enter, with the like awe and wonder,—recognising in all the same power of these two ethereal queens, —perceiving in all the same effort of the mind to create according to its immortality,—sympathising in all with the aspirations of the greatest of their race, of man at his noblest, whose station is between nothing and infinity. The connection between the muses is, then, that they are in common indebted to one power, which is Imagination; and their variety arises only from the diversity of modes in which she chooses to be expressed. In all, it is this faculty of creation, of invention, which is the prime mover, and where it does not exist, there will be no occasion to look for greatness in art: the effect will here be assuredly proportioned to the cause; the work to the means. Those who practise design must know well how many shapes and colours pass, as it were, before their eyes, ere they make their choice of any: some are soon successful: others ponder for hours in vain: those have the power and these have not, or but slightly. Now this is a thing that may be improved and cultivated: it consists in increasing our stock of ideas: he that understood only two buildings, could not be expected to make three original designs; but would incessantly repeat himself after he had published the pair. Such a one seems in the position of a stranger who knows but two words in a language; and whatever you say to him, whether you ask a question or make a statement, whether you praise or blame, his answer is for ever the same. Yet for all this, it is evident that this man is limited only in his power of expression: if he increase that, it is probable he will develope ideas if they are in him; and so in architecture, the more ways you have of expressing yourselves, the better will you be able to explore your imagination. And thus there is more hope of a man as yet bounded in his skill in execution who produces no ideas, because of being partially dumb, than of a man whose technical skill is consummate, who is a master of his pencil, and yet gives birth to no original notion.

Thus there are men who have great comprehension of your art, but no power of expression by the hand; and there are others who have every manual facility, and apparently no invention. But it is clear that an architect must first learn to use his pencil: this he should become tolerably master of when young, and then he will give his imagination a fair chance. Ideas may be increased by observation,—a continual watchfulness of eye and readiness of mind,—by becoming in your art familiar with every style, as you may do now, even without extensive travel.

Besides this, the whole quality of imagination may be improved by studying the greatest works of art; but more especially by going to the fountain whence they were derived, which is Nature herself. It is in the general expansion of the mind that you must look for the increase of its parts: every lovely scene, every beautiful effect, every poetic image, every graceful thought,—every thing in nature, from the skyey summits of the mountain to the lowly violet in the valley at its foot,—every thing in art, from Milton's Lucifer bewailing himself to the Sun, to the song of Ariel on the back of the bat,—aye, everything in religion, from our highest conception of deity as men to the simplest prayer of our lisping childhood,—these, all these, if suffered to operate rightly on our minds, tend to exalt and purify the imagination and its works. I say to exalt and purify: sparkling waters flow not from a foul source; and it is the crest of the mountain that first beholds the dawn. Great designs spring not from little minds; nor will beauty dwell in a desert that is the dwelling-place of the bittern and the leper; and what else is a corrupt imagination? Fancy, to which I alluded, is at first Imagination's handmaid: the latter strikes out the bold and grand outline: the former puts in the elegant and graceful detail. Imagination erects the long row of lofty columns, and rears the sublime pediment: Fancy carves the capitals, and decorates the frieze. Imagination raises herself to her full height in the cathedral, and her robes wave through its vast and dim extent; but Fancy starts out upon the majestic walls, peers from corbel heads with fantastic eyes, twines herself in a thousand graceful stems, lurks in the deep shadows of the full and massy mould-

* Read by Mr. H. T. Braithwaite, at the meeting of the Architectural Association, Oct. 15. (See vol. ix, pp. 69 and 105.)

ng, and hangs in witching beauty from the pendants of the roof, which she has adorned, like a firmament, with a myriad golden stars. But for all the graces of these two spirits, they, like all others, must be controlled by judgment; for Imagination would soon vanish, were Fancy to run wild over her work, to fret, for instance, some huge sustaining shaft into the resemblance of a pile of flowers. So soon as Nature is disregarded, Fancy will do this; and it is to this fault that we are indebted for those wonderful contrivances in which France excels, especially in the manufacture of household gods, such as a tea-urn, which article you may see made up of three lions, four pediments, a number of faces, some crocketed pinnacles, nymphs twisted into handles, a cherub for a spout, and a palm-tree for a knob, all united together by means of sundry serpents growing out of flower-pots, and twisted round a few Greek and Gothic columns supporting an oriental dome for a lid, four sphinxes sitting on tails with flowery continuations round the precipitous rim, from which edge hang some six angels by the wings, with dolphins, indescribably knotty in their tails, swallowing their celestial feet; all this wonderfully contrived and beautifully worked, an astonishment among the nations, and a striking representative of chaos; and all this, too, to let water out of into a tea-pot! You will agree with me that there is enough elaboration in such a design to compensate for the simplicity of use to which the article is to be put. The judgment, which I have said must be a check on extravagance of design, is the result of exercising the mind in criticism, when, having first stored our imagination and memory with careful observations of the lovely works of nature, and the exquisite productions of the highest human genius, we begin to compare our work with that standard of excellence which study has erected in our minds; and by this repeated and sedulous comparison, we carry on a continual and sound improvement of our taste. Now it is no uncommon fault for men to begin to criticise when they ought but to be content to learn; hence it results that from attempting to judge of art by what can only be mere caprice in themselves, they form false and ridiculous notions, which, at the same time that they induce an empty vanity, utterly bar the way to the approach of sound ideas. The great poet Pope was also a great critic; combining in himself the knowledge of what was right in his art, and also of the manner in which to carry it out. But did he begin his studies with criticism? Quite the reverse. We are informed by himself that for years he read everything he could obtain possession of, and it was only when he had thus filled his mind with most copious information, that he began to compare and to criticise, and to reduce that information into the sound and accurate knowledge which rendered him so distinguished a writer. It is information which stocks the mind at first with ideas: it is reflection on this information which originates new ideas, and which produces knowledge. The one is vast, brilliant, and often comparatively shallow: the other is of less extent, but deep and vivifying. The one resembles the sunlit flood, the other the pure fountain of living water, parent of fertilizing streams. How it must be information, so to speak, that we seek in early youth, because then the mind is most capable of receiving impressions of a fresh and clear stamp. I do not mean that hurried, desultory kind of information which is obtained by darting from one subject to another without pause, tying up the intellect in a Gordian knot, and sitting down with it entangled beyond unravelment for life—but the becoming well acquainted with the history, styles, and progress of our art; acquiring all those technical facilities which expedite our improvement; carefully considering great works and designs;—then, when we have thus stored our intellect, beginning, as it were, to sort our notions; and the universal authority of all the great will at least guide us to the best. Thus, having obtained some quality of judgment, we must proceed to apply it to our own works, and calmly consider in what they approach or fall short of those principles of art which have been indeed known for centuries, but of whose truth we have satisfied ourselves. Now, there is nothing visionary in all this: the course of mental cultivation indicated is perfectly practicable, and is doubtless being practised at this time by many. Sure I am that it has ever been followed by great men in any pursuit; men who, like the great Duke, "have ever been fortunate by leaving nothing to Fortune;" men who, if they had genius, did not trust it to its own guidance (unlike many in these days, who first imagine themselves geniuses, and do nothing because of this mistaken fancy); men who, by every means, have endeavoured to educate themselves, and to work the rich, but rugged, natural ore of their intellect into beautiful and enduring forms. How are we to obtain information? By observation and study. How are we to obtain this creative knowledge? By reflection; in no proud and obstreperous spirit, that dares to poise its own feeble individuality against the collective genius of the past and of the present; but with docile and not vain mind. It is singular that these erratic intellects, that agree neither with the past nor the present, always declare themselves to belong to the future; but that future never comes; and they thus belong indeed only to "airy nothing," nor can they give even this "a local habitation and a name."

I have indicated the way to improve the imagination: the judgment, belonging as it does to the reasoning part, may be improved by the study of the mathematics,—for those that have not the disposition for these, of Bacon, Locke, Pascal, and the like. Do not think this has nothing to do with you. It cannot be too forcibly maintained that everything which strengthens the mind strengthens its parts. One would think this plain enough. This sort of reading is the more valuable because in the man of art the imaginative powers require a balance to make him great. I know it is irksome enough after a hard day's toil to sit down and wrestle with Locke or Pascal; but yet we have leisure enough if we choose to make it: we find it for the pleasures of our time of life; but youth soon passes away, and in our maturer years we regret that we never learned to live laborious days in the spring. This sort of regrets you may hear from every fifth man you meet. Besides, what man carried out more works in his time than Wren? But he was an excellent classic and one of the greatest mathematicians of his age. Mathematics to a moderate degree are immensely valuable to the architect in the study and practice of construction; especially geometry and its branches, which constitute a plain, straightforward science. Yet, with all I have said about the value of the mathematics, it must not be forgotten that the most important part of the artist's education is the cultivation of taste, by that study, comparison, and discrimination which were before alluded to. This must go on constantly, unremittingly: the eye must be ever watchful, the judgment ever on the alert; and while we insist on the study of nature, do not let any imagine we mean nothing by nature but mountains, forests, and floods; but the nature of man and his mental and material wants; the observance of everything which is what we call natural, just as we term other matters unnatural; for if we say that the attitude of a figure in a picture is unnatural, we do not certainly intend to remark that it bears no resemblance to a hill or an oak, or that it does not possess the curves of the declivities of the Alps. You might think this an unnecessary caution; but gentlemen may be constantly heard to quarrel with your advice to study nature, evidently deeming that you intend them to design buildings bearing some manifest resemblance to a wooded height or a landscape. Do these alarmed objectors believe there is nothing natural but these surface productions of the earth? Do they exclude everything else. Do they unselfishly exclude themselves, think themselves unnatural, call themselves monsters?

"The noblest study of mankind is man."

So much for the present. Our subject here begins to branch off into the application of this imagination and judgment to the art of design; and I propose chiefly to consider it as affecting the treatment of different materials. Now, in making a design, many remain comparatively unconscious of anything but their pencil and paper. It is easy to draw the most amazing intricacies on paper,—to add line on line, curve on curve, and then to put them before you, and complacently contemplate the representative of twelve hours' time. The designer, lost in the luxury and inexpensive pleasure of building some immeasurable castle, begins, as he recovers, to perceive that it might be raised in a century at an unimaginable cost; and a friend who has just arrived informs him that he has utterly confounded all sorts of materials; and that, to judge from the treatment, wood might be granite, granite might be wood. He has, in fact, perpetrated a complete confusion. Now here comes in imagination. Why cannot one who is making a design fancy that he is now literally building, and remember the qualities and capacities of the material he is working with? What words are to the poet, colours to the painter, notes to the musician—such are materials to the architect; materials, gentlemen, make up your languages. You have one tongue of granite, another of stone, another of wood, another of iron, and another of brick, and, so to speak, a great many dialects derived from these. Why, then, if you are going to design in granite, should you think in brick?—why, if in iron, should you think in wood? Cannot you think in the language you are going to write? Does an English author reflect in French? Just as there are different terms in language, so there are different developments appropriate to material; and is it not plain that if you make in a design a total confusion of these materials, these architectural languages,—is it not clear that you build in very truth a Babel? No one will deny that the natures of materials are in many respects essentially different: this is malleable, that brittle; one of adamantine firmness, another ductile or fibrous, and capable of elasticity. Again, some are easily fused, or may be moulded in whatever form we please. This being the case, shall we treat the malleable like the brittle, the fusible like the fibrous? Or shall we build in that we can obtain in huge masses, in the manner we are constrained to adopt for some other, offered to us but in small portions? Would any one see the utility of hewing granite into the dimensions of the brick? I would admit, in a case of actual necessity, the substitution of one material for another, and its disguise to resemble the original, but it must be remembered that such necessity can rightly but rarely arise, although there may be many occasions from neglect or forgetfulness where it may seem to. Now, is it so heavy a claim on the imagination to require that throughout a design a man shall keep it in his mind that wood is not stone, that cast iron is different from wrought, that granite no way resembles glass? But it would seem to be so, when forms which have been found suitable to one kind of substance are deliberately applied to every other, as if there were no diversity of nature between them. See, also, how this stops the progress of your art! Suppose there are twenty materials which you subject, all of them, to the treatment properly belonging to one: you clearly lose nineteen opportunities of developing new and appropriate modes of design. In the Great Exhibition, the instances of failure on this head were almost numberless; but when I remember a certain design for a tomb in iron and porcelain, I do not hesitate to claim the chief honour of success in this particular for a member of this society. In the exercise of architecture, the mind of man carries on its struggle with matter; it delights to grapple with the rough masses around us; to conquer their stubborn passive resistance; to impress upon them the sign of its power; to stamp them with the mark of that victorious intellect which is the gift of the controller of chaos. And look how this matter still assists its influence, conquered though it be! The grand and ponderous gloom of Egyptian art seems to express the sullenness of a giant ill subdued: it bears the expression of the chained

Titan. The Greek with an advanced intellect achieved a nobler work; but he, too, was indebted in much to the material which so abundantly offered itself to the operation of his skill. But whatever the Greek borrowed from the Egyptians, he borrowed not their mode of treatment for his attic marble; and has not the architecture of the Goth been influenced by his dwelling in the forests? All these races coped with the materials around, according to their nature. They were above the paltry and idle spirit of trying to match the fragments of the mould which had been employed in early time, and flung away: they carefully observed what had been done before, but they advanced. They used the past by the present to create the future. The progress of the human race is beautifully compared by Pascal to the advancing life of a single man: antiquity, he says, was his youth: this period, if he have any, is his age. Similarly also says Lord Bacon. Now, is there any man who acts exactly in his age as he acted in his youth? He is the mere ecclesiologist. Is there any man who utterly rejects the experience of his youth? He is the man who sneers altogether at precedent. Is there any man who determines to remain in the future as he is now? He is one who would strangle the dawning age of progress in its birth, and condemn his remaining days to inaction. And so in architecture: he who would seek no new forms, who would force the material of his day to receive only those shapes, to experience only those modes of treatment which the past supplied for other things; this man, I say, does all he can to check your art; to rear it up on its haunches, and so keep it standing in misery and an uncertain constrained attitude. He deprives the muse of hope, and leaves her to stand petrified, like the wife of Lot, with revealed head, gazing on the terrors of Despair. He is an ungrateful and unprofitable student: he seeks to use the instructions and experience of the past,—to bind the present immoveably down: he is of the same spirit as the man who pores over the story of the Cæsars that he may learn how to trample on a free people. And all this you say for clinging to the old forms developed in stone and wood, when we come to work in iron. Yes, all this; because the so doing belongs to that narrow feeling which, just as it would check all social improvements, so also would it check the further development of the arts.*

CHRISTIAN ART—THE ASSUMPTION OF THE VIRGIN.

I addressed you a short time since upon the title of the picture lately in the Soult gallery, and which, I conceived had, through neglect and ignorance, been lately called the "Conception of the Virgin," and I supported the proposition, that it was a "misnomer," by showing the classification of the pictorial history of the Virgin, and how the subject of the "Conception of the Virgin" had been treated.

A second proposition, in the same letter, pointed to the "Assumption" as the probable correct designation of that painting, surrounded as it is by the attributes appropriated to that phase of the legendary history of the Virgin.

Your correspondent, "T. F. S." combatted the first of these propositions by the assertion that the title, "Conception of the Virgin," was not inappropriate, inasmuch as it was "a contraction of the full title of Our Lady of the Immaculate Conception."

Mr. Pullan skilfully unmasked this "hasty and illogical conclusion," and showed the fallacy of this reasoning, by remarking that "unless your readers can be induced to adopt the conclusion that 'the Conception of the Virgin' is a contraction of 'Our Lady of the Immaculate Conception,' and that the terms 'Our Lady of the Immaculate Conception,' and 'the Immaculate Conception of Our Lady,' mean the same thing, they will still believe that there is some meaning in words, and that St. Anne, and not the Virgin, must be the person who figures chiefly in a representation of 'The Conception of the Virgin.'" Mr. Pullan likewise points to the subject of the overshadowing of the Holy Spirit, as the possible source from which Murillo derived the idea for this picture, and such a subject, however daring, is of the early periods of Christian art. In the same journal (p. 620), I showed the treatment of the Assumption by various artists from the thirteenth to the seventeenth centuries, as preserved to us, and proved that we had no lack of examples to enable us to conjecture to what period of the legendary history of the Virgin this type of picture belonged,—that the interpretation given by "T. F. S." formed rather a transposition than a contraction,—and distrusted his conclusion on this head as being illogical. I was sceptical as to its truth. I likewise claimed that a most careful and dispassionate watch should be instituted over these subjects,—that no errors might, if possible, creep in,—and that nothing should in these matters be advanced upon any other foundation than recognised treatment, or facts.

I shall not attempt to follow "T. F. S." into all the by-paths of his argument, which he appears to have commenced without a definite idea of his object. I am glad, however, to see that he recognises that the painting in question by Murillo represents "Our Lady of the Immaculate Conception." He does not claim the title of the "Conception of the Virgin" for it any longer. He even acknowledges that he did not mean, in using the term "contraction," that it was logically convertible into the title of "Our Lady of the Conception;" but that, as one title had been *popularly* used for the other for nearly two centuries, he assumes, on the other hand, immediately afterwards, that the error must become law, and asserts his intention "*to cling" to it, through a high appreciation of the value of iconology as a science, out of deference to the painter, and an apprehension that a "valuable landmark in the history of theology and art may be sacrificed" should this error be corrected.* Iconology, therefore, according to the theory propounded by "T. F. S." is merely intended to catalogue errors, that they may be perpetuated as "landmarks."

"The Virgin of the Immaculate Conception," is, however, but an imperfect, because incomplete, name for this type of picture, which means that and something more besides; and my second proposition to you was, that the "Assumption" was intended to be represented, as we find the figure surrounded by all the attributes previously given to that subject: the inference, therefore, was fairly in favour of such hypothesis.

Your correspondent allows "that Murillo studied and adopted the forms and treatment offered to his contemplation in pictures of the Assumption by earlier schools; but," he proceeds, "he *might* for all this, have aimed at infusing a new and more perfect spirit of divinity into his subject." This presumption is not borne out by fact of achievement, many of the older Italian school of artists, from whom Murillo drew his ideas, having fully equalled, nay surpassed, in this respect, his masterpiece. The spirit of perfection of form in woman, and more particularly the purity of the "immaculate" was as much sought after, and was attained in a surpassing manner, by the cinque-cento school in Italy, in the portraiture of the Mother of Christ; and these works, which are numerous, carry away the palm from every other school or country. The presumption, therefore, by "T. F. S." that Murillo, having opened a new vein in the mine of art, and "having infused into his pictures a new and more perfect spirit of divinity," should cast about for a title, and appropriate that of "Our Lady of the Immaculate Conception" only, is not to be entertained. Cannot your correspondent imagine that "Our Lady" can be portrayed at different periods of her mundane or legendary history?—that the Assumption *might* be one of them?—and this in accordance with the recognised portraiture? He would have the advantage at least of facts upon which to found his hypothesis.

Yet "T. F. S." after having allowed that Murillo has called this type of picture "Our Lady of the Immaculate Conception," returns to his old error in surmising that the "Conception of the Virgin" may be represented in two manners, as *fact* or *doctrine*: the former would, he says, necessitate St. Anne as the principal figure, the latter the Virgin. "T. F. S." must have felt slightly satisfied with his own reasoning upon this subject to seek for this new "solution of a difficulty." The whole pictorial treatment of the Conception of the Virgin is intended to illustrate a *doctrine*. How can the *fact* be rendered? The *doctrine* was intended to be taught—and was taught—through the introduction of the supernatural messenger, Michael, as I have shown, much more lucidly than by this new, fanciful, hypothesis. "Force from on High," formed one of the subjects in the early period of Christian art: here the Virgin would again be surrounded by heavenly attendants. "Our Immaculate Lady," "The Virgin without Stain,"—these are the designations of pictures as old as that period antecedent to the final schism between the eastern and western churches in the eleventh century; but the subjects had not a legendary or supernatural portraiture. It is still, therefore, a question whether in these later instances the Virgin is not represented in the phase of "The Assumption." Without having seen the picture quoted by your correspondent, and in the gallery of Bologna, I should be of opinion that the "Conception" adored by Anne, in celestial glory, is intended for the only truly "Immaculate Conception," that of the Saviour.

In concluding my correspondence upon this subject, I feel glad that it is likely to elicit the abandonment of the term "Conception of the Virgin," lately applied to certain pictures of the Virgin, or "Our Lady of the Immaculate Conception," according to the doctrinaires, whether represented in the act of Assumption, receiving the "Holy Spirit," the "Force from on High," or not. Robert Hendrie.*

* To be continued.

* With this the discussion must close.—Ed.

ARRANGEMENT OF THE BRITISH MUSEUM.

The congested state of the British Museum seems pretty generally admitted; but the mode of treatment proposed by an influential part of the press appears defective in principle. The British Museum is to become the British Library, its other tenants being expelled, with the world before them where to choose a place. For the hortus siccus the air of Kew is recommended; Lincoln's-inn-fields for the skins and skeletons; the portraits are to pack off to Hampton-court; and the statues and vases to the future National Gallery, or, perhaps, the nascent museum of ornamental art; the minerals to Piccadilly (by compression, like the spirits in Milton's "Pandemonium"), and the mummies and other minor matters to—Jericho.

Now, omitting common-places about want of unity and coherence among our institutions in general, and about the word "museum" implying, sisterly society, &c.,—is the man of science to read geology here, look at fossils there, and the rocks that yield them somewhere else? Even antiquities are but the last term of geology, and geology the first page of history. To many kinds of books illustrations are all but indispensable, but no delineation is as good as a real object, if you can get it; and the partition of scientific capital aggravates the injury of assigning to one department a specimen on which others have a claim. The naturalist covets out of the sculpture gallery a fine vein of marble (Davy, when in the Vatican, only stopped at one of the statues—"Ah!" he said, "what a beautiful stalactite!"); *per contra*, there are sundry carved cameos and crystals in his cabinets more precious for their workmanship than the substance it is spent on.

Still something must be determined on: the receiving officer is beginning to look coldly on fresh acquisitions; as if a man declined to accept a donation in regard to the smallness of his purse or pocketbook.

In ordinary life things are distributed in

reference not to their intrinsic nature, but to the use to be made of them: goose-quills and steel pens lie together; not so a man's poker, his razor, and his carving-knife, although all three consist of carburetted iron. Just so, museums exist for various classes of persons—the natural philosopher, the practician, and the general public: the first desires the widest possible range of objects—*omnibus et quibusdam altis;* the second, a particular set of things; the third, anything of any kind that is popularly interesting. For the first even the present collection is not heterogeneous enough: the natural minerals, for instance, would be well illustrated by a parallel suite of artificial crystals, and the zoology ought to commence with the two-handed order of Cuvier—the species *homo*. On the other hand a miner or an engineer cares only for certain kinds of stones, and these often such as least interest the mineralogist: a mason might seek in vain in the latter's cases for a bit of granite or sandstone, and look for some time ere he met with Bath or Portland-stone. Glauber's rule was to examine what other people threw away; and Colton, when he sneers at the antiquary for remembering just what others are content to forget, exactly indicates his proper function; but if you pour all your oddities and rarities into the practical artist's collection, you overwhelm their legitimate contents—like a cuckoo in a sparrow's nest.

So as to popular, distinguished from scientific utility, the marshalled hosts of curiosities only excite an admiring commendation of the patience that could catch, preserve, and label so very many periwinkles and black beetles, &c.; while a more intelligent visitor can only feel that there is a vast deal that does not concern *him;* and as to sculpture, it is submitted that originals, untampered with in their mutilations, are for the artist; restored copies for the laity. The anatomist ought to find many things on his shelves unsuited and even offensive to the public eye, which delights in matters nowise scientifically pre-eminent; as, among shells, those that are elegantly dappled or zigzagged, or which figure like the Argonaut in poetry, or in commerce like the pearl. These they now have to hunt out from their uninteresting associates, ranged on a republican level, instead of being set forth in state, like the humming birds at the Regent's Park. As in collection, so in disposing the objects, science puts together similar things in order to define their relationship: for the public a geographic grouping would be more agreeable: the most obvious character of a coral and an oyster, a crab and a shark, is, that they all come out of the sea; and every one abuses the zoologist for putting the porpoise among the beasts when there is a room on purpose to keep the fish in. As to special pursuits, an architect would probably arrange the *echinus* along with the horse chesnut: both have something to do with the origin of the Doric capital. The public are now excluded from the King's Library on the reasonable ground that they would not get much useful knowledge out of the covers of the books: these, however, were not the attraction, but the stately room that contained them. If a place is meant merely for a magazine it is folly to line it with scagliola. Again, matters which all are to see must be fenced in from touching or handling, in respect of which, nevertheless, facilities should be afforded in proportion as the access is restricted to real students.

The insects and minerals were at one time kept in receptacles glazed above for general inspection, and with drawers below for details; but it is obvious that the F. R. S. cannot get at the lower strata while the charity boy is surveying the surface. If one *room* held the main body, another would allow of exhibiting a popular selection which might be changed occasionally; and this is, I think, done now with the MSS. department. As to giving alternate days to the two classes of visitors, whatever is given thus to one must be taken from the other.

But, unlike the scientific treasures, those for popular use would even gain by dispersion: a trip to Kew gives an appetite for botany, and portraits are looked at in Hampton Court which can hardly be said of their brethren in Bloomsbury, where the infinite variety only wearies or creates vacant wonder. Indeed, for education and amusement purely local, museums are efficient, and might be multiplied by the circulation, in some cases, of duplicates; in others (as fossils and antiquities), of casts and models. This would be fair towards the provincials, who not only contribute to the pecuniary support of the metropolitan collection, but are expected to send up to it any Roman relic or *rara avis* that may be turned up or brought down in the neighbourhood. Looking to the Zoological Gardens and the Crystal Palace, it seems a question whether matters of amusement need to be subsidised or do not thrive better without it; but abstract science clearly should have patronage, and that without having to make itself *entertaining* to holiday folk. Relieved from all effort at display, the collection, books and all, for some years to come, would "go into" the existing structure, or what might be tacked on to it. Those specimens that were put in the dark would be the more permanent thereby, and all by being compactly stowed would be more available, for tools are of use to a workman when he has them close at hand.

T. TURNER.

DOORWAY IN TURIN.



ANTHRACITE IN GLASS MANUFACTURE. Mr. Chance of Handsworth, has patented the application of anthracite or stone-coal in the manufacture of glass. The coal is assisted in its combustion by air-blast, but the furnaces require little other alteration. The riddance of smoke, which injures the glass, is the actuating motive to this improvement.

DOORWAY AT TURIN.

WE add to our recent illustrations of Italian details, an engraving from a sketch by Mr. Robinson of a doorway in Turin.

NOTES IN THE PROVINCES.

Preston.—The Independent chapel in Cannon-street has been enlarged and reopened. The former building was about 60 feet square, and has been lengthened by the addition of 30 feet. It will now contain about 1,100 adults and 250 children, at an extra cost of about 1,600*l.* "A mode of lighting, novel in Preston," says the local *Guardian*, "is introduced with advantage into the ceiling. Two large, handsome centre-pieces contain each a 'sunlight,' consisting of seven stars each, with nine radiating bat-wing burners, that diffuse an agreeable, subdued light over the whole of the galleries and nave of the chapel. The 'sunlight' affords one of the best devised means of ventilation whilst the chapel is lighted. The exhausted air of the room is made to stream upon the tubes which convey the smoke from the gas, at the same time keeping the tubes cool." This new mode of lighting, first suggested in our columns, thus appears to be extending. The contractor for the works is Mr. Richard Aughton, jun.; the painting and decoration of the chapel by Mr. James Walmsley; and the plaster work by Mr. George Swarbrick; the gas fittings by Mr. Chatham. The committee entrusted the carrying out of their plans to Mr. Veevers, of the firm of Messrs. Myres and Veevers.——Great additional accommodation has recently been added to two of the principal churches in this

town. Christ Church has been enlarged by the addition of transepts, and a semicircular chancel, so as to accommodate 400 additional sittings on the ground and gallery floors. The style of the church is Norman, also adopted in the alterations. The chancel, internally, is vaulted in plaster. The church dedicated to St. Mary is also being enlarged by the addition of transepts, with a square chancel and a vestry attached, so as to accommodate 400 additional persons upon the ground-floor. The style of the original structure and of the additions is also of Norman character. The transepts are flanked at the corners with large square pinnacles. The alterations in both these churches are under the superintendence of Mr. E. H. Shellard, of Manchester, architect.

Weeton.—The *Leeds Intelligencer* notices the consecration of St. Barnabas's Church, Weeton, parish of Harewood, on Tuesday week. It has been founded and endowed by the Earl of Harewood, and stands on an elevated site with a parsonage adjoining. The church is in the early English style, from a design by Mr. George G. Scott, of London. It consists of a chancel with lean-to north aisle and sacristy, central tower, and nave. There are transepts to the north and south of the central tower, but they are roofed so as to leave these open into the tower with double arches, the central column being quatre-foil in plan. The tower is supported by massive arches opening into both chancel and nave. The dais for the altar and the reredos are covered with Minton's encaustic tiles. The floor of the chancel is also paved with encaustic tiles. The roof of chancel is boarded and ribbed, and the whole is decorated with gold stars on a blue ground. The tower and spire spring from the junction of the nave and chancel. The *Intelligencer* thinks the lean-to aisles to the tower are not successful, though they may be a great convenience and add materially to the appearance of the interior, and asks why not have made a good gabled transept? The contractors were Messrs. Hall and Brown, of Leeds, and the carving of the exterior and interior were executed by Mr. J. H. Smith, of Camden-town. The wood carving is by Rattee, of Cambridge. The whole of the operations have been carried on under the superintendence and instructions of Mr. Parsons, the estate architect to the Earl of Harewood.

Northwood.—On 12th inst. the first stone of a new church at Northwood, parish of Ruislip, Middlesex, was laid by Lady Robert Grosvenor. The site for church and parsonage, with a contribution towards the building fund, has been given by Lord Grosvenor, M.P. who will also endow the church. The edifice will consist of a nave and chancel, with tower and sacristy, and will be 80 feet in length and 25 in width. It is of flint, with stone dressings, and is being erected from designs by Mr. Teulon, architect.

Eton.—The chief stone of a new chapel of ease was laid on 21st inst. at Eton, by the Prince Consort. The architect is Mr. Ferrey, and the style is Early Decorated. The cost will be about 8,000*l.* of which 6,000*l.* will be required for completing the body of the church, chancel, aisles, &c. Liberal contributions have been given by the local authorities and others, her Majesty and Prince Albert inclusive, and an appeal is now made to old Etonians to assist in filling up the subscription list, so as to render the new chapel worthy of Eton.——The college at Eton having been lighted with the new "vegetable gas," so as to afford a fair trial of its capabilities, the college authorities have united with others in the formation of a new company to light the town with the same gas, which Sir John Herschell regards as the practical solution of the problem of gas lighting on a small scale for country villages, large establishments, or even residences of any extent. He states that he was much struck with the simplicity of the apparatus and manufacture; but he takes for granted the statistics of the patentee, Mr. Booth, as to quantities, &c. As to the present gas company at Eton, the *Express* says:—"It is only fair to state that the new company has not been called for by any want of liberality in the management of the Windsor gas works. The supply of gas has been above the average in point of quality, and the price has been gradually reduced to 7*s.* per 1,000, with the prospect of a further reduction to 6*s.* per 1,000. But the right of the inhabitants of Eton to have gas works of their own, and to adopt the latest discoveries, will not be denied. The erection of the works will be commenced almost immediately."

Oxford.—At the late sessions for the county Lord Abingdon moved that the court consider as to the building of a room in extension of the south-west end of the County Hall, to be used for committee meetings of the magistrates. His lordship presented a plan of the proposed alteration. The estimated cost would be between 800*l.* and 900*l.* The subject was referred to the visiting justices.

Cambridge.—At the Cambridgeshire Sessions, the Rev. Mr. Fendall, on the part of the visitors of the County Lunatic Asylum, gave an account of what the committee had done in reference to the proposed new asylum. The court had agreed to expend 30,000*l.*: an eminent builder in London had agreed to erect one for 27,000*l.*: the committee obtained various tenders, ranging from 33,750*l.* to 55,760*l.*: the first mentioned was Mr. Myers's, but his was nearly 7,000*l.* above what he had first estimated the cost. They came to the conclusion that all the tenders being above the sum that they were authorised to give, they should accept no tender at all, and that they would refer the matter to the Sessions in order to get the court to give, if they thought proper, authority for further outlay. Their architect thought it was important that some decision should be come to on the point, and a letter was laid before the committee showing that Mr. Myers's increased estimate arose from an increase in the price of all the materials, and in the price of labour. They had a meeting, at which Mr. Kendall, their consulting architect, was present; and they then found that, taking the engineering expenses into account—which would be from 2,000*l.* to 3,000*l.*—they could not get the work done under 36,000*l.* and they therefore resolved to defer it. One special item was bricks, which it was thought might be very considerably reduced below their present price; and one of the committee said that the price of timber would probably fall again, for it had lately risen. Mr. Hicks said, "You say Mr. Kendall is our 'consulting architect:' he is not; he is only our provisional architect. He was appointed architect subject to the condition of his plan being carried out for the money mentioned, but as he could not carry out the plan for that money (27,000*l.*) he is not our architect at all." The Rev. Mr. Fendall stated, that before that plan was sent for, Mr. Kendall was unconditionally accepted. After some discussion, it was resolved that the decision of the visitors be approved of.

Dorchester.—Mr. Rawlinson has just made his report to the General Board of Health on the state of the churchyards of Dorchester. He recommends that a scheme be framed for parochial interment for the whole municipal borough of Dorchester, and that the same be introduced into Parliament by and with the sanction of the Central Board of Health.

Ilminster.—On 15th inst. a new church at Cricket Malherbie, was consecrated. It is in the decorated style, from designs by Mr. M. Allen, and executed by Mr. Munden, of Ilminster, and Mr. Joseph Steple, of Stoke-sub-Hamdon. The cost is defrayed by Mrs. Pit, in memory of her late husband, Mr. Stephen Pit.

Timsbury, near Bath.—A new chancel, with north and south transepts, has been built here, and was consecrated on the 13th inst. by the Right Rev. G. T. Spencer, D.D. late Lord Bishop of Madras. The new building is in the Perpendicular style of Gothic architecture, from a design by Mr. Scott. It is built with local stone, with Bath stone dressings. The roofs are of open framed English oak, and covered with Delabole ragslates, each gable being surmounted with a stone cross. The chancel is separated from the transepts by screens of white lias stone, worked with open tracery and foliage. The windows in the transepts are filled with Powell's figured quarries. The chancel window (at present) with plain cathedral quarries. All the floors are paved with Minton's encaustic tiles. The whole of the fittings are of Riga oak. The north transept is appropriated for the organ and school children. The south transept fitted up with open benches for adults. The seats in the chancel, the altar rail, the bishop's chair, &c. have carved foliage of various designs. A new pulpit of white stone, like that of the screens, has been fixed at the north-east corner of the nave of the church, abutting the pillar of the new chancel arch, springing from the wall on corbels of vine leaves with tracery panels, with carved pateras. The whole of the works have been carried out by Mr. William Brown, builder, of Frome. The improvement has been effected, we understand, through the exertions of the Rev. Richard Hill, rector of the parish.

Chester.—The first brick in the re-erection of St. John's Hospital almshouses was laid on 12th inst. Mr. J. Morris is the architect. The first brick was laid by "Edward Tatler, first boy in the Blue Coat Hospital."

Birmingham.—The Birmingham and Birmingham and Staffordshire gas-light companies have given notice of a reduction in the prices of gas, commencing October, 1852, which will range, according to the quantity consumed, from 4*s.* to 3*s.* per thousand feet, subject to a discount of 5 per cent. for prompt payment in cash.

Great Rollright.—The church of this place was reopened on Tuesday in last week. The building has been restored, under the superintendence of Mr. G. Street, architect, and paved throughout with encaustic tiles. The seats are all low and open.

Sheffield.—Although the old company here, in order to destroy the new while yet in its infancy, lately announced that they would reduce the price of their gas to 3*s.* in *March next*, they have refused to undertake that the price shall not exceed 3*s.* 6*d.* on condition that the new company be amalgamated with it. Meantime they are attempting by a new ruse to strangle the new company, namely, by raising actions at law against the individual workmen of the latter for destroying the highway, although the road trustees, who are responsible, and keep it in repair, make no objection to the laying of the new company's pipes.

Blackburn.—The chief stone of the Townhall was to be laid on 28th inst. by Mr. Joseph Fielden.

Barnsley.—The new Corn Exchange here was opened on Wednesday in last week. The building is situated at the top of Market-hill. It is a plain building of ashler stone, with a triangular pediment, at the centre of which it is intended to place a clock with an illuminated dial. The front is approached by several steps, and the lower room is appropriated as a market-house. There are also several shops underneath. A flight of oak stairs leads to the Corn Exchange, lighted when occasion requires, with four gas chandeliers. The building has been erected under the superintendence of Mr. Whitworth, architect. The mason's work was done by Mr. William Robinson; Messrs. Harrison were the joiners; Messrs. Hall and Jenkinson the plasterers; Mr. Rogers the painter and decorator; and Mr. Wood the slater.

Doncaster.—The remaining Tudor window in the south chancel of the parish church is to be filled in the course of the present year with stained glass, the cost of which, including the restoration of the stone-work, will be defrayed by Mrs. Saunders, a lady resident in Doncaster. This will complete the design made some time since by Mr. Wailes, for the three Tudor windows in this part of the church. Mrs. Saunders, according to the local *Gazette*, has entrusted Messrs. Lister and Son, builders, with the completion and restoration of the stone-work.

Alston.—The price of gas to consumers in this town is shortly to be reduced from 11*s.* to 8*s.* per 1,000 cubic feet.

Egremont.—A meeting has been held with the view to form a company for the establishment of gas-works in this town. An offer was

made by Mr. Malam, of Keswick, to construct suitable works under conditions which would enable him to guarantee to the shareholders, for a stated period, a dividend of six per cent. on the capital invested in the speculation. A gentleman residing in the vicinity of Egremont, who had recently constructed gas works on a smaller scale for the use of his own manufacturing establishment, also proposes to erect suitable works for the supply of the town on very favourable terms.

Glasgow.—The improvement which the City Hall has lately been undergoing at the hands of the architect and the decorator are now nearly completed. "The most striking alteration in its internal arrangements," says the *Glasgow Gazette*, "is the plan adopted for lighting the Hall. Every one who has spent an evening in it must remember how dismal and cheerless it looked, even when all the gas was lighted; and those who sat in the galleries were always annoyed by the lustres which depended from the ceiling in such a way as to throw a glare on their eyes, while they obstructed the view beyond. This inconvenience is now completely remedied, and by a novel arrangement of the gas, the light is diffused in a brilliant yet soft radiance throughout the building, from nine lustres in the ceiling. Six of these lustres have twenty-seven burners each, and the other three have sixty-three each. The expense of this new arrangement will be 25 per cent. less than that of the old plan, while the amount and quality of the light will be out of sight superior."

Stairhaven, Glenluce.—This haven, according to the *Ayr Advertiser*, has been greatly improved of late. The stones for building the pier were brought from North Milton, which is about half-a-mile distant. It is of the hardest blue whinstone, some of it very large. The stones for building the breakwater are obtained from rocks at a very short distance from it on the south side of the pier. They are not quite so good as the blue stones mentioned, but many of them weigh several tons. Quarrying stones from this latter place answers a twofold purpose, their removal opening up a road shortening the distance to Port William about a mile.

Dunfermline.—The *Fife Herald* states, that 25*l.* have been granted, it is believed by the Commissioners of Woods and Forests, for repairing the ruins of the ancient Abbey palace here. The *Herald* speaks of the shabbiness of such a grant for the repair of the ruins of an ancient royal and legislative palace. The walls in many places require filling up and retouching, and these again require to be done in an antiquarian spirit. This cannot be done without artistic skill, and, in consequence, must be at greater expense than common stone and lime repairs. "Whoever has the superintendence of these repairs," adds the *Herald*, "may learn a lesson in the art of agreeable adaptation by looking around the churchyard. The churchyard of Dunfermline, we are almost sure, has not its equal in Scotland, simply for the manner in which it is laid out. The grave ground, as smooth as a gentleman's lawn—the broad gravel walk, without a weed—shrubs and flowers, disposed around in plots, and circles, or semi-circles, or singly, in every unoccupied spot, even adorning the cavities along the root of the old Palace wall—attest the superintending presence of a spirit, as amiable as elegant. Mr. Allan, the warden, by his skilful manner of flooring over the 'place of bones' with a flowery and graceful carpeting, has contrived to make our churchyard not only pleasing, but alluring—the popular resort of young and old—the only public place for recreation that poor Dunfermline has had since the day that the rascality of the old rotten borough eat and drank and swindled her out of her Town Green."

New Marbles.—We observe, by our advertising columns, that on the 3rd November there is to be a sale at Messrs. Sang, Gogel, and Co.'s, Eaton-lane, South, of marbles, said to be quite new to the London market, being a first importation of the sort from Portugal.

CRITICISM.

The subject of criticism is apt to suffer by the negligent manner of treating it, the language employed being generally such as to deter many from perusing the article. To want beauty and agreeableness of expression here is a great fault. Surely the object with the writer should be to fix the attention of readers by himself writing purely; by not indulging in the caprices of taste against the authority of all rule; and by taking care that the particular merits of any production worth admiring are not lost by an ambiguity of words or incongruity of sentiments? Many critics cause their judgment to be questioned by evidently forgetting the true spirit of criticism, and spoiling a subject that their knowledge might have enabled them to embellish.

The virtues of criticism are as rare as diamonds, but its vices are many and obvious as any commonplaces. To aspire to be a critic in the true sense, is to endeavour after a superiority of mind over other men; to take all that trouble of thought and contemplation of beauty that is necessary to refine it; to perceive the better and more excellent objects with greater acuteness than others; to possess the mental powers more highly—to a fuller extent and more polished than others. These are rare attainments. But many profess these; and among them some who, in their so-called critiques, betray all the faults of criticism (which Baillet has enumerated in the introduction to his "Collected Opinions of the Learned").

We want more of true criticism. To supply this, the standard of literary taste must be raised. We want men devoting themselves to it to be imbued with the spirit of a Schlegel. We want those who descant upon the perfections of any works of art to show that their minds are congenial with the principles on which those noble works were produced. And with all this it is necessary that the critic show even in the style and tone of his criticisms that his mind is steeped in the beauties and delicacy of his native tongue. Frederick Lush.

MECHANISM AND ENGINE POWER IN DOMESTIC SERVICE.

A writer in the *Spectator*, Mr. Bridges Adams, treating this subject, asks,—

"What are the separate items for which servants are required? 1. Carrying hot and cold water up and down stairs by hand. 2. Carrying coals and dust up and down stairs by hand, and sifting cinders. 3. Making beds. 4. Cleaning shoes. 5. Preparing and cooking food. 6. Ascending the stairs to answer bells, and supply lights. 7. Answering street-door bells. 8. Dusting and sweeping. 9. Waiting at table. 10. Washing floors. 11. Warming and ventilating.

Carrying water up-stairs, both hot and cold, may be performed by engine-power, as well in a dwelling as in a factory, and with far greater neatness than by the present mode. Every apartment and stair-head might have these by a proper system of concealed pipes. Waste water may also pass down pipes, with a run of hot water to cleanse the sinks.

Carrying coals up-stairs should be dispensed with by a machine-hoist to every floor, worked by the engine. The dust should be lowered in the same mode. A minimum of servants' labour once a-day would suffice for this. Gas in many cases may supply the place of fuel.

Making beds is a process needed by the existence of feather and down beds. They are not wholesome. The spring mattresses are not yet perfect, but by better construction, yet to be attained, they will probably be nearly universal. The thumping of feathers may then be dispensed with, and the making the bed will be little more than putting a cloak on or off. We may suppose, also, more improvements in the bedstead.

Cleaning shoes. In numerous businesses, requiring polishing processes, circular brushes are made fast on a shaft revolving at speed like a lathe. But there is another question—Have we obtained absolute perfection in our boots and shoes?

Preparing food is not a drudgery, and it might be prepared without being an unpleasant labour, were kitchens constructed as carefully as laboratories. Coffee, tea, and similar things might be prepared by gas jets alone, with little trouble, and without the aid of servants. Madame Roland could "skim the pot" for her husband's dinner while she prepared his speeches for the tribune or his reports for the state.

Ascending the stairs to answer bells might be dispensed with by internal telegraphs. But increased facilities for people to have all things near them would much diminish this labour; and, moreover, using lifts such as are used for workmen in mills would remove the toil altogether. Gaslights are independent of servants, and not noxious if rightly used.

Warming the dwelling and ventilating is not necessarily a process requiring the lighting of fires and opening windows incessantly, and running up and down stairs to prevent the fires going out. It is essential to maintain a summer warmth in dwellings in addition to open fires. This can be done by supplying pure warmed air from an air-warming establishment, as easily as a supply of gas. It is absurd that every house should manufacture its own warmth, and in most cases do it badly."

NOTES FROM LIMERICK.

The worthy citizens of Limerick seem to have turned over a new leaf of late. On all sides improvements are going on, or are in contemplation. The new markets will be shortly in progress, the authorities even proposing to carry out Mr. Atkins's design entirely in cut stone, instead of brick with stone dressings. The new markets will comprise a large hall to serve as a corn exchange, music-room, and for public meetings; convenient separate departments for meat, fish, poultry, and vegetable markets, and a large extent of shedding for cattle and agricultural produce, with excellent arrangements for the access of cars, waggons, and droves of cattle form the rear; the architect proposing that the principal front shall be only used as a place of exit. The style of the building is Palladian, and presents a central block, showing a low-pitched gable or pediment to the front, with boldly projecting roof, and a lofty campanile immediately behind: these are flanked by screens, with arched gateways and railings.

The competition for St. John's R. C. chapel, as mentioned recently, is not yet decided on. The requirements of the committee are, that a church to accommodate 5,000 worshippers, without galleries, shall be erected for 5,000*l.*; in our humble opinion rather a difficult problem. Five or six sets of drawings have been sent in, and none of them give so much as a square foot for each individual; rather close quarters even to stand in, much more for kneeling. We abstain from commenting on the designs until the award is decided: we may, however, state that were there no other consideration to be attended to than the abstract merit of the works, no one could possibly hesitate to decide: this very circumstance may possibly be the cause of the delay. Baths and washhouses for Limerick have been suggested and some steps taken, we believe, to secure a site for them. A model school will be immediately commenced in the outskirts of the new town: it is proposed to comprise industrial, agricultural, and nautical schools. The handsome flax spinning-mill of the Messrs. Russell (a new feature in Munster) is now in course of roofing: the chimney-shaft will be above 160 feet high: we trust it will be the precursor of many similar establishments. A writer in the *Limerick Examiner* calls attention to the great capabilities of this city for a seat of a great cotton manufacture, urging the employment of the immense water power of the Shannon, now roaring idly through the beautiful country surrounding the city. The works at the new floating docks are being prosecuted with vigour, under the superintendence of Mr. Long, C.E.: they are situated on the south bank of the Shannon, immediately below the existing

quays. The Limerick School of Design is advertised to open on the 2nd of November. Lord Monteagle presided at an inaugural meeting, held in the school-rooms, on Thursday, the 28th. The school will be under the direction of Mr. David Raimbach, whose indefatigable energy in making the preliminary arrangements promise well for its future success. It has been proposed to annex to the school of design a museum of manufactures and produce (geological and botanical specimens, samples of marbles and building stones, &c.), with a view of rendering the institution as extensively useful and practical as possible. Some necessary repairs are going on in the cathedral, an interesting edifice, chiefly of the thirteenth century, containing some curious features. It has suffered severely from previous repairs and beautifying, but some efforts are being made to raise money for a complete restoration. There are some capital carved bog oak misereres of the fifteenth century, and the floor of the tower is supported by beams which have a good example of the dog-tooth carved on the soffit, not, as more usual, on the arris.

DRAINAGE WORKS IN ST. GILES'S.

At a meeting of the Metropolitan Sewers Commission, on 27th inst. the report called for on this subject, as we noted at the time, was read. From this it appears that the recommendations of a report made in 1849, as to certain works, were, that all cesspools should be cleansed and filled up; a system of tubular drainage introduced, and self-acting water-closets provided for every house; that house drains, 4 inches in diameter, and minor branch drains, 2 inches in diameter, should be laid down, and a tank 30 feet high for flushing sewer pipes and other purposes, erected on a piece of land belonging to the Commissioners of Woods and Forests in that locality; that the contract provided for the laying down of 738 feet of stoneware main water-pipes 3 inches in diameter, where possible, in the same trenches with the sewer pipes; that the works actually executed were 100 feet of 15-inch pipe sewer, 160 feet of 12-inch ditto, 330 feet of 9-inch ditto, 726 feet of 6-inch ditto, 738 feet of 3-inch stone water mains, and forty-eight ferrule joints; and that the house drains actually laid down were 6 inches in diameter instead of 4 inches, as recommended in the report, and the branch drains 4-inch instead of 2-inch. The report now made further states that on examination, stoppages were at various times found to have been caused by a scrubbing brush, by old clothes, pieces of brick, rags, and other substances, and that on 8th June, the engineer (Mr. Bazalgette) reported further stoppages in Walsh's-court, Kennedy-court, Hampshire Hog-court, Carrier-street, and Church-lane, and called attention to the cost of removing these obstructions; that the engineer ultimately stated it as his opinion that the insufficiency of the drainage is caused by the system of combined pipe drainage, as laid down, not being adapted to the locality to be drained; and that the Court thereupon, on 17th August last, decided on abandoning the pipe sewers, and ordered the construction in lieu thereof of 498 feet of brick sewer 4 *feet by* 2 *feet* 6 *inches, and of* 72 *feet of brick sewer* 3 *feet* 9 *inches by* 2 *feet* 6 *inches ! !*

Mr. Hosking, having heard the report read, made some remarks showing that there was a misunderstanding of his meaning in the previous reports on this subject. He did not object to the use of these kinds of pipes, he said, but he did think they had been hitherto made either so small as to be inefficient, or so large that they were not sufficiently strong. Further, he hoped that measures for protecting the drains from the introduction of foreign substances into the waterclosets and drains might be introduced. He would suggest the formation of "catchpools" for such purposes. Not that he would advocate the "cesspool" system—certainly not. The cesspool was a receptacle for stagnant water, most injurious to health. The catchpool he proposed was but a trap which would prevent any improper substances passing into the drainage, or the tributary sewers.

The report was referred to the General Purposes Committee for their consideration.

THE CRYPT OF ST. PAUL'S: THE GRAVE OF THE GREAT.

THE FUNERAL OF WELLINGTON.

The crypt of St. Paul's cathedral is a solemn place, vast in extent, and grand from its large and simple proportions: it is a strange and gloomy spot in the midst of this bustling city. A short visit to this place for the first time is not a thing easily forgotten. Underneath the centre of the dome (so exactly so that a line has been dropped from the cross and found to rest on the middle of the coronet on the tomb), rests all that remains of Lord Nelson. The only other grave within the circle of columns which support the floor of this part of the church contains the remains of the brother of Lord Nelson and his family.

Outside, but near this circular and honourable portion of the cathedral, are buried Lord Collingwood and the Earl of Northesk; and in some portion of this space the "Great Duke" will eventually rest. It had been, we are told, the original intention of several of the persons in authority who are connected with the Duke's funeral, to have removed the granite slabs which inclose Nelson to the edge of the grave of his brother: this would leave room for Wellington, equally near to the centre, and so the naval and military heroes of the age would rest without any difference as to their position. This arrangement has been altered, and we regret to learn that Wellington will be buried at some distance east of the centre of the cathedral. This site of the warrior's grave would be in perfect darkness if it were not for the gas lights which faintly light the tombs and arches: the side aisles of the crypt, after leaving the part covered by the transepts are comparatively light.

The proposition made in our pages last week to get rid of the second-hand sham, the empty sarcophagus belonging to Cardinal Wolsey which now surmounts Nelson's tomb, and to place in its stead a monumental tomb, containing the body of Wellington, properly inscribed, thus putting together the two great commanders in a place of equal honour, is far superior to the present determination.

We have reached the spot shown in the engraving, and see in long perspective the glimmering sunbeam. We are now under the south aisle of the church: the monument on the right, of white marble (partly shown), on which is represented a female seated at the organ, is to the memory of the daughter of Sir Christopher Wren, who, besides being a good musician, has the credit of having designed several of the City churches. On the left, where the sunlight falls on the tomb, the famous architect lies buried,—next him his son; and a new white marble tablet, not shown in the engraving, is in memory of the great granddaughter of Wren, who died at the age of 95 (Sir Christopher was 91, and his son 97 at the time of their deaths). On opening the Wren tomb, to receive the body of the abovementioned lady, the last of the race, the coffin of the architect was distinctly visible in good preservation. Close to the Wren monuments, under an *unlettered* slab, lies J. M. W. Turner, the greatest landscape painter of this or any other country. Close by, as shown in the engraving, are Sir Joshua Reynolds, Lawrence, Opie, Barry, Mylne, Fusseli, and a few others who have been equally distinguished in their walks with the warriors who are gathered in another part of the crypt. The sunlight gleams amongst their graves. From the minds which dwell in the dust here gathered what splendid fancies and lessons have been embodied and passed amongst the multitude. Few could be left on this spot, where the roaring of the traffic outside exactly resembles the distant sound of the sea in times of storm, and not be impressed with a host of associations. The men themselves rise up like a reality to the mind's eye. Their glorious works seem in the darkness to form an exhibition; and the companions of the men, Johnson, Newton, and a score of others, fill up the picture.

The mutilated monuments partly shown in the engraving are fragments secured from the ruins of St. Paul's after the Great Fire, 1666, and are very properly well taken care of.

It is greatly to be hoped that no other body may be interred *within* the cathedral. So long as burial within churches be made a mark of honour, so long will the injurious and improper practice be generally persevered in. It was thus, indeed, that it arose.

The arrangements for the Duke's funeral are being rapidly proceeded with, as are the preparations for the ceremonial of "Lying in State," at Chelsea Hospital. The latter are in the hands of Professor Cockerell, who will, we have no doubt, exalt them by art. We take some credit to ourselves for the employment of an architect in this: at all events, we have long zealously urged that such a course should be adopted on such occasions.

The works in St. Paul's are being executed by Messrs. W. Cubitt and Co. under the direction of Mr. Philipps, of the Board of Works, who has given most assiduous attention to them. We may briefly state that there will be a gallery on each side of the nave, leaving a clear space between them 20 feet wide, galleries of a circular form under the cupolas, and other galleries in the transepts. The latter will rise from the pavement to the level of the cornice which runs round the whole of the church, requiring trusses 87 *feet long* and 34 *feet high*, and then from this level a second gallery will rise still higher. At the west end of the nave it is proposed also to put a gallery, sloping down to the pavement, and through the centre of which the body and procession will pass from the west door. We should rather this were omitted. A railway will be laid down in the centre of the nave, and along this the bier will be moved by men hidden beneath it. The organ has been altered, so as to admit of its being played on the side next the nave, as well as in the choir. There are to be seats for 10,000 attendants, irrespective of the procession.*

The building will be lighted, we may mention, by gas jets 5 inches apart, in the line of the cornice all round the nave and choir; and around the whispering-gallery.

The effect, when we visited the works a few nights ago, was singularly striking. By the light of two ranges of upright gas burners, at the foot of the framing for the galleries in the nave, 300 men were busily occupied in all quarters,—producing, by the way, no trifling din. Bodies of men were engaged in the transept framing the huge trusses which will be needed there. The immensity of the dome was lost in shadow, and a single light which flickered in the whispering-gallery seemed a far-off star.

Greatly to the credit of all the men engaged, there has not been seen a hat on since the work was commenced, nor has any coarse language been heard. By respecting the place they have obtained the respect of others for themselves.

The Projected Leeds Academy of Arts.—The projectors of this new institution propose to furnish members with accommodation and objects of study in shape of casts and models, books, pictures, engravings, lectures, exhibitions, and conversazioni. Their success they regard as dependant on a co-operation of all classes interested in art and literature in the district. The association is to be headed by patrons, president, &c. as in all other kindred institutions, and to have official grades of membership in harmony with its distribution of honours proportioned to merit.

* Amongst various suggestions forwarded to us in connection with this event is one to this effect,—that the leadwork of the dome of St. Paul's should be *painted a dead black*.—"B. M." suggests that, as the Government are evidently desirous that all classes should have an opportunity of witnessing the procession, the "Woods and Forests" should permit some respectable contractors to erect covered tribunes in the Green-park, next Piccadilly, with the stipulation that only a small sum should be charged for each person,—say 5s. the best seats, and ranging to 1s.



THE CRYPT OF ST. PAUL'S, "ARTISTS' CORNER."

BUILDING IMPROVEMENTS IN IRELAND.

It is proposed to connect Queen's Quay and Queen's Island, at Belfast, by means of a bridge. The new harbour office (in course of erection from the designs of Mr. George Smyth, harbour engineer), is to be an Italian building, and the site is at the western extremity of the new basin Clarendon dock. The total dimensions are 102 feet in length by 51 feet in width, and 48 feet in height, and it is to have a lofty bell and clock tower, to rise 86 feet above quay level. The superstructure is supported on 500 piles each 40 feet long. About 10 feet has been built. Messrs. D. and J. Fulton are the contractors, and the expenditure is estimated at 8,000*l.* Mr. M'Credie supplies the cut-stone, which is from the neighbourhood of Glasgow.

A new town-hall is contemplated at Belfast.

The Royal Cork Institution is to have additional buildings, for which plans have been prepared.

The drainage works in the counties of Longford and Leitrim are being proceeded with. New bridges are to be built at Kilnacarrow, Rhine, and Agarr, &c. Large numbers are employed.

The centre or framing of three of the arches in the Boyne viaduct have been fixed by means of Wellington cranes. The roads near the viaduct have concealed underneath their surface rods which work large iron pumps, and many machines in the interior of the structure. Three steam hoists, which alternately raise in about one minute loaded waggons 60 or 70 feet, and then precipitate their chains to the bottom of the quarry for a renewed load, are worked by one man, with the usual mechanical contrivances of drums, levers, cog-wheels, &c. The direction of the Beaulieu-road has been altered. In places the quarries are 70 feet deep, and are yielding by means of cranes huge stones, the pieces having ashler courses composed of blocks 3 or 4 feet in thickness, and weighing from ten to fifteen tons each. We were informed that the iron lattice work is in course of preparation and will be forwarded shortly. Unusual difficulties presented themselves in sinking the foundations of the piers which are now nearly complete, except *one*, which (after several ineffectual searches for a solid stratum) is to be built entirely on piles. The necessary levellings, &c. for the site of the proposed station at Drogheda, which is no longer to be a wooden construction, are being made. Tenders for the erection of these are being received by the architect, Mr. Papworth.

The new workhouse at Urlingford is finished, and has passed the final inspection of the architect to the Poor-law Commissioners. Mr. Richard Burnham, builder. Mr. Carter, clerk of works.

RAILWAY MATTERS.

A NEW system for the construction of railways was adopted, by tender, for the Middlesborough and Guisborough Railway. The tenders were opened at the offices of Mr. Pease, M.P. Darlington, when Mr. John Harris's, being the lowest, was accepted for 19,000*l.*: the tenders ranged to 37,000*l.* The line is eleven miles, and is to be completed in December, 1853. The tender includes stations and all conveniences, excepting the iron for rails, chairs, &c.

The contract for the construction of the Branch Midland Narrow Gauge line from Gloucester to Stonehouse, has been given to Mr. A. Ritson, of Plymouth. The amount of his tender was, we believe, between 23,000*l.* and 24,000*l.*

On Wednesday week the traffic on the main line of the Great Northern Railway was suddenly interrupted by an extensive slip of earth in the Spittal-gate cuttings, about a mile south of Grantham. Late heavy rains are blamed. The slip extended about 100 yards, and it is not the first that has occurred here.

An important decision, upon a point never before settled in England, though more than once, decided in Scotland, was lately given in the County Court of Yorkshire. The plaintiff was Mr. Raikes, banker, and the defendants were the York and North Midland Railway Company, one of whose trains, being a "heavy" one—that is, unusually full of passengers—had arrived at Milford Junction half an hour too late for the Great Northern quick train for London. The jury gave 5*l.* damages.

The want of a means of communication between passengers and guards, and between guards and drivers, as well as passengers, was lately shown in a circumstance which is reported to have occurred to the Duchess of Kent on her way from Scotland, *viâ* Darlington and York, between which towns the Duchess and her suite are said to have been aware from the outset that the waterproof covering placed over some luggage on the top of one of the first-class carriages in the train had been fired by sparks from the engine; but they were without the means of either informing the guard or stopping the train, and were kept in a state of most unpleasant suspense for some time in consequence, until the firing had proceeded far enough to attract the attention of the guard; and, even then, it is hard to say, without a special knowledge of the circumstance, how the mockery of a "guard" could have communicated with the driver so as to stop the train in time to save the carriage and those in it. We think it quite as likely that the "guard" felt it to be rather an extra hazardous exploit to scramble over the roofs of the carriages, as on previous and usual occasions, in order to reach the engine and its driver, which on this occasion, would have been rather too like "passing through the fire to Moloch;" and that he sat "like patience on a monument," but scarcely "smiling" at the "grief" that might ensue, till, in the fulness of time, the train stopped at one of its watering places, when the fire was fortunately extinguished in time to save the lives of the passengers.

RIVAL GAS COMPANIES.

CAUTION TO BUILDERS AND TENANTS.

IN the Whitechapel County Court, recently, an action was brought of some importance to consumers of gas, touching the introduction of rival gas companies' mains into premises where gas pipes may be or which may have been previously laid on.

Mr. Cox, solicitor to the Imperial Gaslight and Coke Company, said the company sought to recover 8*l.* 18s. 6d. of the defendant Hill, who he believed was not the ostensible defendant in the matter, but was rather the agent of another gas company. Mr. Hill had burnt their gas for some time, and upon their inspector calling at defendant's premises some time since to gauge, he found the Imperial gas cut off, and another company's laid on. Although his clients' claim was 12*l.* 12s. 9d. he, Mr. Cox, in the exercise of his discretion, would abandon one quarter. He must call the attention of the Court to,—and as he was informed there were several tradesmen in court connected with various branches of the building trade, he would take the opportunity of impressing upon their minds—a peculiar feature of the present case. The Imperial Gas Company's Act of Incorporation required parties burning their gas to give notice of their intention of discontinuing it; and it also required of their company to give a like notice to parties whom they did not desire to further supply with gas. It had been already held by three Courts, that the Imperial were legally entitled to this notice, and could recover for gas, whether burnt or not, during the whole time such notice was withheld. He therefore urged that he was now entitled to a verdict. He then proved the Act of Incorporation, and pointed out the clause in the Act demanding this notice, and then called an officer of the Imperial, who proved defendant's signing a printed form of rules laid down for the guidance of parties burning the Imperial gas.

Mr. Walker, the gas inspector, said that he found their pipes disconnected, and another company's laid on. He then told Hill he should have given notice. Hill said, he thought, if he had done so, they would have enforced payment of his arrears by cutting off his gas, so he had the gas of the railway company.

Mr. Davis, an attorney, who appeared for the defendant, urged the arbitrariness of the condition of notice, and said, if such a contract, or whatever else, had been entered into by his client to give this notice of discontinuance, by signing the printed form, Mr. Hill must have done it unconsciously. It daily happened that builders had to remove piping laid down by gas companies in houses untenanted, and he supposed the next experimental action under this Act of Incorporation would be against the builders, for removing the pipes without notice. Mr. Cox might smile, but he, Mr. Davis, knew that members of the building trade felt much interested in the Imperial crusade. He called the defendant, Mr. Hill, who stated he had had dealings with the "Imperial" since 1848, and paid them about 7*l.* per year for gas until the last year, when they charged him about 13*l.* He did not sign any contract, but gave notice that he was not going to burn their gas any longer, when he paid his last account at the Imperial office.

By Mr. Cox.—Has paid for gas before it was burnt the same as others. Does not believe he wrote John Hill to the contract before him. It must be some one else's writing. Never said what the inspector has stated. Left the Imperial for charging 6s. per thousand, when he could get it from the Eastern Counties for 4s. The defendant here so contradicted himself, that the judge at once gave a verdict for the plaintiffs, thus establishing the right of the gas company to notice of discontinuation.

CONTRACTORS AND SUB-CONTRACTORS.

[Where a sub-contractor fails to complete his contract, it is held that the party contracting with him may employ another builder, and charge the sub-contractor for the expense of finishing the contract.]

IN the Lambeth County Court, recently, an action was brought by Mr. Chadwick, a builder, at Camberwell, against Mr. Bodley, a sub-contractor of joinery, also of Camberwell. The sum sought to be recovered was 35*l.* and the defendant pleaded a set-off of 33*l.*

Mr. Chadwick stated that he contracted with Mr. Bodley to do the joinery work of two houses in Camberwell-grove, and for which work it was agreed the defendant should receive 80*l.* Mr. Bodley had been paid that, and left the work before it was completed. In consequence of this he (Mr. Chadwick) served the defendant with a notice requiring him to finish the contract, or in failing to do which, he (plaintiff) intended calling in another builder to complete the job, and charge the defendant with the costs so incurred. Mr. Bodley refused to return to the work, and consequently he, plaintiff, carried out the purport of his notice, and the joiner's bill for finishing defendant's contract came to 35*l.* which he now sued the defendant for. Mr. Chadwick here handed in the specification.

Mr. Binns.—I must object to that document being put in evidence, unless it be stamped.

Mr. Chadwick.—I expected something of this nature, and have come prepared. I have, at an expense of 10*l.* had it stamped, and for the future will have all such documents stamped at the right time, and not place my interests in such expensive jeopardy.

Cross-examined by Mr. Binns.—I ordered some extras to be done by the defendant, but I should say not more than to the extent of 30s. Any other alteration, by direction of my superintendent of works, would be under my implied sanction. The defendant drew more money than he was entitled to. He certainly ran away from his work. He is not charged by us more than we actually contracted with the builder, to complete his job. It was not arranged between us the defendant was to have his wages weekly.

Mr. Jackson, superintendent of works to plaintiff, said what work the defendant did was unsatisfactorily done, and for which he was paid by weekly instalments. They had to finish it, and the sum charged for finishing it is fair. For what extras defendant did he had been paid, and he had received in all 85*l.* instead of the contract price, 80*l.* Witness produced two bills of defendant's for extras, amounting to 3*l.* 10s. and said they were delivered at the time the work was done, and were the only claims received.

Mr. Binns said he was in rather an unfavourable position. His client, who had a good defence to the action, and was perfectly justified in refusing to complete the contract, had neglected to give the requisite notice of set-off. Would his Honour adjourn the case?

Mr. Chadwick refused to be a party to the adjournment, and Mr. Bodley was then called upon to answer to the plaint. He stated, that although not mentioned in the specification, it was understood when he took the contract he was to be paid by weekly instalments, according to the number of men he had at work. For two pay nights he had had two pounds tendered him, whilst he had had three men at work, and should have received 4*l.* 10s. to pay them with. He had to pay these men out of his own pocket. Under this state of things he gave plaintiff notice of his intention to discontinue further works. He did extras to the amount of 30*l.* and completed his contract as far

as he could. He told Mr. Jackson he could not stand it any longer. Mr. Chadwick, upon telling him (defendant) that Oliver could do the mouldings at a lower figure than his, was told that he would do them at the same contract. The houses were open to him to send in a surveyor, and he should do so, as he felt certain the bill of Oliver included great extras from his specification, or that he had charged exorbitantly. Mr. Jackson appeared to forget the cisterns he (defendant) had put in, which were not in the specification, and Mr. Chadwick had charged him for trap-doors, and many other things, not in his specification.

The Judge.—If you have a set-off, you must now sue Mr. Chadwick for the amount of it, as you have neglected to plead in time. As the case stands, you (defendant) do not produce a surveyor, or any one to support your statement; whilst, on plaintiff's side, it appears you received three months' notice to return and finish your work, and you did not. My judgment is, therefore, for the plaintiff; but as you desire to bring a cross action, I will order the amount sued for to be paid at a period which will afford you an opportunity to prove your claim.

Verdict for plaintiff, and costs.

Stubbs *v.* Clarke.—This was an action to recover 5*l.* 16s. 3d. for carpenter's work. The plaintiff said he contracted to do the joinery of two houses for the defendant, who is a small builder, at 10*l.* per house. He completed the first house, but not the second, in consequence of having no materials to go on with. He had been much detained. The sum now sued for was for the amount of the work he had done under the specification, and 1*l.* 1s. additional for extras.

Mr. Binns, for defendant, said, it was usual in the building trade for builders to erect one house and borrow money upon it, the loan of which enabled them in the end, by pursuing the same course, to build a street. In this way half of new London was erected. They also sub-contracted with labouring builders to do certain portions of the houses. The plaintiff had contracted to do the carpentering work, and had run away from it before it was finished. He, therefore, urged that the plaintiff had forfeited whatever value of work he had done by leaving it incomplete.

The defendant said, there were plenty of materials to go on with, and that it would now cost him more to finish the house than it was worth. The plaintiff ran away and told him he had got a job to go to which would last for thirty years.

The plaintiff here stated that he could prove there were not enough materials to go on with at any time, and that he left the contract because there were none at all. He could not afford to lose his time standing idle for timber.

Mr. Binns.—Well, he may go on with it now there are materials.

Mr. Stubbs.—No, Sir; I want my money for what I have done.

The Judge.—No doubt it would do the defendant good for the plaintiff to finish the house for nothing. I think the fault is not with the plaintiff, but that defendant kept him idle for want of materials. My judgment will therefore be for 5*l.* 16s. 3d.

Verdict for plaintiff.

IMMENSE ALPACA MANUFACTORY NEAR BRADFORD.

We lately noted the fact of an immense factory being in progress of formation for Mr. Titus Salt, near Bradford. A correspondent has sent us the following particulars. The works, or rather the new town, with its 700 cottages and other dwellings, warehouses, &c. is to be called Saltaire. It is situated near the river Aire, whence, apparently, in combination with the founder's name, the name of Saltaire has been compounded. The estate is also near the town of Shipley.

The arrangement, design, and construction of the buildings are confided to Messrs. Henry F. Lockwood and Wm. Mawson, of Bradford, architects. There are three contracts for the masonry works, which are in the hands of Messrs. Fearnley and Wainwright and Messrs. Moulson, of Bradford, and Mr. Hogg, of Leeds, respectively. The joiners' work is also in three contracts, held respectively by Mr. Neill and Messrs. Beanland, of Bradford, and Messrs. Ives, of Shipley. The iron-work, a very extensive contract, is supplied from the foundry of Messrs. Cliffe and Co. of Bradford: these gentlemen will also construct the iron roofs; but the tubular girder-bridge has been contracted for, and is in the course of execution, by Messrs. Butler, of Stanningley. The contract for slating is in the hands of Messrs. Josh. Hill and Son, of Bradford. The remaining contracts are not let. Messrs. George Hogg, James Ogilvie, and William Chesterton are the several clerks of works. The engines, boilers, and machinery are entrusted to Messrs. Wm. Fairbairn and Son, of Manchester.

The whole of the works are being constructed of stone, supplied by twenty quarries in the surrounding neighbourhood.

The mill itself will be 550 feet in length, and 72 feet in height above the level of the rails. It includes six stories, and is constructed of massive stone work in the boldest style of Italian architecture. The walls look more like those of a fortified town than of a building destined to the peaceful pursuits of commerce. The floors are formed on arches of hollow brick made on the ground by Clayton's patent process; the openings in the bricks being used for the purposes of ventilation. Rows of ornamental cast-iron columns and massive cast-iron beams support the arches. The roof will be of iron. The windows, of large size, are to be entirely filled with immense squares of cast plate-glass. The whole of this building will be fire-proof.

The gas-works, to be situated between the canal and river, are to be upon White's hydrocarbonic system, and are calculated to supply 100,000 feet per day for 5,000 lights, in the mills, sheds, streets, and houses of the work-people. When the works are finished, 4,500 hands will be required to keep them going. This will yield at once a population to Saltaire of from nine to ten thousand persons.

The architects are enjoined to use every precaution to prevent the pollution of the air by smoke, or the water by sewerage or other impurity. Wide streets, spacious squares, with gardens attached, ground for recreation, a large dining-hall and kitchens, baths and washhouses, a covered market, schools, and a church; each combining every improvement that modern art and science has brought to light, are ordered to be proceeded with by the gentleman who has originated this undertaking. The expense has been set down at half-a-million of money, but we hear that every expense connected with it will probably be more than met by less than half that sum.

It is said that a cotton-mill is in contemplation at Bolton of nearly equal magnitude. At Blackburn, Chorley, West Houghton, Kirkham, Ramsbottom, and throughout the manufacturing districts generally, new works are being constructed.

Notices of Books.

Report of the Aeronomic Association. London: Varnham, Bedford-street, Strand, 1852.

We all naturally look suspiciously at any thing which pretends to be what it is not, and being unable to discover the existence of such an association as that which figures on the voluminous title page of the volume purporting to be a report from it, and moreover finding a private interest the main object of the publication, we were disposed to let it pass without comment; the more so as we know nothing practically of "the Improved Patent Anti-Condensative Air-Conductor, or Terminal Smoke Vent," recommended in it as the universal Pot-panacea for all the ills that flues are heir to. We learn, however, that the volume is the work of one who has been long and respectably known as a labourer in the field to which it refers, Mr. Hiort, and with the expression of a caution against such manœuvres (doubtless repented of by this time), we give it the publicity of our pages, and leave those who are interested in the matter to inquire for themselves into the merits of the particular terminal recommended. The foundation of the Association, so called, is made to rest on a series of papers in our pages, and these are constantly referred to throughout:—

"The philosophical principles involved in the imperfect as well as the primary and due action of chimneys, have been so skilfully and satisfactorily explained and demonstrated in the several communications inserted in various numbers of The Builder journal, under the signature *Tba*,* as to make it appear very desirable, and not at all impracticable, to realize that author's ideas, by devising some system that can be depended upon, and by means of which the public may be enabled to gain all the advantages and comforts of which they are at present deprived, owing to the mal-formation of chimneys, which are in general (particularly kitchen chimneys) built too small, or the openings of the fire-places made too large; obstructions in the smoke way also frequently occur at various turns in flues, which generally depending upon the judgment of the operative workman, are liable to be contracted in size. This defect may be too often observed at the top or outlet of chimneys, and the mortar-joints of the brickwork, especially those most exposed to the weather, are wide and of very perishable materials; the bricks also of modern-built houses are mostly of an inferior porous quality, and, consequently, not at all proper to be used in building chimneys."

The volume contains many useful practical suggestions, and, being acknowledged by Mr. Hiort, is entitled to consideration.

* *Vide* The Builder, 9th Nov. and 7th Dec. 1850; 4th Jan. and 1st Feb. 5th and 19th April, 1851.

RUDIMENTARY ART INSTRUCTION.

"outline from outline."*

Under the latter title has been published the first of four manuals of art-instruction for artizans and others, and for schools, by Mr. John Bell. Their object is to present to the student the rudiments of theory and practice in their simplest forms, so that conviction may follow study, without sacrificing time to system. It is intended as much for the carpenter, bricklayer, smith, &c. as for the art-workman, and will be found of great service, too, by those who cannot obtain the assistance of a master. Anxious as we have long been to place the rudiments of drawing (as a part of ordinary education) on somewhat the same footing as those of writing, we cordially recommend the general introduction of Mr. Bell's first manual.

* London: Bogue, 1852.

Miscellanea.

The Bayswater-road.—The Marble-arch, intended as an ornament to the West end of the town, is much injured in its appearance by the exhibition above it of the means employed for ventilating the part of it appropriated to the use of the police: on the east side of the arch the upper line is broken by a circular ventilator rising above it, and on the west side by a trap-door, generally standing open, and rising from 2 to 3 feet above the parapet. That the police, for their convenience and personal comfort should take this liberty may be passed over; but that those who have the care of our public monuments should allow such offensive intrusions to remain for months without correction is not creditable. The Bayswater-road, which joins the west end of Oxford-street, within a short distance of the arch, requires the road surveyor's attention. If this officer will stand in the centre of the road at this junction, and will look *up* Oxford-street, and *up* the Edgeware-road, and will then look down the Bayswater-road, sunk between a well-arranged Yorkshire-stone pavement (executed some years ago, by subscription, and laid in one regular line of declination from the corner of the Edgware-road to Stanhope-place) on one side, and the dwarf-walled coping to the iron park paling on the other side, he will see the defective state in the form of the road; and as the present time is favourable for its correction, the carriage traffic being stopped by the Oxford-street repair, and the surplus material (now carting away by the contractor) being close at hand, it ought to be taken advantage of, so that the Bayswater-road approach to the metropolis may accord with the excellent lines of surface in this neighbourhood.—A. A.

Fall of Two Houses at Bayswater.—On Saturday morning last, at an early hour, nearly the whole of two houses in course of erection near the bottom of Westbourne-grove fell into ruins; and on Monday morning a further portion, including a large share of a third house, also came down. Inquiry in all such cases ought to be made as to the causes of the failure.

HEALTH IN MARGATE.—A sheet prepared and published by Mr. E. Mottley, together with a pamphlet published by him in 1850,* and both based on the valuable reports of the Registrar-General, show that the inhabitants of Margate are singularly well off in respect to vital statistics. To exhibit at a single glance the two extremes of vitality in England, it is only necessary to remark that while in 1851-2 the number of chances of life against death in Liverpool, where mortality is greater than at Naples, the most unhealthy capital in Europe, was as twenty-eight to one, at Falmouth and at Margate it was as fifty-six to one,—or precisely two to one in favour of Margate or Falmouth. Brighton stands, alas! far below such places as Margate in this respect, being only thirty-eight to one. Hanover-square is much on a par with Brighton,—not by any means more unhealthy, rather a little the other way; but perhaps it is this harmony, shall we call it, of comparative (certainly not of superlative) healthfulness, which intuitively induces periodical flights from the one kindred climate to the other. What people seek, however, or ought to seek, in periodical visits to watering-places, is an increase of healthfulness; yet the absolute salubrity of a place as respects its own permanent inhabitants, must not be confounded with or regarded as an index and exponent to its influence on strangers, and especially invalids. There are certain *severities*, shall we call them, of climate, which, while they may so act upon native flesh and blood as to make it healthful and long lived, might cut down the transplanted invalid in a night. We do not allude to Margate, however, at present, either way. It *is* regarded as somewhat "exposed," but we cannot say, from personal experience or otherwise, what influence it may have on certain classes of invalids peculiarly liable to injury from "exposure:" assuredly its influence on its own inhabitants appears to be highly beneficial. The Registrar-General's reports, as we have before said, will ultimately shed a most important light on the comparative salubrity of towns and villages; and, perhaps, this is one of the very points in which their influence on health and life ought to be specially distinguished. Indeed, the averages and statistics of special diseases already go so far towards the obtainment of the same desideratum.

HERTFORD LITERARY INSTRUCTION SOCIETY.—A crowded literary soirée was held by this society on Thursday in last week, as reported in the local *Mercury*, when Sir E. Bulwer Lytton; the Hon. F. W. Cowper, M.P.; and Mr. T. Chambers, M.P. attended, together with the mayor, and addressed the meeting. Sir E. B. Lytton, while doing due justice to the advancement of the present age, and paying profound respect to sound and true knowledge, said,—"I think the fault of our age is, not that it underrates the value of diffusing popular instruction through the means of libraries and institutes, but rather, perhaps, to expect too great results from the mere appetite for knowledge,—forgetting that it is not the eagerness of the appetite, but the soundness of the digestion that conduces to health and vigour. Knowledge is infinite; and all the most assiduous can acquire is so limited, that the true student finds his humility increase, in proportion as his information advances. If there is anything which may justify some anxiety in a sober and discreet judgment, it is the desire for intellectual cultivation which is the most remarkable and notable feature of our times. It is not any fear of knowledge itself, but it is the pompous and inflated boast of it, addressed to our vanity by those who find it more easy and more popular to flatter than to counsel. We do not fear the faithful watch-dog, while he guards the fold and directs the flock. But we do fear him very much—at least we regard him with considerable suspicion,—when we find him foaming at the mouth, and rattled out of his wits by the noise of the tin canister tied to his tail. If we look to France, we find that they have made such a din and clatter during the last eighty years, as to the grand results to be derived from knowledge and enlightenment, that knowledge and enlightenment have been frightened away; and in that country men seem rather inclined to get rid of the watch-dog altogether, than to run the risk of being driven into madness by the clang of the everlasting canister."

THE PANTOGRAPH.—A cutting and carving machine, whereby copies of all sorts of workmanship in wood, stone, or metal, and on a scale larger, smaller, or the same, compared with the originals, may be turned out with great rapidity, has been patented by Mr. Searby, and a company has been formed for the development of its capabilities. Acting on the principle of the slide-rest or floating bed, and directed by the pantograph, the machine is moved with such facility and exactness in all the directions of the cube, under a fixed tool or tools, that it is capable of producing, in cutting, carving, or engraving, a facsimile of almost anything presented to its operation. According to their statements, "the hardest substance offered no impediment to its powers: it can turn out copies of any shape you please. It will engrave seals to any pattern; turn out an exact copy of the Medicean Venus or the Greek Slave; furnish blocks to the calico printer, the floorcloth manufacturer, the paper-stainer, and the letterpress printer; execute monumental tablets and architectural ornaments; form saw-handles; cut names and sign-boards; or do anything else which requires any sort of shape or impression to be given to the hardest materials,—performing that which appears the most difficult or delicate feat, with as much despatch, exactness, and finish, as the easiest and least pretending. We have seen, for example, two initial letters which were cut in less than one minute, but which, we suppose, it would take a skilful stonemason the best part of an hour to chisel out only half as well. The utility of the machine may be inferred from its applicability in the single department of saw-handles. One of the company's machines, managed by a man and a boy, will produce 300 handles a day from one cutter; but, as each machine may have three cutters or more, it is obvious that the entire trade might be supplied by a few machines. The machine is cheap, and may be wrought with ease by any description of power, from hand to steam.

THE METAL TRADES.—The Birmingham correspondent of the *Times*, in allusion to the recent sudden advance in the price of metals, says:—"Several branches of manufacture experience great inconvenience, if they are not suffering serious loss, from its injurious consequences. Merchants, manufacturers, and factors are alike perplexed with the present uncertain state of affairs. Some, in the belief that the present prices of iron and copper will be maintained, are inclined to speculate by making extensive purchases; but the great majority of influential firms hold back from a thorough conviction that so soon as the present orders for rails are exhausted, a reduction of the price of iron must take place. Another advance in the price of zinc has taken place during the present week. It would seem particularly unfortunate that iron and copper should be so greatly enhanced in value at the very moment when the opening of the South American ports has inundated many of our merchants with valuable orders for Birmingham merchandise. But the more serious part of the question is with respect to the exports of British iron to North America. American houses in Birmingham give it as their opinion that in all probability the late advance will set the American furnaces to work, and that in the course of a short time a reduction of exports may be anticipated." A Birmingham paper states that "several ironmasters took large orders, extending nearly to Christmas, at low prices, just before the rise of iron took place, and consequently will now lose thousands of pounds by having to pay a greater rate of wages, and also an advance upon the raw material. From this it will be seen that it is not the ironmasters who are getting the money, but the manufacturers, who are realising 9*l.* 10s. for plates, 9*l.* for bars, and 8*l.* for nailers' rods." Yet, surely, the ironmasters meant, in raising the prices, to obtain at least a share of the profits.——At Willenhall lock-making is carried on to a greater extent than ever. The brass-foundry business at Birmingham is cramped by present prices, but in articles for the winter market considerable activity prevails. In consequence of the rise in the price of iron, cut nails have advanced 2s. 6d. per cwt. and other articles 5s. beyond previous prices.——Mr. J. F. Winslow, of Troy, New York, ironmaster, has patented some improvements in machinery for blooming iron. He claims "The application of a reciprocating hammer to machinery for blooming iron, operating by a rolling pressure, whereby impurities are more effectually removed from the iron, and the metallic mass consolidated and condensed."

MEMORIAL OF WILLIAM WORDSWORTH.—It has been proposed to place a memorial to the poet in the church now rebuilding at Cockermouth. Cockermouth is the place of his birth, and he received the first elements of his education in the endowed school adjoining the churchyard. His father, also, was buried near the chancel; and here, in his honours and gray hairs, he often stood and communed in spirit with his departed parent; but as yet no public testimony has been raised in a locality so much associated with the poet's personal history. It is intended to take advantage of the present opportunity, and that the great five-light east window of the chancel should be a "Memorial Window," filled with scriptural subjects, and inscribed to his memory. Subscriptions will surely not be wanting.

DUBLIN EXHIBITION BUILDING.—On Monday, 25th inst. the first column was fixed in its place, and received the first blow from his Excellency the Earl of Eglinton. On a large table in the lawn, the plans of the intended structure were exhibited, and Mr. Benson, the architect, attended and gave the required explanations. On a signal given by Lord Eglinton, the column was lowered into the socket prepared for it, and the final blow struck. The galleries will be 18 feet from the ground, supported on metal columns 12 inches diameter, with moulded bases and sockets for reception of girders of wrought-iron trellis work (136 in number), bound with tension-rods 3 inches by 1½ inch of T iron, and weighing 8 cwt. each. The roofs, &c. are sustained by 160 pillars 20 feet high, and 30 of 38 feet in height.

ELECTRO-TELEGRAPHIC. — All the telegraph lines in the west, north-west, and south of America have united their undertakings under the title of the National Telegraph. This union embraces seventeen lines, representing 10,824 miles of telegraph, the chief office being in Cincinnati; and these 10,824 miles are connected indirectly with wires extending over thousands of other miles to every city and leading town in the States. The Cincinnati and Louisville Telegraph Company it appears in one year paid three dividends of 3 per cent. each, with one quarter's dividend retained for building the line. Their receipts for 1850 were 73,270 dols.; expenditure, 35,013 dols.; paid to connecting lines, 24,788 dols.; together, 59,802 dols.—leaving a residue of 13,476 dols. The total number of despatches recorded was 364,559.

AN ARCHITECT M.P.—Mr. James Bell, the new member for Guildford, brother of Mr. Jacob Bell, the late member for St. Albans, is a Fellow of the Institute of Architects, and in practice.

WELLINGTON TESTIMONIAL, LONDON.—A preliminary meeting was held on the 21st inst. at the Freemasons' Tavern, "to consider the propriety of erecting a permanent memorial of the nation's gratitude in honour of the late Duke of Wellington." Mr. Bilton took the chair. Resolutions were passed in acknowledgment of the services of the late Duke, and in favour of establishing a national institution to be called "The Wellington and United Services' Benevolent Institution," as a testimonial in his honour, and for the relief of veteran non-commissioned and petty officers, soldiers, sailors, and marines of her Majesty's and East India Company's services, and their widows and orphans.

* Keble, Bolt-court, Fleet-street.

Balconies.—A few months since you published some remarks of mine upon the generally insecure and dangerous condition of the balconies of third and fourth-rate houses, and also the easy mode of remedying the evil, by the use of cast-iron cantilevers. Lately another serious accident has occurred, through the servant standing upon the balcony to clean the windows: it gave way, and precipitated her into the area below; and though the result has not been fatal in this case, as in the former one, the poor girl is much injured, if not maimed for life. By again calling public attention to the subject, you may help to remedy the evil, and give at the same time a word of warning and advice.—Edward.

Wellington Testimonial in Phœnix Park, Dublin.—The Wellington testimonial at Dublin (which George IV. termed an "*overgrown milestone*"), is likely to have an equestrian statue of the late duke at its base. The original estimate for it in 1829 was 9,000*l.* A fund of 2,300*l.* is available, not including the deposits in Wright and Co.'s bank, which are calculated to produce 1,500*l.* Lords Hardinge, Anglesey, and Ellesmere are co-operating, we are told, with the Duke of Leinster in carrying out the undertaking. Subscriptions are being received, and several influential persons, in conjunction with those above-named, have taken the matter in hand.

Nottingham Brickmakers.—Hitherto the brickmakers in the parish of St. Mary, Nottingham, have paid a fixed rate of 4*l.* 5*l.* or 6*l.* according to the extent of their grounds; but now the overseers ask a fixed rate of 2*s.* 3*d.* for every thousand bricks manufactured, in addition to the rate levied on the surface rent. The brickmaker who formerly paid perhaps not more than 6*l.* or 8*l.* is thus now charged 30*l.* In three cases which recently came before the borough police court, the clerk suggested to the magistrate that they had no power to decide on the matter in dispute, which could only be heard at the Court of Appeal. As an appeal had not been laid, and as the time for doing so was past, the magistrates made an order for the payment of the sums claimed, with costs.

Defective Drainage in Bethnal-green.—At an inquest held on Thursday in last week, at Bethnal-green, relative to two deaths in Hart-lane, reported in the Registrar-General's last return, Mr. Moore, surgeon, said the place in question was badly drained, and quite unhealthy. He firmly believed the deaths had been accelerated thereby, as the effluvium was intolerable. The coroner intimated that if any other cases came under his notice arising from bad drainage, a full inquiry would be gone into, and the parties responsible be prosecuted and punished according to the Act of Parliament.

Yorkshire Architectural Society.—On Thursday last, the annual meeting of this society was held in the Society's rooms, Minster-yard, York, Archdeacon Churton in the chair. After discussing the reports, &c. two papers were read, one "An Historic Sketch of Pontefract Castle," by the Rev. R. Eaton Batty, and the other by Mr. W. H. Dykes, "On certain Mural Paintings lately discovered in Pickering Church." Mr. R. M. Milnes, M.P. for Pontefract, exhibited some original letters connected with the history of Pontefract Castle. The society proposes to hold meetings at Richmond and Selby.

Builders' Clerks.—The agitation of the question of a little shorter time for office hours, in our columns, has excited a "lively emotion" among the class whom it interests, and some of them urge that a meeting be at once called, when the subject may be discussed and put upon a fair and considerate footing, so that it may be carried out in a proper and workmanlike manner.

St. Bride's Church, Fleet-street, has, during the last eight or nine weeks, undergone a wholesome infliction of paint and whitewash, and the inconvenient pews have been re-cushioned throughout. The propriety of such movements I do not venture to question, but it is surely an act of retrogressive Vandalism that such purifications should be heralded by the "time *dis*honoured" announcement, that "*This church was beautified*, 1852," in large gold letters on the front of the gallery, with the names of the vicar and churchwardens attached. The school-boy trick of cutting the name in every available situation seems to have animated these ambitious officials.—S.

The Lambeth Sewers.—Great complaints are made to us of the bad state of the sewers in Lambeth. Wherever you go in this ill-treated and ill-managed locality, you meet either "confined air, or air that ought never to have been at liberty."

Cheap Music.*—The people at large are deeply indebted to Mr. Novello for bringing many expensive pieces of first-rate music within the reach of even the poorest purse. Music has long been rather an expensive recreation on account of the prices charged for works, but the growing love of the people for its stirring, cheering, softening, and refining strains has been worthily responded to by the enterprise of Mr. Novello, who merits their profitable patronage in return.

The late Professor Cowper.—It was with much concern we learned that this talented mechanician, lecturer, and inventor, was no more. It is not King's College alone that will have to deplore his loss. At his death Professor Cowper was only—of a man such as this one may well say *only*—62. He died at Kensington, where he resided. It happened to us to dissent from Professor Cowper on more than one occasion, when he seemed inclined to ridicule architects, or at least to aggrandize the science of engineering at their expense, nevertheless we had great respect for the man, and much regret his death.

Bedfordshire Architectural and Archæological Society.—The general meeting of this society was held at the County Library, Bedford, on Wednesday in last week, Mr. Tabolt Barnard in the chair. Various articles of interest were exhibited. The council's report was read, officers were appointed, and other business transacted. The Rev. H. J. Rose then read a paper on "Samaritan Coins;" Rev. H. J. Williams one on the "Druidical Remains of Stanton Drew and Stonehenge;" and Mr. Wyatt one containing "Memoirs of the Bedford Corporation."

Electro-Metallurgic Ornamentation of Glass, China, &c.—Mr. John Ridgway of Cauldon-place, Staffordshire, china-manufacturer, has recently patented certain improvements. The patentee's claim is "not to the solutions for coating as such, but to the application of 'electrotyping,' or electro-metallurgy, to the objects stated in the title, provided the articles be so prepared as to allow them to combine from an alloy with them."

TENDERS

For the erection of the new Devonport Workhouse: Mr. Alfred Norman, Architect:—

W. and T. May	£11,890	0	0
Philips and Toll	10,699	0	0
T. Perkins	10,526	0	0
T. Greenwood	10,498	0	0
John Marshall	10,486	0	0
Thomas Cliff	10,249	0	0
Thomas Jenkins	9,800	0	0
Robert Stitson (accepted)	9,695	0	0

The site is about one mile and a half out of the town of Devonport. The building is calculated to contain between 500 and 600 inmates. The different buildings are faced with grey limestone knobble work, from quarries between three and four miles off.

For the Bermondsey Baths and Washhouses: Mr. P. P. Baly.

Kirk and Parry	£11,137	0	0
Sanders and Woolcott	11,000	0	0
Thomas Carter	10,950	0	0
H. W. Cooper	10,782	0	0
Sissons and Robinson	9,412	0	0
Reading	9,200	0	0
Pollock and McLennon	8,976	0	0

For a warehouse for Messrs. Thomas Hubbuck and Son: Mr. George Aitchison, architect:—

Outhwaite	£2,298	0	0
Piper	2,258	0	0
Littles (accepted)	2,230	0	0
For the iron work of same—			
Dewer	272	19	5
Grissell	265	0	5
Mare (accepted)	260	8	4

* Novello's School Round Book—a collection of fifty rounds and catches arranged according to their relative difficulty. Novello, 24, Poultry, and Soho. Handel's Serenata, Acis and Galatea, in vocal score; Handel's Ode, Alexander's Feast, in vocal score.

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TO CORRESPONDENTS.

"G. N. C." "J. C." "Ig. Jack," "W. W." (various modes have at different times been given in our pages), "X." "Rev. G. G." "J. S. B." "T. B." (thanks), "Lord M." "Inquiry" (shutting up the window for time named, would not destroy the "right," if it existed), "G. B. W." "Messrs. L." "J. T." (mistake speaks for itself), "Subscriber," "J. F." (next week), "J. P." "E. H."

Errata.—In article headed "St. Paul's" p. 668, col. 3, for "not enabled us to *smite* at," *read* "smile at." P. 669, col. 2, for "They follow you and *dare* you," *read* "dun you." Lower down for "These are the more fit to make monuments," *read* "are *not* the more fit."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the Editor, and *not* to the Publisher.

ADVERTISEMENTS.

TO BUILDERS' CLERKS.

WANTED, a Young Man well acquainted with the general routine of a Builder's Office. Unexceptionable references required.—Address stating qualifications and salary expected, to J. N. at Mr. Rastall's, 24, Ebury-street, Pimlico.

WANTED, a Gentleman who writes a good hand, fully competent to survey land, fair copy land-surveyors' plans, and who will make himself generally useful.—Apply by letter, stating age, terms, &c. to Z. N. Mr. Cox's, Hatter, Glasshouse-street, Regent-street, London.

TO MASONS.

WANTED, as WORKING FOREMAN in a YARD, in a town in the country, an experienced Man, that understands drawings and setting out work.—Address, stating age and salary required, and where last employed, to W. O. Office of "The Builder," 1, York-street, Covent-garden.

WANTED immediately, by an Architect and Surveyor in the Country, an ASSISTANT, accustomed to the general duties of an office. One who has a knowledge of taking out quantities would be preferred. To state qualifications, age, and amount of salary required. Also Wanted, an ARTICLED PUPIL for a term of four years.—Address to A. Z. Post-office, Market Harborough, Leicestershire.

TO BUILDERS.

WANTED, a PARTNER, to join the Advertiser in the GENERAL BUILDING TRADE (one who could undertake the carpentering department would be preferred); and such person having from 400*l.* to 800*l.* to invest will be admitted to all the connection possessed by the advertiser (ten years' standing). The yards and workshops are conveniently situated at a short distance from the railway station in one of the principal county towns in the Midland Counties, where a greatly-increased trade is capable of being done.—Apply, by letter, to G B in care of Mr. W. D. Fyne, No. 328, Strand, opposite Somerset House.

TO ARCHITECTS, &c.

WANTED, by an Architectural Draughtsman (who has been accustomed to make working and detail drawings, and the general routine of an office), a SITUATION in Town improvement being a great object. Address, F. R B. Mr. Beaver's Library, Greenwich.

TO ARCHITECTS.

AN ARCHITECTURAL DRAUGHTSMAN is desirous of an ENGAGEMENT in town. He has a good knowledge of Gothic and other styles, colouring, designing, and perspective. Address, I. N 8, Theberton street, Islington.

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List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derbyshire Stone, also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Firestone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulines let on hire. A Stock of Northern Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to, being addressed to MARKET-WHARF, REGENT'S-PARK BASIN.

CHEAP STONE.—Paving, 32s. 38s. and 42s. per ton; flat, 1 foot; York sinks very low prices, viz. 8s. 8d. per foot; sill, 7 in. by 10d.; coping, 8id. to 11id. per foot. Chimney-pots, stone troughs, slate slabs, tiles, &c. at reduced prices. Country builders will find a decided advantage in making their purchases at this wharf, which is most conveniently situated for carriage by railway, canal, or coast. Delivered free on application to EARLE and STUCKE, Bridge Wharf, City-road. N.B. Cash prices on the wharf.

PAVING, 2s. 9d. per SQUARE YARD.—Pavements, Foot walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed. Apply to JOHN BUSKIN TON, 10, DUNCANNON BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 11, FISH-STREET-HILL. N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

PORTLAND CEMENT WORKS, NORTH-FLEET, KENT.—Messrs. ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to it a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.

Great Scotland-yard, Whitehall.

NOTICE.—PATENT PORTLAND CEMENT. The CO-PARTNERSHIP lately subsisting between ROBINS, ASPDIN, and COX, having been DISSOLVED on the 7th day of November last, by a decree of his Honour the Vice-Chancellor Turner, and an injunction granted, restraining William Aspdin, then of Frome House, Northfleet, Kent, from intermeddling with, or receiving or disposing of any of the moneys, property, or assets of the said late partnership, and from using or pleading the name thereof for any purpose whatsoever, Messrs. ROBINS and COX, being alone authorised to wind up the affairs of the late Co-partnership, request the Creditors of the late Firm forthwith to render their accounts, that the same may be discharged; and the Debtors to the late firm will be pleased, at their convenience, to pay their accounts, either at the Cement Works, Northfleet, Kent, or at Great Scotland-yard, Whitehall, where Messrs. ROBINS and COX continue to carry on their Manufacture and Trade in Portland Cement, in connexion with Messrs. Goodwin and Schmidt, under the style or firm of ROBINS and COMPANY.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above article, which, for colour, science uniformity and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who never hitherto had the necessary Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT.—THOMAS FREEN and CO. having completed their works at WOULDHAM-ON-THE-MEDWAY for the manufacture of PORTLAND CEMENT, beg to inform their friends and the public that they are now ready to supply them with cement of superior quality on reasonable terms.—Depôt, Cement and Plaster of Paris Works, Tuscany Wharf, Canal road, Kingsland road.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place as also at his Wharfs in London, 6, Upper Thames street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting Cement that requires no covering. Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and can be painted upon within a few days. Malcan's old by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank street, Westminster, and Seel-street, Liverpool.

WILLIAM ASPDIN'S PATENT PORTLAND CEMENT. Messrs. ASPDIN, CORD, and CO. have much pleasure in informing consumers of this valuable Cement that as their works are now in operation they are prepared to execute any orders they may be favoured with.
New Wharf, Abingdon-street, Westminster, Sept. 23, 1852.

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Farrans and Ford and Cements, English and French Plaster, Terra Cotta, Chimney Pots, Trusses, &c.
Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth, and Paddington-basin.

PERMANENT STUCCO WASH, WITHOUT SIZE, OR OTHER CORRUPTIBLE INGREDIENT.
As used at St. George's Hospital, Hyde Park Corner.
JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tint d to any other. DOES NOT WASH OFF—perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One coat will cover fifteen yards, and will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.
JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of its kind; it has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates, soon becomes as hard as stone; and may be cleaned with a brush and water.
The merits of the PAINT are well known for its application to stucco work of all kinds as an external wash generally. Numerous testimonials, prospectuses, and every information may be obtained on application to the Sole Agents, PHILIP HARD and Co. at the Warehouse, 28, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

POZZOLANA from the Mine of St. Paul, at Rome. CONTRACTORS, BUILDERS, and OTHERS constructing or repairing Docks, Quays, Wells, Foundations of Houses, or other works where the object is to prevent the Filtration of Water are strongly recommended to use Pozzolana, which is the only true Cement that guarantees perfect and durable solidity to hydraulic works. Mortar made of lime and Pozzolana is also particularly recommended for Building purposes. The walls are free from damp. When coloured plaster is used, the damp of the atmosphere in rainy weather attracts the saline particles in the sand, which evaporating, produces a moisture in the interior of the houses equally injurious to the furniture and to the health of the inhabitants.
Whole cargoes of Pozzolana delivered to any port of the United Kingdom on very moderate terms, and large or small quantities in London.
Apply to Messrs. A. SNIDER, PELLEGRINI, and CO. 113, Fenchurch-street, London.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg, in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and sea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.
CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.
Agent for Southampton, R. L. FLUDER, American Wharf.

PATENT PORTLAND and ROMAN and ANSTON CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for the above Cements. Many highly respectable references can be given where their cements have been successfully used both at home and abroad. Orders received and executed either from their works at Greenwich, or their wharfs, Lindsey Wharf, Chelsea; 94 Wharf, Narrow-road, Paddington; Phœnix Wharf, Whitefriars, City; Brigg's Wharf, Kingsland-road; and Messrs. COLWILL, Bros. and Co.'s, Bridge-st. Covent Garden, opposite the Office of "The Builder."
Agent at Southampton, Mr GEORGE SHARP, Union Wharf.

TO ARCHITECTS, BUILDERS, &c.
ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by HERBERT and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs (near the West India Docks), and sold at No. 1, Praed-street, Edgware-road, Paddington.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above lime is the best recommendation.
Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.
ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.
SECONDS, PAVIORS', STOCKS, and other Bricks.
CHARLES RICHARDSON, 6, South Wharf, Paddington.

GREY STONE and CHALK LIME FRESH from the KILNS DAILY.—W. PARRY, Crown Wharf, Surrey Canal-bridge, Old Kent-road, begs to inform builders and the trade generally that he can SUPPLY them with LIME direct from the Kilns, and at the Wharf, Bricklayers' Arms, Forest Hill, and Sydenham Stations, to any part of London or the country. Also, grey stock bricks, malms, and cutters, red and white facing bricks, Portland and Roman cements, plaster, hair, pantiles, plain tiles, paving tiles, chimney-pots, and draining pipes of all descriptions. Thames sand and ballast constantly on sale. A good wharf for landing goods. Country orders punctually attended to.—Address to the Wharf.

ENCAUSTIC TILE PAVEMENTS at VERY LOW PRICES.—MAW and CO. of Worcester, being about to remove their works to Benthall, near Broseley, Salop (which will be their address after Christmas), are disposing of all second quality tiles, viz. such as are somewhat defective, but which form good, durable, and handsome pavements, at prices which afford an opportunity of the most likely manner to cover of so cheaply paving public and private edifices with this useful production of mediæval art. Estimates furnished, with designs, showing the patterns, ancient or modern, arranged to suit any size dimensions; but as each application is necessary, as the stock diminishes a variety of pattern as well as quantity. N.B. MAWS BOOK of ENCAUSTIC TILE PATTERNS and their arrangements will be sent free on application to MAW and CO. Worcester.

RED KILN BRICKS can be had at very moderate prices, by applying to WILLIAM HONE, Darland Brickfield, near Chatham.

WHITE BLUNHAM BRICKS and TILES.—These Goods, so justly celebrated for retaining their colour without vegetating, and, combining great strength with a fine face, can now be obtained, in London, in various forms and sizes, and in any quantity. The Paving Tiles, Clinkers, Splays, Bullnoses, and Facings are well worth attention. Sole Agents—PHILIP HARD and CO. 28, Steel-yard Wharf, Upper Thames-street.

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.
COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutters, Paviors, Shippers, &c. &c.
KENTISH RAG STONE of the finest quality, and of the blue tinge so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.
Apply to Mr. BENJAMIN GOUGH, 37, Newington-crescent, Newington Butts.

BRICKS.—Malm Cutters, Yellow and Pale Seconds, Paviors, and Pickings, of good and sound quality, constantly on sale at the KENSINGTON BRICKFIELDS, which are only a quarter of an hour's walk from the Gate.—H. D. earnestly requests purchasers to favour him with a visit, in order to inspect his stock, and to judge for themselves.
Malm Place, half-washed Stocks, and Place Bricks also on sale. These bricks are sound, well burnt, and unusually free from defects, in very large proportion of the stock being suitable for external facing.
Apply to HENRY DODD and CO. at the Counting-house, Horton Brickfields, Grange-walk, near the Rosemary Branch, Horton.
N.B. Red and of superior quality constantly on sale upon reasonable terms. This said, from its not containing any saline matter, is acknowledged to be preferable for river and

PAN TILES, 48s.; Plain, 32s. 6d.; superior White Suffolk Facing, Red ditto, Fire Brick, &c.—Best Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, Tiles, Clay, Windsor Loam, &c.—Also, Roman Cement, Gob's, Windsor and Nonsuch Oven Tiles and Bricks, Dutch and English Clinkers, Patent Maltkiln and Corn-drying finely-perforated Tiles, 12in. and 9in. Paving Tiles, supplied in quality and colour, by WARD'S old-established Hounslow Wharf, Battersea, Southwark, London. Thames Sand, Concrete, Gravel, &c. &c.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.
ILLUSTRATED TRADE LISTS, containing much information useful for reference; also unsolicited testimonials respecting a MATERIAL which, when well wrought, is probably superior to all other fire proofs for drains or conduits, for arches, hips, valleys, and every part of roofs, for plain or chequered floors, for paving and erections, of a strong and durable nature, also many other purposes, supplied gratuitous by THOMAS PEAKE (proprietor of Peake's "Terro-Metallic"), No. 4 WHARF, CITY-ROAD BASIN, LONDON, and at THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices, by number, and approximate cost by measure. It is solicited that letters be prepaid, and state if Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 27, No. 133 (having been at first No. 111).

The Builder.

SATURDAY, NOVEMBER 6, 1852.

OUR friends in the operative classes need never hesitate about writing to us (as some of them say they do), when they have any information to communicate or suggestions to make. We trust they know that we regard with interest whatever seems likely to improve the condition of the masses of the community, and would lend any aid in our power to advance this object. We may not always be able to attend at once to matters suggested to us, and sometimes, of course, may not consider it desirable to do so at all; but such communications will always be received by us with pleasure, and be certain of our attention. To those who simply write complaining of their special circumstances (we have two such letters before us at this moment) we can scarcely be of any service beyond reminding them that,—

"We have always enough to bear—
We have always a something to do—
We have never to seek for care,
When we have the world to get through!"

"There's nothing that sorrow can yield,
Excepting a harvest of pain;
Far better to seek fortune's field,
And till it and plough it again!
The weight that *exertion* can move,
The gloom that *decision* may span,
The manhood within us but prove!
So keep the heart light as you can."

It seems to us, we may be wrong, but it certainly seems to us that the artizans of the United Kingdom have never had a better prospect before them than they have now. Nothing is to be done without industry, right-endeavour, and good conduct; but with these they all may, if they please, maintain themselves respectably, and make satisfactory progress.

"All is the gift of *Industry*; whate'er
Exalts, embellishes, and renders life
Delightful."

We will say a word or two more on this point, however, when we have noticed two or three letters from correspondents who sign themselves working men. "J. P." writing from Oxford, comments with gratification on Mr. Peto's recent reference, at the dinner of the Builders' Benevolent Institution, to his training in the workshop, but says he "should have been more pleased to have seen that he had headed a list of contributions towards the building of some almshouses for the reception of artizans, instead of leaving them to fly to our unions, and mix with persons that every industrious man abominates." He thinks "this suggestion might be carried out in the same manner as the Builders' Benevolent Institution, and that it would be responded to, not only by the masters, but the workmen themselves." None can desire the erection of a provident Retreat for building operatives, one that they have themselves contributed to and can go to as a right, than we do. It seems positively disgraceful to us that there is no such Retreat. "J. P." says "Almshouses," but we do not much like the word. For some there must doubtless be *almshouses*, but the majority might make *for themselves* a sufficient provision against misfortune and poverty in old age, if they would but rightly avail themselves of the power which the principle of association gives. That a right appreciation of this is growing amongst the upper and middle classes is shown by the fact that a sum equal to 150 millions is at this time assured to the survivors of individuals in England and Scotland, but the system requires yet to be largely extended. It must be remembered that there are two or three associations in existence, "The Builders' Foremen," "The Masons," &c. who seek to raise funds for the erection of "Retreats" for their class. What we look for, however, and what we have long advocated, is that general Provident and Benevolent Institution for all connected with building operations, supported by the architects, engineers, contractors, and workmen in one great guild or brotherhood, which would enable all with safety to make provision for the future, and lead by substantial rewards to the spread of habits of forethought and preparation.

A remark on our part, a fortnight ago, with reference to the insurance of workmen's tools, as to the want of an association in which they could confide, has brought us several letters, including one from the secretary of the London "Friendly Society of Carpenters and Joiners," founded as long ago as 1799, and which, as he says, "has always met the demands upon it." We are anxious not to throw any slur upon this or any other honestly conducted society; but the members of it know well enough how many clubs in the country with similar objects have failed, and what distress and privation have been the result to hundreds.

As to this particular society, indeed, without reference to the possibility of delinquency on the part of individuals, we venture to assert that by means of the same payments in a large and scientifically organised association much larger results could be obtained. Still, until we can get the better, we will say nothing to discourage the good. There is one rule, nevertheless, to which we must most strenuously object; and that is No. 8, which compels "each member to pay 6d. per month to the stock, and *spend one pot of porter each time his money is paid.*" The evil tendency of this regulation, its injustice, its positive wickedness, are so evident that comment is scarcely necessary, and we do very earnestly urge the well-intentioned directors of the society to rescind it forthwith, and devise some other mode of paying the "landlord" (the only motive, we may suppose, for the rule), without the train of evils which are attached to this. We speak in no captious spirit, but out of sincere good-will.

"Masters should not trust so much to foremen," writes one, himself a foreman, "but should themselves see to the progress of their various works, and pay the men themselves." Very good advice where practicable, but out of the question with the great capitalist builders of the metropolis, with their one, two, and three thousand men at work for them at the same time. "The evil is," he goes on to say, "that the foremen employ men whom they happen to know, without caring much about their worth, while many good men are left unemployed."

At the present moment we are disposed to think there are comparatively few really good workmen out of employ, and while bread and other necessaries of life are cheap, wages are high. At Manchester, in May 1725, we find two justices of the peace settling for "Maysons, carpenters, joiners, plumbers, tylers, sclaters, bricklayers, and plasterers," that "none shall take for his work for the day, without meat or drink, above 1s.—nor with meat and drink above 6d. The master-workman, who has others working under his direction, not above 1s. 2d."* They were appointed to work from "five in the morning till betwixt seven and eight at the night, from the midst of March to the middle of September; and from the midst of September to the midst of March, to work from the spring of day till night, except at breakfast half an hour, at dinner an hour, at drinking half an hour; and, in the summer half-year, they may sleep, each day, half an hour; else, for every hour's absence, to defaulk a penny; and every Saturday afternoon, or eve of a holiday, that they cease to work, is to be accounted but half a day."

"How would the joiners, carpenters, and other artizans of Manchester," says the writer we are quoting, "like to have their wages fixed in this stringent manner at the present day?" [They would not merely not *like* it, but they would not permit it, and very properly too.] "Even the master workman, who superintended the labours of a number of skilled artificers, was only rated 2d. a day above a man who merely guided the plough or handled the spade; while the master tailor was not deemed worthy of a larger sum than was paid to the mere day-labourer. The hours of labour, too, will startle some of those blind idolators of the past, who fancy that previous to the introduction of the factory system the length of a working day was much shorter than it is now. From five in the morning till half past seven in the evening, with two hours and a half for meals and rest, gives no less than twelve hours of labour altogether, one-half of which was reckoned equal to the cost of a day's board. At the present day, a Manchester joiner, who earns 4s. 4d. for ten hours' labour, can purchase a day's food for one-fourth of that sum, whence it follows that his disposable wages are 200 per cent. higher for ten hours' labour, than a man working at the same trade could have earned in 1725 by working twelve hours."

Compare the prices of things even forty years ago, with the prices now, salt, sugar, tea, butter, soap, flour, clothes;—examine, too, the increase in the average length of life (an important point), and the improvement in material condition is made evident; while if you notice the establishment of elementary drawing schools, artizans' schools, schools of design, and free libraries, you will see a good prospect opening for intellectual advancement. At all events, and we offer the advice only to such as are disposed to take it from us, and will not think us impertinent, Do not fail to give your children the advantage of the means of improvement and ultimate advancement which offer themselves; send your sons to the elementary drawing schools, and encourage in them a taste for reading.

DESTRUCTION OF THE "FIRE-ANNIHILATOR" WORKS BY FIRE.—A somewhat strange event took place on Sunday last, namely, the destruction of Phillips's "Fire Annihilator" Works at Battersea, by fire, and notwithstanding the presence and spontaneous explosion of numerous charges of the fire annihilating material. The fire was attributed to incendiary design.

* Quoted in "British Quarterly" for May last.

THE STUDY AND APPLICATION OF ART.*

Now an infinity of forms has been employed in Gothic art. Many of these are but works of inauguration, no way belonging to any one material more than any other. All such are common property. But those which do actually refer to the nature of, and mode of construction with, particular materials, are not to be quietly fathered on others that would none of their parentage. For instance, you may carve a lily in stone, or wood, or iron: the lily here is a form of common property; so also are the forms of foliage: but it would be absurd to try and erect stone rafters, or iron columns as large as a column of glass need be to sustain the same weight. Attend, also, to the proportions in which different materials must be used to bear the same weight. Of course all here know what is called the crushing weight as to various substances; and that the bulk of material used for sustaining purposes must always be in proportion to its power of resistance. This crushing weight varies even for divers sorts of brick, of which one will take twice the burden of another. Look, too, at the state of the case with respect to iron, of which the wrought is fibrous, and the cast crystalline in nature; and it will soon be perceived how much less bulk is required in the one than in the other: for where the cast is weighty, cumbersome, and always more or less unsafe, the wrought is light and elegant, and strong as the magic net wherein the wizard of the Castle of Indolence was pent. Whence may he never escape!

The best mode of study is to try and design a building in one material only, selecting which you please, stone, wood, iron, or any other: persuade yourselves for the time that this is the only substance in existence; and you will soon find yourselves engaged in as pretty a struggle and as pleasant a work for a man of judgment and imagination as you can possibly desire. You will then learn exactly what that is capable of which you have chosen; you will use every ingenuity to succeed in your design; you will meet with difficulties worthy of conquest; and must naturally discover many things that may be done which nobody thought of, because nobody, or perhaps few, have ever tried the experiment. Suppose you had chosen iron and metal only, you should be allowed to cast it in any form but such as expressly belongs to another; to have it wrought into imitation of any natural object, but especially into those in which it cannot be cast; to decorate with any colour but what notoriously appertains to some other well-known substance; then for ornament you might use the arts of science, and electrotype your beaten vine with gold or silver, where you desire the effect, and have no intention of asserting that it is solid gold or solid silver throughout: you might resort to the beautiful contrivances of science, also, to light this edifice in new and elegant ways; and you might then invite inspection to your new work. In employing but one class of materials it would soon be discovered where they failed in contrivance or effect, and there could be introduced others more suitable. But by this process as at first proposed, you would ascertain the exact capabilities of each substance, and could then combine them together to tell as poetic and beautiful an architectural tale as any idealist might desire. A correct imagination also will lead to the right choice of materials for different subjects. We cannot always go from grave to gay, from lively to severe, in the same thing; we should find it hard to be gay in granite, or grave in plaster. Nor would any one erect a marble booth at a fair, or set up an image of unseasoned wood in memory of the Duke of Wellington. According to the nature of the work and its intent, so then will be your choice; so will the place in which you use different substances; just as we pack not tiles in a foundation, nor lay blocks of marble on the wooden framework of a roof; because we cannot, it is said; very clear; we perceive all these properties where they are forced upon us; but *there* we stop. It is there that we must *not* stop. Why not? What does it matter?

What does it matter! As much as it matters to be dull and stupid from their indifference; as much as it matters to subjugate the muses to a grovelling spirit of trade and barter; as much as it matters to pervert the taste, and vitiate the imagination of our fellows through their eyes; as much as it would matter to be condemned to listen to a perpetual tuning-up and no music; as much as it would matter to be as cold, flat, formal, and unlovely in our minds as a shameful apathy can make us! Well, we are getting transcendental; we will come down from our height; we will have no fine aspirations; we will be very, very practical; we will brood over our disappointments, and give up in despair: it is all no use; let us have no fine art, but money; let the world roll on in its old dusty grooves,—who cares? And we, poor wretches, why are we always trying to rise? What has an artist, so named, to do with wings, and soaring in search of beauty and grace? No; let us sit down in the dust, and build in straw, and play with ugliness like idiots. This, gentlemen, is a tone, I trust, but of few: it is not as we think, it is not as we feel, it is not as we will act. It must be remembered, that all these things insisted on with respect to design in various substances, are under the law, not of morality, but of taste. However much men may be retrograde and slavish in your art, it does not arise, as some say, from an extraordinary desire of architectural lying, architectural fraud, and architectural goodness-knows-what-besides; it arises more from want of knowing how to act. I am not to be told that any one making a bad design has a deliberate intention of doing damage. The evil is done; but I absolve the doer in this case from the intention. It is well, therefore, to be on our guard from so extending the code of wickedness as to look upon grainers of mutation-wood as downright sinners: we believe that their work is of bad taste; but, at the same time, we do not look upon them as men to be coerced by the arm of law or avoided as lepers. There is an unlucky cant in this extreme view which were well avoided, as it tends to render morality ridiculous by making it embrace matters of taste and hedge them round with penal regulations. Let us first convince men that their works tend to an injurious effect, and not violently assail them for innocently following pursuits for which we have found no better substitute. But for those who do know, and act not according to their knowledge, there may be some truth in saying that they are in the position of men who fail in the execution of their duty. Men who ask "what does it matter?" or answer "any thing will do," are of this class, and deserve both the censure of the critic, and of all who have any soul about them.

I have now passed through the matters proposed at the beginning of this paper. We have followed the development, guidance, and application of those faculties of the mind chiefly conceived in the following of art; and we have pursued the matter in those branches which at a former time were yet left for examination. But there yet remains one question pertinent to the subject you ask. With all that is said about materials, where is the material to carry out all this reform, or even to enable us to begin it? I answer, that it is here, in this place, in the "Architectural Association." You are associated for the express purpose of endeavouring to achieve these desirable changes. Why associated? To do that in a body which is beyond the scope of any individual; to gain all the great support to be derived from mutual assistance, mutual interchange of thought, mutual esteem and encouragement.

Here the deficiencies of one in any particular branch are made up for, compensated by the skill of another in the same; one has original talent in design, another thoroughly understands the distinctive characteristics of styles, another is a master of colour as to be employed in architecture, another is accurate and faithful in the delineation of known examples. Every man has his field of operation; there need be no clashing nor rivalry; but each may, if he will, communicate his light to his neighbour, and all together, in one harmonious unity, move on to the accomplishment of great things in the advancement and development of your art. You have on your side all the advantage of the very spring and flower of life, when the heart is warm, the imagination teeming, the will ready, the whole man ardent, earnest, burning to push on. If here, then, men attend in force, if for this place they reserve the choicest efforts of their leisure, if every one is willing to communicate his own information, and ready to acquire, in return, what may we not hope for, to what may we not aspire? The very force of this society lies in the liberal principles, so creditable to its original founders, on which it is based; this is not the assembly of men who have sunk upon the silken cushions of that competency and self-sufficiency which precludes all further effort; it is one animated from all causes with the desire to advance and to be great; and imbued by the very nature of its position with that warm and fertilizing spirit, that fervour of mind, which is meeting in all classes the determination to improve, to expand, and to rise.

H. T. Braithwaite.

* See page 684, *ante*.

THE UNDERGROUND ELECTRIC TELEGRAPH.

On Monday the operation of laying down the wires of the *underground* electric telegraph between Dover and the metropolis was completed, and a junction having been effected with the submarine cable, a direct communication was at once established between the offices of the "European and Submarine Printing Telegraph Company" in Cornhill and Paris. This new line of telegraph follows the route of the old Dover coach road, passing through the several towns of Dartford, Gravesend, Rochester, Sittingbourne, and Canterbury, and has been laid down by Messrs. Frend and Hamill, of Bedford-row. The works have been rapidly done in defiance both of unfavourable weather and of direct opposition, and it is a matter of congratulation to all whose business or pleasure renders frequent communication with the continent requisite or desirable, that there *need* not now be any delay in the transmission of messages between the two countries. Whether there will be or not, or if the facilities will be developed as they should be, we have yet to see. Before the completion of this line all continental messages from London were conveyed by means of the South Eastern Railway Company's telegraph to Dover, where a break occurred, owing to the absence of direct telegraphic communication between the station and the office of the submarine company. It was partly to avoid this interruption, but mainly to save a very heavy rental paid to the South-Eastern Company for the privilege of using their telegraph, that the construction of the underground telegraph was resolved upon. The pecuniary loss involved led the South-Eastern directors to resist, even by force, in defiance of the powers of an Act of Parliament, the transit of the telegraph under their railway. This happened at Canterbury, and was carried so far that Mr. Frend, the contractor, was actually given into custody by the railway officials and taken before the mayor and magistrates, by whom he was, of course, at once discharged.

The line of telegraph of which we are speaking consists of six pure copper wires encased in gutta percha. These wires are manufactured in half-mile lengths, which (after being joined together) are protected along the high roads by wooden troughs, and in towns by iron tubes, which are respectively sunk to an average depth of two feet beneath the surface of the ground. The troughs are of simple construction, being formed by sawing a deal into three, thus obtaining a square of about 2¾ inches, with a groove cut out at the planing mills, to contain the wires. The ends as well as the tops (which latter are about three-quarters of an inch in thickness), are cut to a bevel, and so the covering is made complete and secure. In the method of joining the iron tubes, the company have availed themselves of a patent taken out by Mr. Brett, who is also (as is well known to our readers), the patentee of the process of telegraphic

printing. This method resembles very nearly that plan of dovetailing which is commonly adopted in children's dissecting maps, viz. a circular dovetail on the casting of each alternate pipe is inserted into a corresponding aperture left for the purpose in the substance of the tube next adjoining it, and so on. The company, foreseeing the possibility of injury to their wires, have provided at the end of each mile, a box, in which the continuous line of wire is coiled, for the length of some few yards, so that, should any mischance occur, the means of testing the soundness of the line, mile by mile, are at hand; for all that is requisite in such a contingency will be the severance of the coiled wire at the end of any given mile, and a trial of its efficacy up to that point by means of a portable battery. We understand that similar underground telegraphs will be proceeded with as rapidly as may be to other important towns, both inland and on the coast. Indeed, the complete success of the present experiment of carrying a telegraph beneath instead of over the surface of the ground, seems to remove any difficulties which may have been supposed to exist to a direct telegraphic communication between all sufficiently important places in the kingdom, whether proximate or not to a line of railway. The expense is of course considerably more.

Various messages were passed between Paris and London, somewhat interfered with by the dampness of the atmosphere on the French side, where the wires are not insulated. Amongst these was one to the President, wherein the company said,—"May this wonderful invention serve, *under the Empire*, to promote the peace and prosperity of the world." We do not hear that the toadyism which prompted this unnecessary observation has been honoured with a reply.

The engineers of the company are Messrs. Wollaston and Crampton; to the latter of whom much is due for the successful initiation of the *submarine* telegraph.

CHARACTERISTICS OF CINQUE-CENTO GLASS PAINTINGS.

It appears in your correspondent "F. W. O." 's letter to The Builder of the 16th Oct. (which I have had no leisure to notice earlier) that the simple point of controversy between us is, as to the truth of the two first, and as to the meaning to be attached to the last of the following paragraphs, which I used, on a former occasion, in speaking of the Cinque-Cento style of glass-painting. 1. "Here complicated foreground groups are introduced." 2. "The relative distances of the various objects are preserved by means of light and shade, and the landscape background, monotonous as it may appear in comparison with that of an oil or fresco painting, recedes, and disengages itself from the figures and architecture, imparting to the picture an effect of atmosphere." 3. "In the pictures of the Cinque-cento period, the strongest contrasts of colour, and of light and shade are employed."

Your correspondent impugns the truth of the first paragraph, because he does not find any complicated foreground group in any of the windows of the Chapel of the Miraculous Sacrament at Brussels. To which I answer, first, that I never meant to affirm that all Cinque-cento glass paintings had complicated foreground groups, but only that many of them had, as any one possessing but a trifling acquaintance with the style cannot but admit: and, secondly, that I never affirmed that the Brussels windows in particular had such groups. The original paper, which was published in your pages, and my former letter to The Builder of the 14th August, will, I believe, in the judgment of any candid reader, bear me out in the above statements.

The next paragraph your correspondent impugns, on the ground that he finds, on examining the above-mentioned windows, "that the open ground within the architecture is filled in with considerable masses of a pale blue of a lilac tone. That there is no vestige of any thing like a background, so called—neither tree, nor building, nor distant object—all flat pale blue. That this ground has, as he believes, been recently restored, as they say, in exact imitation of the old,—and that it is nearly like it there is no reason to doubt; but that the old would be more broken in tint, for that this is, indeed, *flat* to excess." To all this I might answer as before, that I never asserted that all Cinque-cento glass paintings had landscape backgrounds; or that these windows in particular had them. But I prefer to ask your correspondent whether, in his definition of "background," in the present case, he intends to exclude the architectural accessories of the design, which do obviously, in my opinion, form part of the background of the group, and are treated as the same would be in an oil or fresco painting? If he does, I will further ask him whether a representation of plain blue sky behind a group of figures, may not fairly be called a "background"—an atmospheric one if he pleases—even though no tree, nor building, nor other distant object of like nature be shown; and inquire of those who are familiar with the style, and acquainted with these windows, whether it was not the frequent practice of the Cinque-cento artists to employ pale blue glass, such as your correspondent describes, for representing—not "a ground" of blue, since a deeper blue was used for that purpose—but the effect of the firmament; and whether the pale blue in these windows was not used with that intention? I will admit that the restored blue is inferior to the original; but still it produces the effect of a clear sky showing itself between the soffits of the arches, and the figures; and, by apparently receding, it disengages itself from them perfectly. It therefore, as I submit, bears out my allegation, though perhaps not to the extent that the original blue glass might have done.

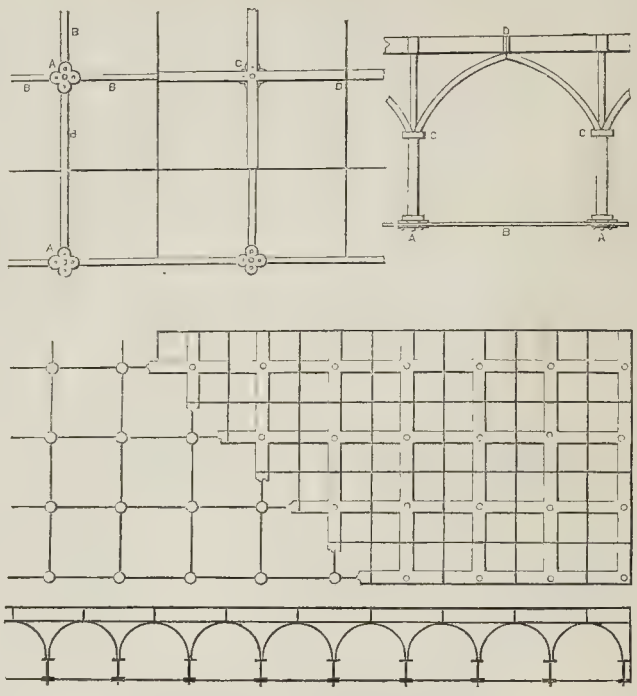
With regard to the last paragraph questioned by your correspondent, I readily admit that, had I been writing a treatise on the different styles of glass painting, instead of a slight sketch of them by way of introduction to another subject, I should not have failed to qualify the statement contained in it respecting the strength of the shading, by confining that strength to such a limit as would not be incompatible with the transparency of the shadow. But, notwithstanding the inadvertent generality of the statement, I think it sufficiently appears, from the whole tenor of my paper in The Builder, that all I intended to affirm was, that, a more powerful effect of light and shade is exhibited by a favourable example of the Cinque-cento style, than by any glass painting belonging to any preceding style. I could, indeed, justify the literal correctness of my statement, but I prefer to take it in the sense I originally intended it should convey, as this will reduce the difference of opinion between your correspondent and myself to the lowest limit. He says that the Brussels windows are as light, or even lighter, in colour, than the Late Perpendicular; certainly lighter than some contemporary windows, —in which I quite agree, it being a characteristic of the glass painters, especially of the Flemish school, during the Cinque-cento period, to avoid as much as possible the use of the more positive colours. But I differ from your correspondent in thinking that these windows do not exhibit very strong contrasts of colour and of light and shade. To what is it then, that, as pictures, they owe their extraordinary distinctness of effect? It cannot be the nature of their design alone, because I have seen earlier Cinque-cento glass paintings, similar in design to the Brussels windows, but which, being deficient in shadow, or defective in the arrangement of their colouring, are as confused in effect as a Gothic window in the most approved court-card style. Neither can it be any extraordinary depth of shadow, for, as your correspondent rightly observes, in no part of these windows is the shadow made so deep as to be opaque. Neither is it the perspective lines, for these windows appear to be almost equally in relief when the eye is so far closed as to render the perspective lines invisible; and besides, as I said before, I have seen windows, having similar perspective lines, which, notwithstanding, appear flat. On the whole, I think, it will be found that the success of the Brussels windows depends, principally, on their contrasts of colour, and light and shade. The white mass of the architecture is contrasted with figures nearly or entirely coloured. The dark soffits of the arches are contrasted with the pale blue sky, and this again with figures or other objects, which, being darkly shaded towards their edges, appear as if they were thrown against it; as in some of the pictures of Francia and other early masters. Your correspondent has noticed the opposition of a positive blue to the pale blue, or rather grey, of the sky. In one instance the contrast is very striking; a blue shield being suspended from an archway right against the sky, causing it to retire in an extraordinary manner. Throughout the windows the principle of relief by means of sharp lights contrasted with strong, and not unfrequently hard shadows, is very perceptible, by which means distinctness is promoted without any loss of brilliancy. It would not be easy, without the aid of an engraving, to describe these windows properly, and the contrivances resorted to for producing distinctness in a material whose scale of transparent shadow is so limited; but I trust that I have stated enough to justify my assertion, that the best Cinque-cento glass paintings are distinguished from those of the preceding styles by strong contrasts of colour, and of light and of shade—especially as your correspondent expressly admits that the Brussels windows are less *flat* than Late Perpendicular ones, stating that "the shaded roof and the careful perspective" in the Brussels windows "give an appearance of positive recess."

It is not my intention to question the rules which your correspondent has been so good as to lay down for the guidance of all future glass painters, further than to remark, that if rules to the like effect were applied to other kinds of painting, they would lead to the condemnation of works which have obtained the suffrages of the learned and experienced; and deservedly so, if their world-wide celebrity and popularity are entitled to any weight. Nothing is easier, or more imposing, or more dangerous, than to attempt to enunciate abstract propositions in regard to subjects whose principles are far from being thoroughly ascertained. In such cases it is often safer to trust to the suggestions of those instincts which are naturally implanted in us. Thus, in judging of a painting, the practical question is, "Does it look well?" A question which commonly receives the soundest solution from our innate perception of form and colour. Judged by this standard, I am bold enough to say that the Brussels windows, notwithstanding their supposed attempt at illusion, are admirable both in design and execution. As "a practical commentary" on this opinion, I may refer to the practice of perhaps the best glass-painter of the day, M. Capronnier, who has abandoned the comparatively flat style, seen "in the windows of the small chapel behind the high altar," for the more forcible style adopted in "his window over the altar in the Sacrament chapel,"—a window which happens to have been executed some years subsequently to those first mentioned, and not previously to them, as your correspondent erroneously states. Thus fortified, I think I was justified in recommending the introduction into St. Paul's Cathedral of windows similar in design and execution to those in the Chapel of the Miraculous Sacrament at Brussels.

C. Winston.

Brick and Pottery Clay in the Exe.—An extensive deposit of a red matter, called "black mud," in the estuary of the Exe, has been analysed at the instance of Mr. Phillips, of Clist Honiton, and found to consist almost entirely of an earthy matter, which produces pottery equal, it is said, to that produced at Bridgewater, and bricks of a finer description than any made in the Exeter brickyards. The clays deposited in estuaries generally ought to be examined, as many of them would be found to be valuable. In fact, it was in ancient estuaries and seas chiefly that clays of all sorts, though now inland, were originally deposited.

TENSION CHAIN-NET FLOORS AND ROOFS.



TENSION CHAIN-NET FLOORS AND ROOFS FOR SPANS OF 500 FEET.

It has long been a desideratum how to cover in the largest possible space either as a floor or a roof, resting only on the enclosing walls, without intermediate supports in the form of columns, and distributing the strain equally over the whole floor or roof, and also equally over the whole of the supporting walls. In the usual mode of structure for roofs, the principals bear on the walls only at intervals, and thus a small portion has to carry a large load. In floors, large girders are also supported at intervals, and a comparatively small area of wall has to take the whole load. Of the advantages of a clear space without columns, all persons must be aware who may have sat behind one at a lecture or theatre. The structure I am about to describe is very simple, being in truth only a repetition of parts or types, not more than nine in number, including fastenings. The present design shows a span of 200 feet, giving an area of 40,000 square feet, or 400 building squares.

Two short links of the form shown at A A, figs. 1 and 2, are pierced with five holes each, and thus form a pair of jaws, in which are inserted four long links, B, secured by four bolts passing through all three thicknesses.

Over the centre hole is placed a cruciform standard, C C, shaped like a turnstile, and it is fixed by a bolt passing down the centre and through the two short links. The links are ten feet long, and the arms of the standard five feet each way to the centre of the link: each arm is there met by the arm of a similar standard, D. D. figs. 1 and 2, and the two are connected together. As there are twenty links each way to make up the 200 feet, a net is formed of 400 meshes or squares of ten feet each. At every intersection is placed a standard. Thus the net affords a tension strain below, and the standards a compression abutment over the whole surface above. The chains, of course, are of wrought iron, and the standards may be of cast iron, or of wrought iron if preferred. The central links must of course be of greater strength than the external ones. Now, as holes may be broken in a net without destroying the strength of other parts, so the breaking or severance of a number of these links would not cause the roof to fall down so long as material enough were left in the others, and therefore it is a very safe construction. It is also a construction susceptible of considerable elegance and ornament. The chain links may be of flat or round bar, or fluted, or of open work, or ornamented on their mid-length, and the short links and the nuts may also be very ornamental, being manufactured by punching. The standards may be of Gothic or other construction, and are susceptible of many kinds of ornament.

The squares of 10 feet are intersected by one or two intermediates, dividing them into squares of 5 feet, or 3 feet 4 inches. On these squares are laid sheets of thick glass, between dividing ribs, which are cast on the metal and kept below the thickness of the glass. The glass is fixed and rendered watertight by strips of cork or other elastic material, and thus the same process that keeps wine in a bottle keeps water out of the building, and is not affected by variation of temperature.

Where the four standard arms meet each other, wedges may be used so as to camber the roof up to any curved form that may be required to throw off water. The glass may be coloured, and thus every required effect may be produced. The glass can, if preferred, be made with edges turned down to clip over the ribs like a hat-box lid: this kind of roof would well suit a greenhouse or would cover in a courtyard, such as the internal courts of the Parliament Houses, or for an Exhibition building, as at Cork. As it would be amply strong to walk over, there would be no difficulty in drawing blinds over it, or in opening or closing the squares of glass. Every square might, if required, be covered with a Gothic lanthorn, or with triangular sheets of glass in a pyramidal form. A very beautiful groined ceiling might be produced in this mode. The mechanical arrangement is also well adapted to railway stations, when a large space is required free from columns. Although this roof is shown flat, it is obvious that the same construction is applicable to an arch or dome roof, in such case each standard serving as a wedge by simply elongating the arms.

When used as a floor, this structure may be covered above with sheets of sawn slate, the edges stopped with cork, as before described, or wood pieces may be inserted between the slates to lay flooring-boards on. Other slates can be laid, if required, on the tops of the tension-rods to form a ceiling, and thus a hollow space, fire-proof, formed for the purposes of warming and ventilation, may be obtained; or by attaching timbers and laths, or interweaving wirework to the tension-rods, the ordinary plaster ceiling may be produced, either plain or panelled. But the object of the inventor has been to produce a mechanical construction, the arrangement of which, while permitting cheapness and facility of execution, should, while showing the whole of the structure, yet be susceptible of as great a variety of ornament as any class of architecture extant.

The whole of the short and long tension-links are so simple, that any manufacturer may furnish them at a price little above that of merchant-bar. The only requisite is, that the punches be fixed in a tool especially made, in order to insure that all may be exactly alike. The bars may, if required, be rolled with swells round the eyes to diminish the weight of metal. The castings may be in one piece with the column that rests on the chains, or in two pieces. The architect would merely have to furnish the designs for a single casting. The proportion of depth to span would be about one to fifteen or twenty, according to circumstances.

W. Bridges Adams.

CAUSES OF RAILWAY ACCIDENTS.

CAPTAIN HUISH'S ESSAY.

CAPT. HUISH has been for some years the general manager of the London and North-Western Railway, and he therefore brings to the subject much personal and practical experience. At the present moment, when the delinquencies of railway companies, both in regard to safety and to punctuality, are being brought prominently before the public, the expression of his opinions is valuable.

After a vague allusion to other sources of accident, — those attending conveyance by horses—those occurring to pedestrians—the casualties to steam boats, and deaths in mining,—it is pleaded "that due regard must be had to comparative results," and that undue importance has been given to railway accidents owing "to the statistics of railways, and the periodical publication of the Government returns." That this is so perhaps cannot be denied. But no arguments can be founded on things so utterly dissimilar and distinct. Nor can the evils and dangers attending on one system afford any palliation or excuse for those which attach to another. If comparisons are requisite, surely there should at least be similarity in the things compared. For instance, the accidents on English lines might have been contrasted with those on French and American railways: or even the English lines alone might have been compared the one with the other. Then, indeed, we should have been better able to judge which system was attended with the greatest immunity from danger, and how far the practice of one line could be beneficially altered by the experience of another. But instead, all is simple generality, and throughout the whole paper, statistical details of accidents are carefully avoided. Such a table would be exceedingly useful, particularly if it embraced the results for several years back. It would fix the data on which arguments might be based, and indicate the direction in which alterations and improvements were required. It would, in fact, be doing for the whole railway system what Capt. Huish has done in this paper for the locomotive engine. There could not then be the same discrepancy, as there now most assuredly will be, between the conclusions from his paper arrived at by the different parties, by the railway interest on the one side, and the public on the other.

A great point at issue is, whether safety is, or is not, dependent on punctuality, to the degree the public believe. Accidents arise from various causes. They may be the result of utter carelessness on the part of the individual passenger: they may be produced by obstructions accidentally or wilfully placed on the line: they may even, at times, be attributable to other causes over which the company has no direct or immediate control: yet in each of these cases much depends on efficient regulations, and a due vigilance on the part of the *employées*. But all combined are not the fatal, and certainly not the prominent sources of accident. On the perfection of the road, or "permanent way," depends the safe and economical working of a railway. This has, at all times, been felt by engineers to be the case. Accordingly, more attention has, perhaps, been directed to every detail of the permanent way, than to any other part of the system. The result has been most satisfactory. For, notwithstanding the increased weight, and the increased speed of trains, "it is remarkable how very few accidents have arisen from the road itself." The carrying stock, so far as the locomotive engine and passenger-carriage are concerned, may also be regarded in the same favourable light. Not so the merchandise-waggon, which is stated to be in many instances faulty in model and material. Their want of accordance in size, in the height and gauge of the buffers, and in the mode of coupling, renders accidents, especially to property, of frequent occurrence. The bad quality of the material and its injudicious distribution also tend to the same result. Captain Huish, therefore, suggests that, either by general concert, or by compulsory regulation, the height and gauge of the buffers should be made uniform. Until such time as they are, he says, the risk of accident, and the certainty of damage must continue. As this is really the only practical remedy suggested in the paper for those evils which are repeatedly alarming and surprising mankind, it is to be hoped that no time will be lost in giving it effect. However, the railway itself, and the machinery employed upon it, do not produce, it seems, "a tithe of the accidents which result from inattention to signals, and the neglect of regulations." Here, then, is the bane (presumed at all events) of the system. But we are told, for our author is a bit of a philosopher, as well as a railway manager, that "so long as machinery is material, and human nature fallible, it is to be feared, that although experience and skill may diminish, they will not prevent the recurrence of events that startle society, and cast blame on railway management." So the fallibility of man is the only explanation that can be offered for inattention to signals and neglect of regulations. Has it not, on the contrary, been repeatedly proved, that the regulations are frequently of so conflicting and contradictory a character, that it would puzzle the most ingenious to unravel them? Has it not also been shown that a single individual is often called upon to perform so many various and numerous duties, that their due performance simply amounts to an impossibility? Yet in spite of this, and notwithstanding the rapid increase of traffic, by the opening of new lines and branches, and the further development and extension of the system, it would appear, from Captain Simmons's last report to the Board of Trade, that the number of *persons engaged on railways has been actually diminished*.* But more than all, is it not notorious, that the gradual reduction of wages and salaries has tended to lower the standard of ability of those employed? The mere diminution in numbers is natural enough. It is what might be expected to take place, from improvements in the plant and machinery, and from each person having a more perfect knowledge of his duties. This is, however, only a stronger reason why those who remain should rather be better paid than underpaid.

With regard to punctuality, our author says, that "great weight is generally attached to the question of regularity in the times of the trains, as an essential element in their safety, and whenever an accident occurs, the press and public opinion, as expressed through a jury, seize on this point as the primary cause of the mishap;" whereas, "under a well-regulated system of signals and with a well-disciplined staff, *the greatest irregularity*, whatever inconvenience it may produce, *ought* not to lead to danger." Ought not; but the public say that danger does occur in consequence of irregularity. And there is seeming truth on their side, for there is a remarkable concurrence between delay and accident. In by far the greater number of instances, it will be found that, whatever other causes may have helped to produce the disaster, want of punctuality is invariably one element. This view is singularly enough borne out by an opinion expressed by Captain Huish in an earlier part of his paper. After analysing a thousand cases of engine failures and defects, he says, "Very few, indeed, of the above failures are attended with any direct danger to the public, but, as producing a temporary or permanent inability of the engine to carry on its train, *may be the remote cause of collision*." Signals were introduced as auxiliaries, as a means of averting danger when irregularities arose. Here they are absolutely looked upon as offering a premium for irregularities. It is quite possible that so frequent are the delays, and so frequent the necessity for the use of the danger-signal, that occasionally it is disregarded. But considering the "fallibility of man," it would be a much more natural and practical remedy to endeavour to remove the necessity for complete dependence on his constant vigilance and undivided attention. Clearly if you reduce the amount of irregularity, and the necessity for using these signals, you remove a great part of the chance of danger from "inattention to signals and neglect of regulations." The railway system must be looked upon as a gigantic piece of complicated clockwork or machinery. So long as every part of the machine is in perfect order, all goes well. So long as every train comes round in due succession, all is right. When once, however, a part of that machine, or a train of that railway, is out of order or out of place, the whole thing goes wrong. Confusion, in fact, takes the place of order. True, the immediate impediment may be removed,—the immediate difficulty may be prevented,—still it is only at the expense of some other part of the machine or the system.

* Capt. Huish has since given an explanation of this in the *Times* newspaper, but not satisfactorily.

NOTES IN THE PROVINCES.

Liverpool.—The foundation-stone of a new and enlarged building for the Liverpool Licensed Victuallers' Association Asylum and Schools was laid on Thursday in last week. The site is upwards of an acre of ground, on the south side of the West Derby-road, and cost about 3,000*l.* The style of the building will be Elizabethan. It will be approached by a terrace-walk, about 4 feet high, with steps in the centre. The building will be of patent red brick, with white stone mouldings and dressings. The centre or main elevation will be three stories high. The ground-floor will comprise a vestibule, committee-room, boys' and girls' school-rooms, dining-rooms, and ante-rooms. Each school will receive about forty scholars. Childrens' dormitories, and apartments of master and mistress, will occupy the first-floor; and the third story will be used for invalids and domestics. The offices will be on the basement. The alms-houses will form handsome wings, there being six on each side of the centre building. Each of these will be a compact cottage, with kitchen and parlour on the ground-floor, and two bed-rooms above. The length of the building will be 216 feet. The design and plans have been prepared by Mr. William Daish, architect, and have been presented gratuitously to the committee of the institution. The estimated cost of the edifice is about 2,500*l.* and it is expected to be completed by the middle of next summer.

Salford.—A new Baptist chapel has been completed and opened in Great George-street. The style is Early Tudor, of which there is no similar example in Manchester or Salford. It is composed of stone and bricks on a plain surface, relieved by blue bricks wrought in ornamental characters, in keeping with the style of architecture. The building is entered from a flight of steps, of Yorkshire stone, leading to an open porch, extending across the entire front of the building, and communicating with two subsidiary porches, forming vestibules to the gallery and to the ground-floor of the chapel. In front there are two towers, one of which contains the staircase to the gallery, and another a room for the chapel-keeper, and other rooms of minor importance. The towers are finished with a gabled termination on every side. The roof is an upright slated one, of an ornamental form. In the chapel there are two principal aisles, with side seats and a centre range. At the south end, where there is a stained seven-light window, a gallery is erected for Sunday-school children. On each side of the chapel there are six windows, and at the north end, behind the choir, there are five stained lights in a sort of octagonal projection. Behind the lectern is a large chair, used by the pastor instead of a pulpit. Side galleries may hereafter be erected for at least 400 people. Under the chapel is a school-room, for 400 children. The baptistry, under the choir and behind the minister's seat, is capable of containing about 1,200 gallons of water. The aisles are laid with tesselated pavement. The stone used in the erection is from Hollington, Staffordshire, and the tesselated pavement is from Peakes, Tunstall, in same county. The cost of the chapel, which is seated for 700 persons, was 2,000*l.*

Blackburn.—The foundation of the town-hall was laid on Thursday in last week, on the north side of the market-place. The design is in the Italian style. The principal front presents a range of Corinthian columns, on a rusticated basement, the entablature sur-

mounted by an attic and perforated parapet. The entrance is in the centre, and consists of three ornamental iron gates, opening into the vestibule. The window and door openings are all arched,—those of the ground floor having rusticated dressings; and the first floor more enriched, having pilasters, archbolts, and ornamented keystones. The magistrates' entrance is on the south front, under a portico having Doric columns, pilasters, and entablature. The fall of the ground on this side has rendered it necessary to have a flight of steps outside to gain the level of the floor. The police court will also be on this side, and will be reached by a flight of steps concealed behind the parapet of the area. On the east floor is the entrance to the prison court-yard through a gate of rusticated masonry. There are two entrance doorways, one on each side of the gate. The north front is of much plainer appearance than the others. The public entrance to the court-room is in the centre through an arched doorway. The building will occupy an area of nearly 2,000 square yards, exclusive of the vacant areas and prison court-yard. The height from the footpath in front to the top of the parapet is 62 feet. The principal entrance is from the west, going directly into a vestibule, 49 feet 6 inches by 36 feet; on one side of which is a news-room, 51 feet by 37 feet; and on the other the council-rooms, occupying a corresponding space. Behind the vestibule, and divided from it by a corridor 9 feet wide, is the court room, 54 feet by 35 feet, lighted by a glass dome, 12 feet diameter. On the south side of the building are—a magistrates' room, 25 feet by 18 feet; a police court, 36 feet by 24 feet; clerk's office, and other rooms connected with the courts. The north side is arranged for collectors' and surveyors' offices, and a house for superintendent of police. On the east side, within the court-yard, is the police-office and prison, containing eighteen cells. The first floor is reached by two stairs, one from each end of the corridor behind the vestibule. One of these stairs is 24 feet square, and the other 23 feet by 12 feet. They lead to a corridor 9 feet wide, from which the various rooms are entered. The west front is wholly occupied by a large room for public meetings, 114 feet by 50 feet, and 34 feet high, affording sitting room for upwards of 1,200, and standing room for 3,600 persons. There are five doors to this room, each 4 feet 6 inches wide. The other rooms on this floor are laid out as side and ante-rooms in connection with the large room, so as to afford accommodation for balls, assemblies, &c. and also for committees of council and improvement commissioners. One of these rooms is 44 feet 9 inches by 24 feet 6 inches. On the second floor are two sets of rooms, arranged for the various offices, &c. of the commissioners. In the basement are cellars, furnace, and other rooms connected with the warming apparatus, water-closets, and other conveniences. There are two towers, containing ventilation shafts, each tower above 80 feet high. All the stairs are to be of stone, and the corridors, passages, &c. leading to the public rooms arched with brick. The estimate for the building is 22,119*l.* The architect is Mr. Patterson, of Blackburn; and the contractors are Mr. W. Stones and Mr. Thomas Hacking, also of this town.

Coventry.—The lowest tender for the main sewer through the town has been accepted, and thus for something less than 5,000*l.* the town will, after a delay of two or three years, be furnished with the means of passing away the refuse which now forms the source of disease and pestilence, to a locality where it may be converted into a means of profit and fertility.—*Coventry Herald.*

Ashbourne.—Measures are being adopted for the erection of a market-house, in connection with the proposed new building for the Literary Institute of this town.

Kexby.—The church of St. Paul, Kexby, in Yorkshire, has been erected on a site nearly in the centre of the village. It is of the architecture of 14th century, and has cost probably 1,500*l.* It is calculated to accommodate a hundred and fifty people, and is about 60 feet long, consisting of nave, chancel, and small north aisle of two arches towards the west. The entrance is in the centre of the west gable, under an open stone porch. A wooden screen, with the arcades pierced for plate glass, separates a small antechapel from the body of the church. The nave has three two-light windows on the south, two single-light windows on the north, and a two-light west window over the porch. The chancel has a three-light window to the east, and a single light upon the southern side. The most ornamental portion is a bell turret on the north side of the west front, projecting about half its width from the general line of front. It is square at the bottom, working into an octagon about ten feet above the ground, and terminating in an open lantern, surmounted by a spire. The entire height to the top of the metal cross is about 60 feet. The chancel is raised two steps above the nave, and the floor of communion-table two steps above chancel. The greater part of the timber is deal, stained, but the pulpit and reading-desk are of oak. The walls of the church are built externally of Collingham stone, and the interior of Clifford Moor stone, while the window dressings and more finished portions are from Whitby. Over the aisle and chancel arches, and over the windows, several texts of Scripture are introduced in ornamental painting. The architect is Mr. F. C. Penrose, and the builders are Messrs. Shaftoe and Bacon, of York. The carvings in stone were by Mr. Bradley, and those in wood by Mr. Jones, also of York. There is an illuminated painting by Mr. James West, of London. A commission, according to the *York Gazette*, has been given to Kellner, the glass painter, of Bavaria, to execute the stained glass for the eastern and western windows, the pattern of which is to be similar to that in the "Five Sisters" in York Cathedral.

Osmotherley. — Waterworks were lately opened at Osmotherley, near Northallerton. The town, it is said, will thus be plentifully supplied from an excellent spring. A tank, capable of containing 4,000 gallons, has been constructed from the plans of the engineer, Mr. Lynde, jun. Great George-street, Westminster. The pipes from the tank have been carried through the streets, and at convenient distances are placed taps, where water can be obtained at all times by those who have not had it laid on to their houses. These works have been completed by voluntary rate, and will amply repay the outlay.——A mechanics' institution, not long ago, was also established in this town, and has a useful selection of books, and a reading-room attached to it, well supplied with the journals of the day.

Greenock.—The People's Park, at the east end of the town of Greenock, and for which the working men of the town are indebted to the kindness of Sir Michael R. Shaw Stewart, is now nearly finished. The ground has been laid out on a design by Mr. Stewart Murray, of Glasgow. It extends to about eight acres, and has a considerable declivity from south to north; its breadth from east to west being 170 yards. It is provided with cricket-ground, spaces for various gymnastic exercises, bowling-greens, and ornamental plantations.

St. Helier's.—Cut granite pedestals for cast-metal receivers for letters, as assistant post-offices, according to the *Jersey Times*, are now being put down in various parts of this town and suburbs.

CRITICISM.*

THE clever, though negligent, may perhaps think it pedantic to insist on the necessity of writing with correctness, elegance, and good sense. Men want as frequently to be reminded as informed; and it is not sufficiently considered by writers who flatter themselves with opinions in favour of their own powers, who think they cannot easily err, and have nothing more to do than trust their own genius, that to criticise well requires an able judgment and a comprehensive knowledge in literature. The rules which such treat with contempt or affect to contemn, serve to counteract the vicious influences that tend to degrade both language and criticism. Bruyére truly remarks:—"Criticism is as often a trade as a science, it requiring more health than wit, more labour than capacity, more practice than genius. If a person who has less discernment than study pretends to it, he will but corrupt his own judgment as well as that of the readers."

To comply with the maxims of composition, to desire that the expression be proportionate to the subject considered, is not, as some suppose, the tyranny of pedants, nor does it necessarily cramp originality and invention; but it checks caprice and affectation, which always disgust when discovered. Mere obedience to rules is of course insufficient. They prevent such as are more bold than judicious from committing great faults.

Criticism was allegorically called the eldest daughter of Labour and of Truth; she was at her birth committed to the care of Justice, and brought up by her in the palace of Wisdom. It must therefore be the result of much and varied experience; it must possess powers educated in the highest degree. It will show the confidence it has in its superiority, and carry the conviction of it to others. It will pronounce its opinions of the merits of any production with a certainty of judgment; but so difficult is this, that he who once depends upon any other resource but experience and tact, will make egregious blunders.

As the eye is attracted to a noble building or a splendid painting, all that language offers of suitable decoration should be used to give force and charm to its description. We want the latter to produce an effect analogous to the former. The mental labour bestowed in praise of those masterly works of art is the best tribute to their distinguished merits.

Pope celebrates in well-known lines* those beauties uncommon and *above rule*, which, making their direct application to the heart, and gaining it, afterwards procure the concurrence of the judgment, although habituated to judge only *by rule*; but such effects are attainable only by few. Labour is necessary to all excellence. It is folly to avoid the toils by which accuracy is obtained, and by which the critical powers are established. The author of "Hermes" says on this subject,—"The misfortune is, that genius is something rare; nor can he who possesses it even then, by neglecting rules, produce what is accurate. Those, on the contrary, who, though they want genius, think rules worthy their attention, if they cannot become good authors, may still make tolerable critics; may be able to show the difference between the creeping and the simple, the pert and the pleasing, the turgid and the sublime; in short, to sharpen, like the whetstone, that genius in others which Nature in her frugality has not given to themselves."

Even now, as formerly, the idea of beauty is vague and undefined, varying with the differences of education, habits of life, and condition of every individual. The term is sometimes applied to that which pleases men, they know not why; sometimes to that which is only the result of certain conventions. "We pronounce things beautiful," in the words of Dr. Johnson, "because they have something which we agree, for whatever reason, to call beauty, in a greater degree than we have been accustomed to find it in other things of the same kind; and we transfer the epithet as our knowledge increases, and appropriate it to higher excellence, when higher excellence comes within our view." It is the task of criticism to show out of what customs, circumstances, and prejudices the contrary opinions entertained on this subject arise; to establish certain principles; "to distinguish those means of pleasing which depend upon known causes and rational deduction, from the nameless and inexplicable elegances which appeal wholly to the fancy." The critic, thus furnished with the ideas of beauty that most conform to the *general truth* of nature, learns how they are capable of adaptation to practical purposes, and to the fine arts.

It is thought necessary, also, to be able to detect falsehood and deformity, in order to be capable of admiring—or to admire the more—truth and beauty. And the critic will know from the class of objects men take most delight

* See p. 689.

* Essay on Criticism, v. 152.

in, or from the peculiar pattern they choose to wear or to imitate, the degree of cultivation that their minds have received. The refined few consider simplicity the feature of greatest merit in ornament; the trifling, the vulgar, and the ignorant, prize only what is striking and costly—brilliant in colours and showy in contrast. Nothing can severely or more truly satirize this taste than the fancy of the negro chief in the interior of Africa, who received an Englishman's visit of ceremony in a drummer's jacket and a judge's wig.*

To acquire true and settled notions of beauty, those works which have been admired by the most enlightened, and which have stood the test of time, must be studied, and kept constantly before the sight. The best specimens of the best masters must be repeatedly inspected. No correctness or certainty can be arrived at without abundant experience of their merits. The critic should remember that knowledge and taste are progressive; to be reached only by great labour and by an unceasing exertion of the powers of observation, comparison, and reflection on that which is universally allowed to be most perfect.

F. L.

* Walker's "Original" article, "Ornament."

THE PECUNIARY RESULT OF MODEL HOUSES FOR THE LABOURING CLASSES.

MR. H. ROBERTS has drawn up a statement to be added to the report of the General Sanitary Congress, recently held in Brussels, which proves the success which has attended the model houses, and the encouragement they afford to a general adoption of the principle on which they are established, viz. that of providing for the working population healthy and convenient abodes, to be let to them at such rents as will return a fair rate of interest on the amount of outlay, after the payment of all current expenses.

The first range of dwellings built by the Society for Improving the Condition of the Labouring Classes was the "Model Buildings" near Bagnigge Wells, for twenty-three families and thirty aged women, with two small washhouses used by the tenants. On these buildings, commenced in 1844, and occupied in 1845, the sum of 5,325*l.* was expended, besides 1,045*l.* paid for the land. The rents received average 391*l.* per annum. The taxes and current expenses, exclusive of repairs, are 83*l.* per annum, leaving a return of about 4·33 per cent. on the cost of the buildings, and of 4 per cent. on the cost of the land.

Their second range of dwellings was the Model Lodging-House for 104 single men, in George-street, Bloomsbury, commenced in 1846, and occupied in 1847: the cost of this building was 4,289*l.*; the cost of the furniture 936*l.* and 1,200*l.* was paid for the land. The receipts from the lodgers, at 2*s.* 4*d.* per week, amount on the average to 614*l.* per annum. The taxes and current expenses, exclusive of repairs, are 308*l.* per annum, leaving a return of about 5 per cent. on the cost of the building and furniture, and 4 per cent. on the cost of the land.

Their third range of dwellings was the Model-Houses for fifty-four families, in Streatham-street, Bloomsbury, commenced in 1849, and occupied in 1850. The cost of this building was 8,860*l.* the land being rented at 50*l.* per annum. The rents, since the addition of six tenements to the forty-eight originally provided, are at the rate of 745*l.* per annum. The ground-rent, taxes, and current expenses, exclusive of repairs, are 235*l.* per annum, leaving a return of 5·75 per cent. on the amount of outlay.

Their fourth range of houses was the "Thanksgiving Model Buildings" in Portpool-lane, Gray's-inn-lane, built in commemoration of the removal of the cholera. They were commenced in 1850, and occupied in 1851. Dwellings are provided for twenty families, and 128 single women. There is also a public washhouse for the use of the neighbourhood, fitted with thirty-four tubs, and on the basement floor a depository is formed for huxters' goods. The cost of these buildings was 9,500*l.* exclusive of 1,700*l.* paid for the land. The amount of revenue derivable from the whole cannot yet be stated, owing to the time required for bringing into full operation the washing establishment and the huxters' depôt. The house for single women has also filled more slowly than the family houses, although each woman pays only one shilling per week for half a furnished room.

In addition to these four ranges of new buildings, the Society has taken on lease, altered and adapted, two piles of old dwellings. One in Charles-street, Drury-lane, to accommodate eighty-four single men, at an outlay of 1,163*l.* The receipts from the lodgers, at fourpence per night, average 415*l.* per annum: the rent, taxes, and current expenses, exclusive of repairs, amount to 222*l.* which leaves a clear return of 17 per cent. on the amount of outlay.

The other old building altered and adapted by the Society is a lodging-house for fifty-seven single women, in Hatton Garden. This house, on which 1,045*l.* was expended, is let as a depôt for female emigrants, at a fixed rent, returning 7½ per cent. on the outlay.

The total expenditure on the *six* buildings above described, with the furniture of the lodging-houses, is 31,118*l.* and on the land or site of three of the buildings is 3,945*l.*; the net return, exclusive of repairs, from those fully occupied, being at the rate of about six per cent. on the buildings and furniture, and of four per cent. on the land.

In reference to the outlay on repairs, the experience of the Society shows that, taking new and old buildings together, and including the furniture, an average expenditure of ¾ per cent. per annum is sufficient.

In the Streatham-street and Portpool-lane model houses a fire-proof principle of construction has been introduced. This important object is effected by arching the floors and roofs with tubular hollow bricks, slightly wedge-shaped, 6 inches deep, 3¾ inches wide, and ¾ inch thick, set in cement; the rise of the arches being from ¾inch to 1 inch per foot on the span, which varies from 7 feet to 10 feet 6 inches. The arrangement of the buildings renders the floor and roof arches a continued series of abutments to each other, excepting at the extremities, where they are tied in with iron rods, ¾ inch diameter, secured to cast-iron springers. The roofs are levelled with concrete, and asphalted. The extra cost of this fire-proof construction beyond that with the ordinary combustible floors and roof, but little exceeded ½ per cent. on the entire cost of the building.

Improved or model houses for the working classes, erected by voluntary associations, are gradually rising in the metropolis and in other parts of England, as well as in Edinburgh; and with the enforcement of the recent Act of Parliament for regulating lodging-houses, cannot fail of producing a most beneficial and much needed change in the domiciliary condition of vast numbers of the working population.

BUILDING AND OTHER WORKS IN AMERICA.

New York Building Mania.—The extent to which building operations are at present progressing at New York, is something quite extraordinary, according to the *New York Herald*, which is giving a series of articles on the subject, enumerating long lists of the more prominent buildings in progress. In Sixteenth Ward alone, it appears, over a million of dollars are being expended in building; and more than four millions in Eighteenth Ward.

"In Sixteenth Ward," says the *Herald*, "the spirit of improvement has arrived at its zenith: the number of houses building in this ward is incredible, particularly in the neighbourhood of Fourteenth and Twenty-third streets. Here some magnificent dwelling-houses are being erected. The material used for fronts in these streets is principally brown stone. The fronts of some houses are beautifully cut and ornamented, while others are plain, without any ornament whatever. We noticed several houses with white marble fronts in Twenty-third-street, but they are neither as handsome nor as costly as the brown stone ones in that street. In various other parts of this ward the houses, which are built by speculators for tenement purposes, are constructed in the cheapest manner possible. There are at present two lines of rail-roads in this ward, which occasion, in a great measure, the bustling and business-like appearance of this portion of the city." "Eighteenth Ward is one of the largest wards in the city. It is impossible for any person, not well acquainted with it, to form an idea of the extent of building operations in this ward. The amount of capital invested, and the number of men employed, is almost incredible. In the neighbourhood of Thirty-third-street and Second Avenue the houses are all cheap tenement buildings. In the 'upper-ten' portion the structures are upon a grand scale: the cutting of the brown stone in a great number of these houses is superb, and the painting of their interiors exquisite. Another great feature of these houses is the expensive mantel-pieces used in the parlours and basements, which in some cases cost from twelve to fifteen hundred dollars. Above Fourteenth-street everywhere you go your ears are assailed by the noise occasioned by blasting rocks, which is often performed in a very careless manner. The favourite material for constructing fronts is brown stone: there are a good many white marble fronts, but they are plain, and not so handsome or expensive as the brown stone. From the nature of the white marble used it is incapable of ornamental carving. The styles of architecture are so mixed and varied that it is impossible to describe them."

The Manhatton gas-works, from which the city is partly supplied, took fire lately, and created a sudden commotion in theatres, concert-rooms, hotels, and other places, by the extinction of the lights. Property at the gas-works to the extent of 40,000 dollars is said to have been destroyed.

Washington.—The local correspondent of the *New York Herald* reports that, "the marble walls of the new Capitol are raising their bright white faces in the sun's light. The admirable plans of the United States' architect, Mr. Thomas W. Walter, are being handsomely and faithfully executed under the masterly direction of Capt. Samuel Strong, of New York,—the most famous of your Hiram Abiffs. The designs of Mr. Walter for the extension of the Capitol seem, upon the closest scrutiny, to be the very best that could have been originated. They are faultless." Everything is either superlatively good or execrably bad with our energetic and tempestuously go-a-head cousins of the Transatlantic.

Railway Works.—A letter from St. John's, New Brunswick, of the 28th ult. states that "the provincial government has closed a contract with William Jackson, M.P. for himself and wealthy associates in England, to build a railway across New Brunswick, from Nova Scotia to the United States, at 6,500*l.* per mile, including rolling, and all equipments complete. The province takes stock 1,200*l.* and leaves the company 1,800*l.* per mile, the loan bearing interest six per cent. secured by a first mortgage on the whole road, stock, stations, &c. The road and all equipments to be of the best description, such as the best English roads, and capable of being travelled even at the greatest speed. The survey is going on with vigour. The contract will be signed to-morrow."——A railway traveller in the States complains of being obliged to *bolt* his meals at all the stations, and proposes the addition of an eating-saloon to the trains, so that he who runs may eat. The access from car to car on American lines would render the establishment of such a saloon quite practicable. In Germany, it appears, passengers can have a cup of coffee, &c. in their cars whenever they wish it, a place being provided at the end of each for quaffing the beverage.

Electro-Telegraphic.—The last Legislature of Maine passed an Act making telegraph companies liable for errors in despatches, either in transmission or in writing out, to the amount paid for its transmission to its destination, both in and out of the state. In case of unreasonable delay to transmit or deliver, affecting the value of the despatch, the amount paid shall be refunded. Damages for falsifying a despatch, from twenty to one hundred dollars. Operators, agents, clerks, and other officers, are held liable for any fraud committed or attempted by means of a telegraph.

New Inventions.—A mechanic of Nashua, N. H. has invented a new method of driving circular saws without an arbor. With a saw arranged as he has it, a 4-feet saw, it is said,

will cut a board 3½ feet wide, while as now arranged, a 4-feet saw will hardly cut 1½ foot. It is also arranged so that it will cut when the carriage is going either way, and will, at the same time, saw nearly twice as fast.

The *Journal of the Franklin Institute of Pensylvania* reports, amongst many other recent patents, one for an improvement in planing machines, by Nicholas G. Norcross, Lowell, Massachusetts, who claims,—"When placed so as to operate on one side of a board, a cylindrical, rotary cutter, for roughing and reducing, which cuts from the unplaned to the planed surface, in combination with a stationary cutter, placed behind, and as near thereto as may be, for finishing without pressure rollers or pressure bars of any kind, whereby I am enabled to operate with greatly diminished power, and the rotary cutter will cut up and throw off the shavings from the stationary cutter, and the boards will be reduced to an equal thickness and a smooth surface;" and another for improved wrought nail machinery, by Daniel Dodge, Keeseville, New York, who describes his invention as "such a combination and arrangement of the cutter, gripers, and hammers, that when a rod of suitable dimensions is introduced into the machine, a piece of sufficient length to form a nail will be cut off, caught into grippers, and passed under a series of hammers, receiving one stroke from each, as it progresses, and revolving during its transition, from one hammer to another, so that its different sides may be acted on alternately, until it has passed the entire series, and is reduced to the requisite size and form, after which it is discharged." His claims are too lengthened and numerous for us to detail.

METROPOLIS BUILDINGS ACT.

In consequence of a recent decision of the official referees, a circular has been issued by several of the district surveyors, announcing that henceforth it will not be permitted to leave openings in new buildings preparatory to additions being erected, which it is well known has been the custom since the Act came into force. The wisdom of this direction is very questionable.

The great anomaly and injustice of the Building Act, in reference to *additions*, as they are commonly called, to our suburban houses, is now coming to the test. The referees say it is not lawful to build and leave openings to *join on* the additions, as we have done hitherto. This decision points attention to the great injustice of the principle that has been hitherto endured. The district surveyors have reaped a *rich harvest* by the small areas permitted by the statute. It is notorious that the gross amount of fees paid on fourth-rate houses exceeds any other, both in rate per cent. on the cost, and aggregate amount of fees.

There have been a good many abortive efforts to produce an amended Building Act. When the measure is to be carried through is still doubtful. The building interest has two active representatives in the House of Commons (Alderman Cubitt and Mr. Peto). They would *add to their laurels*, and confer a lasting benefit on the metropolitan community, if they would apply themselves to the question of a *practical and simple Building Act*. X. Y.

We have received the following from a correspondent:—

Hiscocks v. *Meears*.—This was a summons before Mr. Paynter, at the Wandsworth Police-court, at the instance of the district surveyor for Wandsworth and Tooting, charging the defendant with having stripped, ripped, uncovered, and reconstructed and recovered the roofs of two buildings in Love-lane, Wandsworth, by which he, the complainant, became entitled to receive from the defendant two certain fees, amounting together to 2*l.* 10*s.* which the defendant refused to pay. The complainant proceeded to give evidence in support of his claim, and referred the magistrate to schedules G and L of the Metropolitan Buildings Act, and to the fees in schedule L, under the head, "Fee for additions or alterations," on which he relied.

Mr. Haynes, solicitor, of Wandsworth, who appeared for the defendant, having elicited on the cross-examination of the complainant, that the roof was not altered in its construction, nor had any addition been made to it, except that it had undergone some necessary repairs, and the defective covering had been reinstated with new materials, contended that the summons must be dismissed, the complainant having failed to establish his claim. That the work done being simply repairs, did not involve the fees as charged under the schedules of the Act referred to, and relied on by the complainant, such being fees for and in respect of "additions or alterations;" and it could not be said that the work done by the defendant being admitted to be repairs, came within the common acceptation and meaning of the words addition or alteration. The magistrate agreeing on this view, dismissed the summons.

THE DRAINAGE OF SHERBORNE, DORSET.

The Local Board of Health have recently accepted the tender of Mr. John Grant, of Exeter, for their sewerage works. Messrs. Doulton and Co. will supply the stoneware pipes, and Mr. Spittle, of the Pentwyn Foundry, near Pontypool, is to furnish cast-iron water-pipes. Messrs. Dymond and Sons, of Exeter, have been entrusted with the design and superintendence of the combined works. These include a new system of stoneware-pipe drains for the entire town, the largest sewer being 18 inches in diameter. The outfall will be into the River Yeo, at a point about half a mile below the town, where the sewage-water may hereafter be applied to the irrigation of a large tract of meadow land. The chief of the existing sewers (of which there are but few) will be retained as channels for the relief of the pipe-sewers in times of extraordinary rainfall. Concurrently with the drainage, a system of water-supply on the "constant and unlimited" plan will be carried out. The water is to be obtained by driving a long heading about 30 feet below the surface, so as to intercept the rainfall which finds its way over an impervious rocky bed from a very extensive area to the head of a narrow "coombe" or valley, situated about a mile above the town. The sandy stratum resting on this impervious mass forms a natural storage reservoir, from which the water is to be conducted in stoneware pipes, laid at a gentle inclination along the hill sides, to a small reservoir placed at a sufficient height above the town, to obtain a pressure which will deliver the water considerably above the roofs of the highest houses.

THE WATER QUESTION.

Reports on microscopical examinations of water supplied to the metropolis from various sources have been made by Mr. Edwin Lankester, M.D., F.R.S. and by Mr. Peter Redfern, M.D., F.R.C.S.L. at the request of the directors of the London (Watford) Spring-Water Company; of course with the view of showing off the superior purity and excellence of the water in which they are interested, but at the same time containing, we doubt not, a truthful enough account of the abominations which the metropolitan public are doomed to drink. The reports have been printed, and they contain sufficiently horrifying minutiæ and details in the form of numerous engravings. A chemical report on chalk-spring water, by Dr. Thomas Clark, of Aberdeen, and Dr. John Smith, both collegiate professors of chemistry, is added. In a table appended to Dr. Redfern's report it is stated that after standing for one or two days, in May last, water from the New River had fifty living animals visible to the naked eye in each quart; water from the West Middlesex had flocculi of organic matter in suspension; water from Thames Ditton had patches of organic matter in suspension; water from the Grand Junction contained several animals visible to the naked eye. The visible vermin, however, constitute but a very small proportion to the invisible or microscopic. The report of Dr. Lankester fully corroborates that of Dr. Redfern as to the contamination of the metropolitan waters. From a table appended to the report of the former it appears that in New River water no less than forty different *species* of living creatures, such as infusoria, rotifera, and other forms of animal life, with confervæ and other forms of vegetable growths were found; in the Thames Ditton or Lambeth, 38; in the Chiswick or West Middlesex, 41; and in the Grand Junction, 19. The palliative adopted by Parliament of a future supply from the Thames above Teddington lock is shown from these tables to be a very unsatisfactory one, the Thames thence yielding at all times a water much contaminated with organic matter; as indeed might have been at once concluded from the fact that it still contains the disemboguement of the sewers and drains of 100 villages and towns, and the surface drainage of the most richly manured country in the world.

A NEW MODE OF BUILDING.

Sir,—For building houses we propose a brick of 12 inches by 12 inches, 5 inches thick, and hollow inside. Along the longitudinal sides (12 by 5) a little groove or cut ¼ inch deep and 1 inch at the bottom, ¾ inch near the surface, is to be fitted with a peg or a little brick 10 inches long, exactly corresponding with the shape of the two grooves when they are closed against each other. As for corners, the same bricks will be necessary, with this difference only, that one arm will be 12 inches by 12, and another 12 inches by 6, joined rectangularly at the corner.

Now, the concrete bottom being made level and sufficiently dry, we put some mortar on it, and place the hollow bricks perpendicularly close to each other, allowing as little mortar between the crevices as possible, and joining them with the said peg, thrusting it from the top into the grooves, having immersed it first into mortar. And proceeding in the same way we shall finish the first round, leaving a place for the door. The bricks standing now upright, we propose to fill with sifted ashes and press well.

The second layer, or row, we begin in the same way with the corner brick, placing it alternately, shorter arm on longer below, and longer on shorter, and the row filling with our bricks turned with narrower faces horizontally, the grooves which now will be at the top, joining with the said clay pegs, thrusting them in by the end, and leaving at the middle 2 inches, just for the reception of the higher row, which will be perpendicular.

Proceeding continually in the same way we shall have a house rising 12 inches at a time, with an appearance of stone—less joints and less mortar—but more strength; and if the inner apertures in the bricks are filled with ashes, it will be warm in winter, cool in summer, safe in the accident of fire in the neighbourhood, and dry in every season.

I. J.

DOORWAY IN ANTWERP.

The accompanying engraving represents the doorway of a house in the *Rue de l'Empereur*, Antwerp. It is made from a sketch on the spot by Mr. Martineau, to whose portfolio we have been indebted before. The mouldings shown below are referred to by letters on the view.

PARAPET FROM THE DUOMO, FLORENCE.

This is either the design of Giotto (who succeeded Arnulfo, on the latter's death, in 1300), or of his pupil and godson, Taddeo Gaddi. The material for the main part is white marble, but inlaid with black, green, and red, the patterns of some of the circular panels between the machicols being of beautiful design. Nowhere is the link between painting and architecture more close than in the Cathedral of Florence, and many are the lessons in architectural polychromy that a careful study of it teaches. G. T. R.

DOORWAY IN ANTWERP.



PARAPET, FLORENCE CATHEDRAL.



TESTIMONIALS TO THE DUKE OF WELLINGTON.

I will take leave to address a few lines to you on the subject of a national monument to the late Duke of Wellington. I trust that in this great metropolis, the example set by Liverpool will be followed with a greater spirit than has been displayed towards Nelson, to whose memory, after the lapse of nearly half a century, there has been an attempt to raise a monument, which is apparently as far off as ever in being completed.

In raising a monument to Wellington, let it be one that will be worthy of this great city; and what the Government decline doing in regard to expense let it be done by the public at large, and one we should have reason to be proud of as a work of art as well as a monument of gratitude. At present we have not one that is worthy of the name.

In Liverpool, it is suggested to erect a column with a statue on the top. This appears to me to be quite a mistake. As a work of art, I would ask who can judge of the merits of a statue, whether as regards likeness or execution, in such a position. If a committee decide on having a column, let the statue be placed at the base, on a lofty pedestal, and convert the column to some use, as a light for the town. In the city (London), I perceive, it is suggested to erect a charitable institution by the name of the great general. This is a laudable feeling, but there is one point too much overlooked, that of encouraging the artists in this country. Surely they have as much right to look forward for some consideration as well as public and charitable institutions; for if their exertions and talents are overlooked, how are they to subsist? A Subscriber.

*** With due reverence for the memory of Wellington, it seems to us that there is no need of a further memorial of him in the metropolis. Let us deal properly with those that we have.

THE DUKE'S FUNERAL.

The preparations at Chelsea Hospital are being vigorously carried on. The ceiling of the Hall (covered with black cloth crossed diagonally by white cords) is finished, and the walls are in progress. A platform is formed at the end to receive the body and mourners. The lights (gas) will be disposed behind hollow semi-columns fitted with reflectors. The hall is floored with open battens, and so is the covered way (18 feet wide), which has been formed from the Queen's-road. It will be necessary to make arrangements for a *queue* of considerable length, or there will be much mischief done.

Some dissatisfaction has been expressed by correspondents at the fact that the design for the car was intrusted to Professor Semper, the Berlin architect. It will require the united efforts of many establishments to carry out the design in time.

We are glad to find that the objection we raised to the proposed position of the Duke's tomb is becoming generally recognised. It is to be hoped the determination will be changed.

THEATRES AND SCENERY.

The Princess's Theatre. — Mr. Marston's new play in blank verse and modern coats, *Anne Blake*, has many passages of true poetry and good feeling, and succeeds efficiently in raising the emotions the author desired to produce. Still the heroine is not a pleasant person: with all allowances for the trials to which her temper has been subjected, she is so childishly querulous, and so ready to believe any transparent insinuations against her friends that are suggested to her, that she seems scarcely deserving of the trouble taken for her, and the good fortune that awaits her. The rehearsal for the private theatricals is the most finished scene in the play, and is admirably well acted by all the parties engaged in it, Mrs. Kean, Mr. Kean, Mrs. Winstanley, and Mr. Walter Lacy. Mr. Kean is particularly good, but his dress is not. He might at all events appear as a gentleman at the close. Although travelling as an *artist*, there is no reason against a portmanteau having followed him.

The scenery, consisting of the hall, library, and drawing-room of the same house, is very appropriate and effective. The breadth and largeness of the parts in the first (a hall with Ionic columns and entrance door), and the execution of the pictures on the walls of the drawing-room, are particularly commendable. Those who scoff at our managers and dramatists for "adapting" French pieces ought, when an original play, like *Anne Blake*, is produced, in justice to go and see it.

Haymarket Theatre.—The same remark will apply with reference to the new comedy here, *Richelieu in Love*, which is written by a lady, rather a bold one, and is chiefly remarkable for terse and sparkling writing, but it is for the most part the sparkle of pounded ice,—there is a want of warmth and feeling. Still the piece amuses. Mrs. Stirling, as the Queen, and Mr. Webster, the Cardinal, do all the acting in the piece, and do it very well. This is more than we can say for Mr. Leigh Murray, who sadly disguises his part.

The New Theatre in Hanover has been completed and opened. The *Athenæum* says,—"The building is very handsome in its architecture, ornamented in front with a fine portico adorned with twelve statues. The two centre figures represent Goethe and Mozart: to the right follow Schiller, Lessing, Shakspeare, Goldoni, and Sophocles; to the left, Beethoven, Carl Maria von Weber, Calderon, Molière, and Terence: the twelve statues are the work either of Hanoverian artists, or of sculptors resident in Hanover, and although not productions of high art, are still very creditable. The internal arrangements are more convenient, and the decorations superior to those of any theatre in Germany, with the exception of the opera-house in Berlin. The theatre contains four rows of boxes, the three lower tiers forming in shape a lyre, and the upper a circle: in front of the lowest range of boxes (parquett logen) runs an open balcony, called a 'peron,' in which are the pleasantest seats in the house: the space devoted to the stalls is large and roomy, containing about 250 numbered places, each in the form of a comfortable arm-chair, the seats of which *rise by a self-acting spring the moment you stand up*, so as to allow space to pass with greater convenience. The boxes are painted outside white with gold, and inside of a dark red colour. The royal lodge occupies the centre of the first and second rows of boxes, and is decorated in the usual style with rich crimson velvet hangings, and gold fringe and tassels. The space between the rows of boxes is ornamented with portraits, in relief, of celebrated poets, musicians, actors, and singers. The ceiling of the theatre is white, with gold, and adorned with eight paintings by Ereling, who is now occupied in designing a new drop-scene. A splendid lustre, with 288 gas jets, lights up the building. The expense of erection has been about 80,000 dollars."

THE METROPOLITAN CENTRAL TERMINUS QUESTION.

On the 1st inst. an influential meeting was held at the London Tavern for the purpose of coming, if possible, to some definite conclusion on this important question. The chair was occupied by Sir James Duke, M.P. who made some appropriate remarks on introducing the originator.

Mr. Pearson addressed the meeting at great length, developing his scheme in a clear and intelligible manner, and admitting that it would require a great outlay of money. He estimated the cost, exclusive of what the railway companies would have to expend, at 2,000,000*l*. The Great Northern had come to a determination to push their line to Farringdon-street, and the citizens might depend on it this would place the other railways at their feet.

The following resolutions were unanimously passed:—

"1st, That this meeting agrees with Mr. Pearson on the general principles upon which the project is founded, and, without pledging ourselves to its several details, we are of opinion that it is a measure of great value to the public, and that a company should be formed to carry it into execution, provided an adequate capital can be obtained, upon satisfactory proof that it will afford a reasonable remuneration for the amount required.

2nd. That a committee be appointed to take the requisite steps to effect this object, upon the distinct understanding and agreement proposed by Mr. Pearson, that no committeeman, director, or subscriber, shall be made liable for past expenses; and that no person shall be employed, and no disbursement incurred, except with a written understanding that Mr. Pearson will defray the charges of taking the requisite steps, and that the deposits shall be paid in the name of trustees; and, if three-fourths of the required capital shall not be subscribed for on or before the 7th day of January next, each subscriber shall receive back his deposit without any deduction whatever."

Of Mr. Pearson's scheme we have more than once expressed opinions; but whatever be its fate, it appears to be evident enough that something to the same end must be done. If it would have been absurd and inconvenient beyond endurance to have had breaks of line on every separate railway in passing through every little town throughout the provinces, how much more inconvenient and absurd is it to have so many breaks of general line in passenger and traffic progress through the great metropolis, across which, to and fro, there is so unequalled a concentration of both. As well might each railway have stopped short at every marsh or every mountain, and have crossed or overcome the difficulty by pack-horses, or some other equally primitive arrangement. The difficulty in the present instance is one merely of money. Difficulties of an engineering nature are entirely out of the question. Even the money question is by no means an unprecedented one.

THE EDINBURGH PLASTERERS.*

The plasterers formed a branch of the wright trade in old times, when panelling and ceiling were constructed of wood. This conjunction of the two trades seems to have been in force even up to the middle of the last century. The plasterers' business is a healthy one. A very large proportion of the Edinburgh plasterers are old men: some of them exceed sixty and seventy years. The muscular exercise of the trade is exceedingly good. The only evil they are subjected to is that of working in currents of air. As regards their general intelligence, education, and temperance, all of these have advanced within the last thirty years. They supply their own tools, which, however, are not expensive. There are about 100 plasterers in Edinburgh and Leith at the present moment. This includes the apprentices, whose number is not ascertained. About three-fourths of the whole are originally from the country.

At the beginning of the present century there were probably more plasterers in Edinburgh than there are at the present day. The wages then were about 16s. or 18s. per week. Up to 1820 they continued pretty evenly at the same rate. During the reign of the building mania they ranged between 24s. and 28s. and in some cases were even higher. At this time there were upwards of 300 plasterers in Edinburgh, the largest number working at one time in the history of the trade. Notwithstanding this, it would have taken these men two years to finish the property in the New Town had the rage continued for six months longer. In 1827 the wages fell to 12s. and 14s. per week. They rose again in 1832 to 15s. and 16s. and a year or two subsequently they rose still more. In 1840, the general wages were from 16s. to 18s. per week. In all of these statements the broken time in winter, together with lost time caused by frost, are not taken into account.

In 1840 the plasterers established a union. In the spring of 1841 they made a demand for increased wages—that is to say, 4d. an hour—which was acceded to on the part of the masters. It is to be observed, however, that for three months in winter plasterers only work

* Condensed from the *Edinburgh News*.

seven hours a day, and that in point of fact their wages in winter came to be lower with 4d. an hour than they were previous to that demand. In the winter of 1846 another request was accordingly made, to the effect that the wages should be raised to 4½d. an hour, on the ground of high rate of provisions. This, in like manner, was agreed to by the masters; and notwithstanding the original agreement in 1841 for 4d. an hour, the men have continued to receive 2s. a week additional in the winter months down to the present year.

In January last the members of the union made another demand for 4½d. per hour throughout the whole year. This was also acceded to by the masters, who had heavy contracts on hand, of which the men took the advantage, and so reaped both their own profit and their masters', one of whom declares that the masters either made nothing by their heavy contracts, or positively lost on them, by this ruse of the men. In the beginning of the following May the masters, in their turn, combined, and insisted on a reduction of the wages to 4d. per hour, as in the former case. This the men resisted. Hence arose the plasterers' strike, which lasted three weeks. It terminated with the masters' acceding to the renewed demand, whereupon the men resumed their work. The union still is vigorous, and the wages still continue at 4½d. an hour—that is to say, 22s. 6d. per week.

A master, in speaking of these disputes, and of the present state of the trade, says, "No man can enter our employment without paying 2*l*. and becoming a member of the union. If he refuses, all the men in the shop will strike work; and more than that, some of our men who belong to the union, and who persisted in working after the strike, were also fined in pretty large sums. Regarding the manner in which our business is affected, I can only state that Edinburgh depends to a large extent on country work. If the wages continue long at the present rate, we shall ultimately lose this work. At Dalkeith, for example, our men will not work for less than 24s. 6d. per week. The men in the locality work for 20s. But we dare not employ these men if they do not belong to the union: our own men will strike; and hence we have not the slightest chance in competition with a country plasterer."

It is believed to be impossible that the plasterers can long expect to receive wages a halfpenny an hour higher than those of the masons, and a penny an hour higher than those of the wrights; or that the present arbitrary distinction between the wages in Edinburgh and the wages in the country can be maintained. A temporary suspension of the present demand for building in Glasgow, it is thought, would dissolve their union.

IRISH CONTRACTORS.

Seeing in your valuable paper of the 15th ultimo, an article quoted from *Lloyd's Newspaper*, stating that Mr. Dargan is a self-made man, and that he was originally a common labourer,—allow me to say that such is not the fact. William Dargan descended from a respectable family in the county of Carlow, and received a classical and scientific education in the college of Carlow; and I venture to say that there are very few engineers, architects, or contractors in the British empire better versed in general science or mathematics than he is. The journal you quoted remarks that there were no Brasseys nor Petos in the sister country. Nevertheless, there were contractors of as high a stamp of qualification in their business as any in the United Kingdom,—viz. the firm of Henry,* Mullins, and M'Mahon,—men qualified in every way to undertake the most difficult public or private works,—to say nothing of Mr. Mahon, the Congress engineer for the United States of America, who constructed the Croton Waterworks of New York, and also wrote a work on construction,—said to be the best extant. Let me also refer you to the elder Semple, who built Essex-bridge, and wrote one of the best books on waterworks that we have; and I think it but due to mention young Mr. Mullins, the engineer and contractor of the Kingstown Basin,—a young gentleman who has received several diplomas. I mention these circumstances to show what Mr. Dargan had to contend with, and, to quote the words of Mr. Bright at the Belfast dinner, "there is one gentleman who certainly ought never to be mentioned without respect in Ireland. I mean Mr. Dargan, the great railway contractor; and if the honours which monarchs bestow were worth much, and if they were bestowed where they ought to be, they would not be given to the bankrupt drones of the country, so much as to the captains and generals of industry, like Mr. Dargan."

P. McA.

* Mr. Henry, one of the divisional magistrates in London, who sits in Bow-street, is by all acknowledged to be one of the most distinguished magistrates in the metropolis.

Miscellanea.

Gas.—The town of Spilsby is to be lighted with gas, if the steps now being taken to form a company prove successful. An attempt was made seventeen years since, but failed.——The Louth Gas Company have just announced a dividend of 8 per cent. besides a balance of 100*l*. on last year's sales. A resolution to reduce the price of gas from 6s. 8d. to 5s. 10d. was negatived.——At Swindon there is a gas consumers' association who are determined either to manufacture their own gas, or compel the present company to reduce their charge from 8s. 6d. to something like the half of that sum. Mr. A. L. Goddard, M.P. heads a list of names in support of this movement. The association, in reference to the high dividends and bonuses of the company, and the reservation of a fund out of the profits besides for the enlargement of their works, deprecate the system of creating capital out of income and at the expense of consumers, who are made in consequence to pay double the value of the article supplied them. The company, they consider, stand in precisely the relation of a tradesman with his customers, who, if he required money to enlarge his premises, did not think of making his customers find it for him by charging them beyond the value for goods they bought, but borrowed it; and on the same principle ought the gas company to raise fresh shares. Complaint is also made of the charge made for fittings; the company reserving to themselves the exclusive privilege of supplying them, "and thus before a person could consume the high-priced gas he must submit to pay an exorbitant sum for the channel through which it is to be conveyed."——Fifty Derby gas shares of 25*l*. each were sold by auction lately at 27*l*. 15s. and 28*l*. premium, per share.——The Dalton Gasworks are fast drawing to completion. The gas-tank is nearly finished, and the walls of the various buildings are raised considerably above ground. The contractors are Mr. R. Briggs, waller, and Mr. R. Briggs, joiner.——A gas-work on White's hydro-carbon principle has been erected at Methven Castle, near Dunkeld, for the lighting of the castle, which is now supplied with gas from its own establishment. Parret coal, or Scottish cannel, is used in the production of the gas.

The Metal Trades.—The *Gateshead Observer* states, in reference to a paragraph in our impression of the 23rd ult. that in that district at least, the actual advance of the price of iron is not less than 2*l*. per ton, and that at this advance contracts have been made by the ironmasters that will not be completed until the year 1853 is far spent. The old orders, it is also stated, are pretty nearly executed. In the Staffordshire district, it is said, many of the principal masters refuse to receive orders even at the present rates, and in some instances the orders are taken on condition that when executed the price be the then existing rate. These bargains, according to the *Birmingham Journal*, are made under the conviction that iron will be 10*l*. per ton before it is lower. Whatever be the results of such policy, there seems to be a strong inclination to carry it out by declarations of further advances still, in nominal prices at least, if not in actual. The same sort of towering and impatient ambition to force up prices at all risks preceded the last great smash, which excited our pity. It is to be hoped they have benefited by past experience, and are now a little more certain of the safety of their footing than they then were.——A zinc vessel, of about 100 tons, called the *Comte le Hon*, is about to be launched at Nantes. This metal is cheaper than iron-plates, and will, it is believed, prove less liable to deterioration in water; but sailors are of opinion that in hot climates the zinc would speedily be covered with shells to an impeding extent.——A new patent metallic compound, in place of tinned iron plates, it is said, is about to appear in the market.

The late Mr. Downing, Architect.—With reference to our recent mention of Mr. Downing, the American architect and landscape gardener, a correspondent reminds us of a calamity that deprived our Transatlantic friends of a man of genius and worth. Mr. Downing was drowned with many others a few months ago by the burning of one of the Hudson River steam-boats, and it is supposed his life was sacrificed in endeavouring to rescue a lady passenger: his wife and some other members of his family were saved. About two years ago Mr. Downing came to this country and was introduced to Mr. Calvert Vaux, who was induced to return with him to Newburgh, and at the end of a year was taken into partnership. Mr. Vaux became much attached to one thus befriending him; and on his interment strewed his bier with the flowers that the deceased had tended and loved so well.

Fall of a Railway Bridge.—On Friday in last week the Sheffield branch of the Midland Railway (the Sheffield and Rotherham line) was suddenly blocked up by the falling of a bridge that spans the line about 500 yards north of the Sheffield station. It was an iron girder bridge thrown over the railway a few years ago. The flat girders rested on lateral buttresses, and were supported in the centre by brackets springing from the buttresses immediately beneath the ends of the iron beams. The area of the bridge was about 20 feet by 30 feet, and the whole structure being of iron, covered by a layer of earth, its weight was considerable for a bridge having no intervening columns between the extremities. The Ashlar stone upon which the brackets have rested is torn away, from which fact it would seem as if the failure of the stone had caused the downfall. Nothing had occurred before the accident to suggest the slightest apprehension.

Local Museums and Schools of Art.—The Government Department of Practical Art have announced that so far as Parliament may place means at their disposal, it will be their wish to encourage and assist, though not to supersede, local efforts in promoting art-education among the people by means of collections of works of art.——It has also been intimated that it is the intention of the Board of Trade to establish schools of design at Gloucester, Hereford, Brecon, and Carmarthen. The object of these schools is to teach elementary drawing to artisans and others to whom it is essential in the successful prosecution of their respective callings.——The annual meeting of the Nottingham School was held on Friday, in last week, when a favourable report of progress was made, and prizes were distributed. The meeting was addressed by the mayor and other gentlemen, and appropriate resolutions were passed.

Death in the Sewers.—Another of those unfortunate but instructive accidents, which occasionally show what the sewers are capable of doing, has just occurred in Compton-street, Goswell-road, where four men, in successively attempting to descend into a foul sewer, became insensible, and two of them were killed on the spot, while a third may not recover. It is strange, indeed, that many cannot see, that if a concentration of the foul influence of sewers will cut down a man in a moment, the dilution of the same influence, to whatever extent, short of what constant and thorough ventilation must produce, cannot but tend, though more slowly, to do deadly work when breathed throughout our towns.

INSTITUTION OF MECHANICAL ENGINEERS.—The general meeting of the members of this institution took place on Wednesday week, at Birmingham, Mr. Robert Stephenson, M.P. president, in the chair, when papers were read, by Mr. Samuel H. Blackwell, of Dudley, on the "Arrangement of the Materials in the Blast Furnace, and the Application of the Waste Gases;" by Mr. William A. Adams, of Birmingham, on "Improvements in the Construction and Materials of Railway Waggons;" and by Mr. Paul R. Hodge, of London, on an "Improved Self-lubricating Axle-box for Railway Engines and Carriages," and on a "Self-acting Spring Crossing-point for Railways," both being American inventions. At the close of the meeting specimens were exhibited of a new construction of railway chair, by Mr. M. Conochie, of Wednesbury.

STREET-LIGHTING.—I was gratified recently by seeing in the parish of Marylebone the use of the simple mode adopted in Paris instead of the old-fashioned ladder and lantern, involving delay and risk both to the lamp-lighter and the public. In Paris the lamps are lit by means of a small lamp with a bold flame *inserted* in the end of a pole about seven feet long. The lamp lighter passes it through the bottom of the lamp (an aperture being expressly left for it) and by this means applies it to the burner, the top being inclosed in the lower part of the shaft, and access thereto is provided by a small door, which is, of course, kept locked. The rapidity with which the street lamps in Paris are lit reminds one of the tale of Abdallah and the chandelier in the "Arabian Nights." A short time since, being in the Palais Royal, I was much struck with the rapidity of this lamp-lighting process. Our French neighbours have many good things we should do well to copy. *Verily our omnibus masters are slow to learn!*—W.

VICTORIA PARK.—A memorial to the Commissioners of Woods and Forests from the inhabitants of Hackney is in course of signature, praying the formation of the park approaches: it is very important to this improving district that the approaches should be formed: ten long years have passed since the park was commenced to be formed, and *yet* there is not a road that a gentleman's vehicle can drive over to the park. Two other metropolitan parks are promised: it is to be hoped that the approaches to them will be formed simultaneously with the parks: as a financial question, if any of the land is *to be let for building purposes*, it would seem to be bad policy to form the approaches last.

ELEMENTARY DRAWING SCHOOLS.—The school to take earliest advantage of the recent minute of the Board of Trade, enabling Elemosynary schools to purchase drawing copies, models, and examples, at half the prime cost, has been the Queen's School at Windsor, and on Tuesday evening last, St. Thomas's parochial school, of more than 500 persons, children and adults, directed by the Rev. W. Rogers, was the first to inaugurate the new system of drawing classes instituted by the Department of Practical Art.

TO STAY THE WOOD-WORM.—A correspondent, in yours of the 9th ult. desires to know how the ravages of the wood-worm are to be arrested. To which I would reply, that a hot solution of corrosive sublimate, well and *repeatedly* brushed into the tie-beams and rafters, would certainly not only destroy the insects, but preserve the timber itself for a long period of years from further destruction. The operator must not let the material wet his hands, and the sublimate is a virulent poison.

H. McC.

BUILDERS' DIFFERENCES.—The following is a list of the tenders for pulling down and rebuilding some coachmakers' shops in the Portland-road. Mr. William Bush, architect.

	Allowed for old materials.		
R. Stevens	£30	.....	£669
Pollock and McLellum	27	.....	595
J. Harding	42	.....	597
J. Heble	15	.....	475
G. Roberts	35	.....	462
Rowland and T. Everest	15	.....	415
H. W. Cooper	25	.....	400
G. Day (accepted)	25	.....	380

YORKSHIRE ARCHITECTURAL SOCIETY.—On Thursday, in last week, a meeting of the above society was held in York, Archdeacon Churton in the chair. After discussing the annual reports, &c. two papers were read, one "A Historic Sketch of Pontefract Castle," by the Rev. R. Eaton Batty; and the other by Mr. W. H. Dykes, architect, "On certain Mural Paintings recently discovered in Bickering Church." It was announced that during the course of next year, in addition to the annual meeting at York, public meetings of the society would be held at Richmond and Selby, for the reading of papers and examination of the architectural antiquities of these neighbourhoods.

THE SURREY ARCHÆOLOGICAL SOCIETY.—In addition to other measures for the promotion of the interests of this new society, the committee, we observe, propose to establish a library and reading-room to be maintained by voluntary contributions of one guinea annually and ten guineas for life members, aided by occasional grants from the funds of the society; and they also intend to issue a quarterly journal devoted to subjects of antiquarian interest connected with Surrey, and to be free of charge to members. Surrey may well support the interest of such a journal. It possesses many objects of archæological interest in Southwark, Lambeth, Kingston, Richmond, Chertsey, Runnymede, Farnham, Guildford, and elsewhere.

A MONUMENTAL STONE TO HOOD, THE POET.—It has been resolved by some members of the Whittington Club, on a suggestion, we believe, which originated with Miss Cook in her *Journal*, to erect a memorial stone over the obscure grave of Thomas Hood. Upwards of 120*l.* have been collected, a small mite of it from poor needlewomen, and we hope that the idea will be sensibly as well as successfully carried out.

A NEW APPLICATION OF STEAM.—At the Colney Hatch Lunatic Asylum the resident engineer has invented an apparatus substituting steam for the red hot heaters hitherto used in getting up borders, &c. of the ladies' various wearing apparel. It is simple and effectual in its operation. It always maintains a uniform heat, and it is incapable of scorching the fine material, which requires great precaution when red hot heaters are used.

REPORTED RISE IN PRICE OF CANADIAN TIMBER.—We have heard it stated, says the *Liverpool Albion*, by several interested in the trade, that the scarcity of Canadian timber, especially for building purposes, is already beginning to be felt by a considerable rise in price. This is ascribed to the circumstance of so many vessels being diverted from the staple traffic of the St. Lawrence, in order to convey emigrants to Australia and the States.

VENTILATION.—With reference to a recent "View of Ventilation" in your pages, the writer should have 'followed up his advantage' by conducting the cooling carbonic acid into the rain-pipes of the building, adapted by enamelling or otherwise to this purpose, or into proper ducts specially provided, and leading down into the drains and sewers, so as not to leave it to pour out of any nostril-shaped or other opening above the level of the interiors just ventilated; otherwise it would only pollute the pure air immediately adjoining the building, and whence the interior is to be immediately and again and again supplied. The adoption of such an addendum to his view, I think, would render it theoretically complete. There is the clear sight of ingenuity in this view. It is just what close attention to the subject naturally suggests, and it leaves far behind an immense deal of quasi-learned doctoring to which ventilation has of late been subject. The true secret of the management of carbonic acid gas, as generated from human lungs, is clearly to view it as a fluid requiring drainage upwards, in the first place, just as much, and in much the same way too, as rain requires it downwards. I would only insist that as it cools, and it does that very speedily, it becomes as necessary to view it in the light of a heavy palpable fluid, requiring drainage downwards as decidedly as it ever required it upwards while still warm from lungs or *other* furnaces; and, moreover, that when cold it is a much more condensed and hence more deadly agency than while warm or hot. —D.

TENDERS

For the erection of a public-house and four shops and houses adjoining on the east side of the Ledbury-road Kensington: Mr. W. King, architect:—

Porter	£1,850
Madelow	1,695
Glean	1,569
Lawrence	1,512
Jackson	1,497
Bishop	1,458
Barnes (accepted)	1,245

For two houses at Onerley, for Mr. George Manners: Mr. Woodthorpe, architect:—

Sanders and Woolcott	£1,226	0	0
Locke and Nesham	1,188	0	0
Bowick	1,131	0	0
Browne	1,120	0	0
Henkens	889	15	0

For alterations and additions at the Duke of York and house adjoining, in Vauxhall-road, for Messrs. Elliot and Co. Mr. A. Stoner, architect:—

Corly	£1,067
Gammon	1,033
Patrick and Son	990

For building proposed public-house at Shepherd's-bush, for Mr. Rogers, under the same architect:—

Lawrence and Sons	£1,472
Patrick and Son	1,400
Gammon	1,387

For a new factory, boiler, shed, chimney, &c. for Mr. Thomas Adams, Uttoxeter-road, Derby. Mr. George Hall, architect. Quantities supplied:—

E. W. Sims	£2,300
C. Moody	1,525
Winterton	1,480
T. Green	1,379

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"R. H.," "T. B. M." (it depends on "rate" of building, &c. &c.), "A Builder" (the chimney of the Smethewick soap manufactory, Birmingham, is *round*), "R. D.," "C. P.," "R. G. R." (not our custom), "T." (should send name), "W. M.," "J. H.," "F. D.," "F. W.," "M. and F." "G. W." (thanks), "S. H.," "Old Practitioner," "Maps," "J. P. L.," "W. and Son," "Builder's Clerk" ("Hereditary bondsmen," &c. &c.), "W. P.," "A. W. M.," "S. C. F."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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ADVERTISEMENTS.

ROYAL COLOSSEUM.—Every MONDAY, at One Shilling.—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. open daily from half-past ten till half-past four o'clock. In the Evening from seven till ten, Paris by Night, and the whole establishment brilliantly illuminated. Admission, Day or Evening, 2s.; children and schools half price.

CRYSTAL PALACE (admission 1s. only). At the CYCLORAMA, Albany-street, daily at three, evening at eight o'clock, seven stupendous Tableaux of the Great Exhibition and its contents, painted by Mr M'Neven, from the original studies, and on a scale nearly equal the original. Reserved seats, 2s.

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AN ARCHITECT and ENGINEER is in immediate WANT of a PUPIL. He would have to go down to some public works now constructing, and should know something of drawing. Premium moderate.—Apply by letter to A. B. 40, Amwell street, Claremont-square, Islington.

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Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Monmslihire,
North and South Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the owners of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
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South Wales,
West Cornwall, and
Ulverston, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr P W Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

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Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

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Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25th of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as effecting a saving with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 26th August:—

"The result of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would result from replacing that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the Londonderry and Enniskillen Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the east-iron road of Mr Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's-park, and various other public and private buildings; in quantities to finish twenty square yards for 10s.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 6d. 15s, and 28s each

PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 5s.; Green and Blue, 6s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price: only 3s. per gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. BELL and CO. Steam Mills, 2, Wellington-street, Goswell-street, London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—THE PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.

In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.

HUBBUCK'S paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT"

and if the cask has not been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain ewers, for painters, for suits neroha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit &c. &c.

Further particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, of the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is, therefore, susceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.

WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well as persons inhabiting newly-painted houses, are subject.

The VIEILLE MONTAGNE COMPANY import the Oxide in casks bearing their mark, VM, without which none are genuine, and is for obtained direct or through the Company's Agents at the following places, viz.:—London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Cork, Dublin, Cork, Belfast, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull. It may also be obtained from the Grinding Agents, Messrs. J. DEVAUX and Co. 126, New Bond-street, City. Wholesale Agents, Mr CHARLES JACK, 8, Tottenham-court, New-road, and 80, Upper Thames-street, who sells in kegs of 1 lbs. 21 lbs 28 lbs. and upwards, at low rates; and Messrs. ALEXANDER and Co. Timber-bush, Leith, wholesale and retail.

The Company also employ a painter, who will undertake any description of painting in Zinc by contract.

Since its introduction into the United Kingdom, the Admiralty and the most eminent professional men have given it their preference. The public is informed, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.

For further particulars apply to Mr. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and J. BRIGHT, 130, Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that if judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride is most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood amongst Painters. The discovery of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately the covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the White Lead. The saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable.

The Washington Chemical Company respectfully recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Mr. Wm. Blundell, Spence, and Co. 9, Upper Thames-st
LIVERPOOL	Mr. Richd. Cooke, 7, Sise-lane.
MANCHESTER	Messrs. Johnson and McGowan.
LEEDS	Mr. James Douglas
SUNDERLAND	Messrs. T. and E. G. Jepson.
DEVONSHIRE AND CORNWALL	Mr. John Young. Mr Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Messrs. Johnson and Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, Jun and Co.

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by HERBERT and SON, Modellers, &c. 42, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting Cement that requires no colouring. Sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and can be painted upon within a few days. Made and sold by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand; and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank-street, Westminster, and Seel-street, Liverpool.

6, South Wharf, Paddington.

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cement). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn sour, or sink; and the colour with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are desirable. It is manufactured on the only genuine Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT.—THOMAS FREEN and CO. having completed their works at WOULDHAM-ON-THE-MEDWAY for the manufacture of PORTLAND CEMENT, beg to inform their friends and the public that they are now ready to supply them with cement of superior quality on reasonable terms. Roman Cement and Plaster of Paris Works, Tussany Wharf, Canal-road, Kingsland-road.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at Sheerness and Portland Cements and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PORTLAND CEMENT, in Casks of Four Imperial bushels. QUANTITY, NOT WEIGHT, BEING THE STANDARD.—CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will meet with a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland-yard, Whitehall.

Great Scotland-yard, Whitehall.

NOTICE.—PATENT PORTLAND CEMENT. The Co-partnership lately subsisting between ROBINS, ASPDIN, and COX, having been DISSOLVED on the 7th day of November last, by a decree of his Honour the Vice-Chancellor Turner, and an injunction granted, restraining William Aspdin from using the name of Northfleet, Kent, from intermeddling with, or receiving or disposing of any of the moneys, property, or assets of the said late partnership, and from using or pledging the name thereof for any purpose whatsoever, Messrs. ROBINS and COX, being alone authorised to wind up the affairs of the late Co-partnership, request the Creditors of the late Firm forthwith to tender their accounts, that the same may be discharged; and the Debtors to the late firm will be pleased, at their convenience, to pay their accounts, either at the Cement Works, Northfleet, Kent, or at Great Scotland-yard, Whitehall, where Messrs. ROBINS and COX continue to carry on their Manufacture and Trade in Portland Cement, in connection with Messrs. Goodwin and Schmidt, under the style or firm of ROBINS and COMPANY

ROMAN and OTHER CEMENTS. Manufactured by J. M. BLASHFIELD, successor to the Patentees, PARKER and WYATT, who, in 1796, first introduced PARKER'S ROMAN CEMENT; also Terras and Portland Cements, English and French Plaster, Terra Cotta Chimney Pots, Trusses, &c.

Manufactory, Mill Wall, Poplar; Depôts, Commercial-road, Lambeth; and Paddington-basin.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over Keene's Cement, Lime Wash or Water Colour, for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a non-absorbent, is admirably adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will keep good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT.—This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it above all other materials of the kind; it has no caustic qualities; may be painted or papered in a few days, never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, prospectuses, and every information may be obtained, on application to the Sole Agents, PHILLIP HARE and Co., at the Warehouse, 23, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

POZZOLANA from the Mine of St. Paul, at Rome.—CONTRACTORS, BUILDERS, and OTHERS constructing or repairing docks, quays, wells, foundations of houses, or other works where the object is to prevent the filtration of Water, are strongly recommended to use Pozzolana, which is the only cement that possesses the valuable and durable solidity to hydraulic works. Mortar made of lime and Pozzolana is also particularly recommended in building houses. The walls are then impervious to damp. When common mortar is used, the damp of the atmosphere in rainy weather attracts the saline particles in the sand, which evaporating, produce a moisture in the interior of the houses equally injurious to the furniture and to the health of the inhabitants.

Whole cargoes of Pozzolana delivered to any port of the United Kingdom on very moderate terms, and large or small quantities in London.

Apply to Messrs. A. SNIDER, PELLEGRINI, and CO. 113, Fenchurch-street, London.

WILLIAM ASPDIN'S PATENT PORTLAND CEMENT.—Messrs. ASPDIN, ORD, and CO. have much pleasure in informing consumers of this valuable Cement that as their works are now in operation, they are prepared to execute any orders they may be favoured with.

New Wharf, Abingdon-street, Westminster, Sept. 23, 1853.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering works, from the rapidity with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material this cement and sea shingle. The work extends 200 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. FLUDER, American Wharf.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The shell lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors, of the above, is its best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.

SECONDS, PAVIORS', STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

A GOOD MARBLE CHIMNEY-PIECE FOR FORTY SHILLINGS.

A liberal discount to the Trade.

MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.

Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

MARBLES, THIRTY-SIX VARIETIES.—Messrs. SANG, GOGEL, and Co. have the honour to announce that they are enabled to execute, with unusual facilities, any works with which they may be favoured in the above beautiful materials, introduced into this country for the first time from their own Quarries, at a most moderate and hitherto unprecedented low cost. With these Marbles the most brilliant and artistic effects can be produced, and imperishable veneers for the lining of walls in variegated colours can be supplied at exquisite prices. Estimates given for veneered walls, inlaid artistar work, coat of arms, monuments, ornaments, reproductions of sculpture, bases and columns, fountains, establatures, floors (inlaid and plain), baths, friezes, trusses, and skirtings.—Address to Messrs. SANG, GOGEL, and Co. Marble Works, Eaton-lane South, Pimlico, London.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established, in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank. Mr. THOS. THOMPSON, Agent.

TO SCULPTORS, MARBLE MASONS, AND BUILDERS.

ITALIAN and GALWAY MARBLE QUARRIES.

Depôt, Whitehall Wharf, Parliament-street, Westminster.

Mr. FRANKLIN begs to inform the above that he is now landing at the above depôt, a cargo of very superior BLACK MARBLE, in blocks of very large dimensions, and 10,000 feet in slabs, of various thicknesses, the produce of his own quarries, which, on account of their superiority, have supplied the London market for the last twenty years.

Just arrived, ex *Wimbworth* and *Favourite*, Leghorn.

Superior Statuary, Vein, Sicilian, Dove, Black and Gold, new coloured Marble, and St. Ann's, at reduced rates.

The following vessels have arrived from Leghorn:

Sceptre,	}	150 tons, 80 blocks of Statuary,
Fencer,	}	Dove, Vein, Sicilian.
Merchant,		35 blocks
Skulda,		75 tons.

The above will be SOLD in the barest, at WHITEHALL-WHARF, on FRIDAY, 12th NOVEMBER, by Mr. MARSH.—See advertisement.

MARBLE.—To MASONS, BUILDERS, and OTHERS Now on SALE, at the Stone, Marble, and Wood Sawing and Planing Mills, Commercial-road, Pimlico, the largest stock in England of veined and other MARBLES, in slab or block, to select from, at the lowest current prices. Marble sawn carefully packed, and delivered to railway station or vessel.

Vein and Sicilian sawn at 5d. per foot for cash.

Portland, Part Spring, Robin Hood, Hare-hill, Wingerwort York, and other Stone in general use, from the best quarries, either in blocks, landings, slabs, or sinks. Granite, Portland, Hare hill, and other Curb. JOHN HOLMES, Agent.

N.B. A lot of Marble Chimney Pieces on hand to be sold cheap.

STIRLING'S BELVEDERE SLATE WORKS, Belvedere-road, Lambeth.—A reduced list of prices of the best WELSH SLATE SLABS, planed both faces, will be sent on application (post paid) being made, and inclosing a postage stamp. The prices are under those advertised for inferior slates.

THE PIMLICO SLATE WORKS. Patronized by Royalty, the Heads of the Nobility, the Clergy, Architects of Eminence, Builders, Railway Contractors, and the Public generally.—MAGNUS'S ENAMELLED SLATE, notwithstanding the vile imitations and infringements of his patent that are attempted, continues to grow in favour with the public, being handsomer, more durable, and very much cheaper than marble. Price lists and a sheet of drawings, sent to any part of the kingdom gratis. Cisterns, Filters, Dairy and Larder Shelves, Wine Cellar Fittings, Slabs, and every variety of plain Slate-Work, at prices that defy competition.—39 and 40, Upper Belgrave-place.

VALENTIA SLATE SLABS.—The Valentia Slab Company invite attention to their Slabs now supplied, of very large dimensions and of superior quality. They have been used at the British Museum, National Gallery, Bethlem Hospital, various lunatic asylums, the Ordnance Works, Model Prison, Pentonville, and other penitentiaries, Mahtnz Floors in Bedfordshire and Hertfordshire, Breweries, the Race Stand at Brighton, Portsmouth Barracks, and are kept in stock in large quantities at Freeman's Wharf, Millbank-street; also by Messrs. SHARPE, Tooley-street; and Messrs. BRABYS, Belvedere-road, where terms may be obtained.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN and STONE-MERCHANTS, BATH.

DEPOTS.

Great Western Railway Station....	PADDINGTON.
Great Western Railway Station....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-bricks, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulings let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK BASIN.

CAEN and AUBIGNY STONE.—F. FOUCARD, Stone Merchant and Quarry Proprietor, Quai des Abattoirs, Caen, and at 6, Red Lion-street, Borough-market. Contracts taken for any quantities. Cargoes shipped to order from Caen to any port.

CAEN and AUBIGNY STONE.—Gates and George, late of the firm of LUARD, BEEDHAM, and Co. Quarrymen and General Stone Merchants, Caen Wharf, Rotherhithe, London, and Caen, Normandy Depôt Hope-street, Mount Pleasant, Liverpool; Castle Fields, Manchester. Information and samples forwarded on application to Caen Wharf, Rotherhithe.—Samples may be seen at the Office of "The Builder."

CHEAP STONE.—Paving, 32s. 38s. and 42s. per 100 feet; York sinks very low price, viz. is. 8d. per foot; sills, 2s. 3d.; coping, 8d. to 10d. per foot. Chimney-pots, stone pipes, clay ditto, tiles, &c. at reduced prices. Country builders will find a decided advantage in making their purchases at this wharf, which is most conveniently situated for carriage by railway or canal. A priced list sent free on application to E. and W. STURGE, Bridge Wharf, City-road.—N.B. Cash prices on the wharf.

PAVING, 2s. 9d. per SQUARE YARD.—For basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed.—Apply to JOHN PILKINGTON, PULICANEAN'S BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

MINTON and CO.'S ENCAUSTIC and other PATENT TILES for Churches, Entrance Halls, Conservatories, Balconies, &c.; Antique, Geometrical, and Arabesque Mosaics, manufactures of a highly decorative character and extreme durability, Slabs and Tiles for Fireplaces and Hearths, Arcades for Grates, Door Furniture, White Glazed and Ornamental Tiles for Baths, Dairies, and Kitchen Ranges, may be had in great variety at their Warehouse, 3, Albion-place, Blackfriars-bridge, London, and at their Manufactory, Stoke-upon-Trent, Staffordshire.

ENCAUSTIC TILE PAVEMENTS at VERY LOW PRICES.—MAW and CO. of Worcester, being about to remove their works to Benthall, near Broseley, Salop (which will be their address after Christmas), are disposing of all second quality tiles, viz. such as are somewhat defective, but which form good, durable, and handsome pavements, at prices which afford an opportunity not likely again to occur of so cheaply paving public and private edifices with this useful production of modern art. Estimates furnished, with designs, showing the patterns, ancient or modern, arranged to suit any given dimensions; but an early application is necessary, as the stock diminishes as variety of pattern as well as quantity. N.B MAW'S BOOK of ENCAUSTIC and PARQUETTE PAVEMENTS and their arrangements will be sent free on application to MAW and CO. Worcester.

PAN TILES, 42s.; Plain, 32s. 6d.; superior White Suffolk Facing, Red ditto, Fire Brick, &c.—Best Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps Tiles, Clay, Windsor Loam, &c. Ose and other shaped Goods, Windsor and Nonsuch Oven Bricks and Bricks Dutch and English Clinkers, Patent Malt-kiln and Corn-drying finely-perforated Tiles, 12in. and 9in. Paving ditto, unequalled in quality and colour, at WARD'S old-established Hounslow Wharf, Bankside, Southwark, London. Thames Sand, Concrete, Gravel, &c. &c.

PLAIN TILES and HOLLOW BRICKS for SALE. Builders are respectfully informed that they can be supplied with good hollow bricks, of the usual size and shape of solid bricks, at a less price than stock bricks are now selling; and plain tiles, made by machinery, superior to anything yet offered, are sold upon equally low terms.—Apply to JOHN ROBERTS, Upnor, near Rochester, Kent.

BRICKS.—Malm Cutters, Yellow and Pale Seconds, Paviors, and Pickings, of good and sound quality, constantly on sale at H. DODD'S Brickfields, which are only a quarter of an hour's walk from the City.—H. D. earnestly requests parties to favour him with a visit, in order to inspect his stock, and to judge for themselves.

Malm Place, half-washed Stocks, and Place Bricks, also on sale. These bricks are sound, well burnt, and unusually free from defects; a very large proportion of the stock being suitable for external facing.

Apply to HENRY DODD and CO. at the Counting-house, Hoxton Brickfields, Grange-walk, near the Rosemary Branch, Horton.

N.B. Red pit sand of approved quality constantly on sale upon reasonable terms. Malm cutting, from its not containing any saline matter, is acknowledged to be preferable to river sand.

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.

COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutters, Paviors, Shippers, &c. &c.

KENTISH RAG STONE of the finest quality, and of the blue tinge so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.

Apply to Mr. BENJAMIN GOUGH, 37, Newington-crescent, Newington Butts.

WHITE BLUNHAM BRICKS and TILES.—These Goods, so justly celebrated for retaining their colour without vegetating, and, combining great strength with a fine face, can now be obtained, in London, in various forms and sizes, and in any quantity. The Paving Tiles, Clinkers, Splays, Bullnoses, and Facings are well worth attention. Sole Agents: PHILLIP HARE and CO. 23, Steel-yard Wharf, Upper Thames-street.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.

ILLUSTRATED TRADE LISTS, containing much information useful for reference, also specifications and memoranda respecting a MATERIAL which, when well wrought, is probably superior to every other for drains or conduits, for ridges, pipe, valleys, and every part of roofs, for plain or chequered floors, for paving and erections, of a strong and durable nature, also many other purposes, supplied genuine by THOMAS PEAKE (proprietor of Peake's "Terro-Metallic"), No. 4 WHARF, CITY-ROAD BASIN, LONDON; and at THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices by number, and approximate cost by measure. It is solicited that letters be prepaid, and state if Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 37, No. 198 (having been at first No. 111).

TO ARCHITECTS, BUILDERS, CONTRACTORS, &c.

HARTLEY'S PATENT ROUGH PLATE GLASS,

1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for

RIDGE AND FURROW ROOFS, GREENHOUSES, RAILWAY STATIONS, ENGINE SHEDS, MILLS, MARKET HALLS, AND PUBLIC BUILDINGS GENERALLY.

It being universally admitted that Glass in Roofs of a permanent character should not be less than one-eighth of an inch thick, weighing two pounds to the foot, Messrs. JAMES HARTLEY and CO. have directed their attention to the manufacture of a description of

ROUGH PLATE GLASS THAT COMBINES SIZE AND STRENGTH WITH ECONOMY OF COST.

The PATENT ROUGH PLATE is manufactured in sizes expressly for Ridge and Furrow Roofs, giving a span of from 8 to 12 feet, at a price not exceeding weight for weight that of common Crown Glass Not being transparent, blinds are unnecessary, and when used in Greenhouses no scorching occurs; its NONTRANSPARENCY and strength render it eminently suitable for the Glazing of Conservatories and Roofs of all kinds; also Factories, Workshops, &c., for which purposes it is supplied in squares of all sizes, from 8 by 6 inches and upwards.

For further information apply to Messrs. JAMES HARTLEY and CO., Wear Glass Works, Sunderland.

N.B.—The Patent Rough Plate is supplied at a much lower cost than the common Rough Plate.—May 1, 1851.

GLASS IN EVERY VARIETY MANUFACTURED

FOR SHOP FRONTS, WINDOWS, AND HORTICULTURAL PURPOSES.

THOMAS MILLINGTON, IMPORTER AND DEALER, 87, BISHOPSGATE-STREET WITHOUT

GLASS.

SHEET GLASS, 16 oz. to the foot, in 100-feet Boxes, and many other sizes, at 18s. each, box included.

10½ by 8½		12½ by 9½	15 by 13	17 by 13	19 by 16	23½ by 20
11½ by 9½		12½ by 10½	16 by 14	20 by 15	15 by 10½	21½ by 15

Cases in large sheets, superior, for Shop Fronts or cutting up, in either 100, 200, or 300 feet cases, at 20s. per 100 feet, or 3½d. per foot.

ROUGH PLATE GLASS, for Skylights, Conservatories, and Pavements, from ¼ in. to 1½ in. thick. Estimates given for Plate Glass and Patent Plate, for Shop Fronts, &c.

COLOURED GLASS:—Ruby, 1s. 4d.; Green, 1s. 2d.; Blue, 10d.; Purple, 10d.; Yellow, 10d.; and Orange, 10d. per foot. Ornamental Glass, 1s. per foot, in the sheets. Ventilating Glass. Glass Shades of pure white, for models, &c.

SLATES AND TILES, with every article, on the lowest terms.

MILLED SHEET LEAD, PATENT LEAD PIPE, SOIL PIPE, COCKS, WATERCLOSETS.

VARNISHES AND COLOURS.

GENUINE WHITE LEAD, BRUNSWICK GREENS, BLUE, CHROMES, PAINTERS' BRUSHES, GLAZIERS' DIAMONDS AND TOOLS.

REDUCTION IN THE PRICES OF PLATE GLASS.

THE UNION PLATE GLASS COMPANY respectfully inform the Trade and the Public generally, that they have revised their Tariff of Prices, and made considerable reductions therein.

The New Lists may be had on application at the Works, Pocket Nook, St. Helens.

Warehouse, 99, Hatton-garden, London; 11, York-street, Manchester; 15, South John-street, Liverpool; Messrs. C. and J. MALLOCK, 30, Turner's-court, Glasgow; JOHN DIX and CO. Bath-street, Bristol.

NEW PATENT SHEET GLASS, sold in cases, containing 95 sheets, 48 inches long by 36 inches wide—300 feet, at 3l. 3s. per case, net cash. Especial attention is directed to the size, 48 by 36 inches, containing 12 superficial feet, and weighing from 16 to 17 oz. to the foot, which is the largest ever made.

Also any of the following sizes, at 18s. per 100 feet:—

10 by 8,	11 by 9,	13 by 9,	14 by 9,	15 by 9,
16 by 9,	17 by 9,	18 by 9,	19 by 9,	20 by 9,
13 by 10,	13 by 10,	14 by 10,	15 by 10,	16 by 10, 17 by 10,
18 by 10,	19 by 10,	20 by 10,	23 by 10,	25 by 10.
14 by 11,	15 by 11,	16 by 11,	17 by 11,	18 by 11,
19 by 11,	20 by 11,	21 by 11,	22 by 11,	23 by 11.
14 by 12,	17 by 12,	20 by 12,	21 by 12,	
22 by 12,	23 by 12,	24 by 12,	25 by 12,	
16 by 13,	17 by 13,	19 by 13,	21 by 13,	
23 by 13,	24 by 13,	25 by 13,	26 by 13,	
17 by 14,	21 by 14,	23 by 14,	24 by 14,	26 by 14.

Sixteen Ounces to the Foot.

Foreign Sheet Glass, of very superior quality, packed in cases of 200 feet, and in sizes varying from 36 by 26 to 44 by 30 inches, at 38s. 40s. and 42s. per case.

JAMES PHILLIPS and CO. 116, BISHOPSGATE-STREET WITHOUT.

PATENT and BRITISH PLATE GLASS.—JAMES HETLEY and Co. beg to inform Architects, Builders, and the Trade generally, that their new Tariff of Prices for the above will be sent on application; they will also, on receipt of particulars, furnish estimates for any description of Glass now manufactured.—Patent Plate, Sheet, Rough, and Ornamental Window Glass Warehouse, 35, Soho-square, London.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP. and Borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms. CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

PLATE GLASS.—E. and W. H. JACKSON beg to inform the trade that they have REDUCED THEIR PRICES OF PLATE GLASS. Estimates forwarded on application at their WAREHOUSE, 315, OXFORD-STREET.

E. and W. H. JACKSON, beg to call the attention of Builders and the Trade to the LOW PRICES of their PATENT PLATE GLASS, BRITISH PLATE, silvered and for glazing, of unrivalled quality and finish; ROUGH PLATE, CROWN, SHEET, COLOURED, and ORNAMENTAL GLASS, in every variety, of the best manufacture at the lowest terms. Designs and estimates furnished for ornamental windows, either for house or church decoration.—All applications for estimates and lists of prices to be made at their warehouse, 315, OXFORD-STREET.

TO BUILDERS, PLUMBERS, &c.

JAMES MILES'S cheap ENGLISH and FOREIGN WINDOW-GLASS WAREHOUSE, 18, Church-street, Shoreditch, near the Eastern Counties Railway Terminus. Cases of foreign sheet, various sizes, 41s. 2s6 feet, crates of sheets, 16 to 16 oz. 2½d. per foot; good crown C C C, 18, 28s. and also C C, 21, 33s. per crate; patent plate; Hartley's ROUGH PLATE; stained, ground, and ornamental glass; crown squares of every size in stock; sheet lead; pipe; patent gas-pipe; solder and plumbers' brass work of all kinds; white lead, oils, and colours, at low prices: LARGE STOCK of PAPER-HANGINGS; old lead bought in any quantity, or taken in exchange. Sashes glazed and primed in oil at very low prices, in any quantity.

CHEAP WINDOW GLASS WAREHOUSE, ROBT METTAM, Princes-street, Leicester-square.—Established 1794. business, begs to call the attention of Builders and the Trade in general to the low prices of Patent Plate, Crown, Sheet and Horticultural Window Glass. Estimates furnished for Rough, Plate, Stained, Ground, and Ornamental Glass. Builders' Sashes glazed, 3d. per foot super. Price lists forwarded on application, post free.

TO ARCHITECTS, BUILDERS, AND OTHERS.

M. CASENTINI takes this opportunity of informing them that he has just received, direct from Paris, a large assortment of new designs that have never been introduced into this country before, such as centre flowers, friezes, consoles, panels, dr. pa. &c. &c.; Corinthian, Ionic, Doric and other capitals. Modelling and casting in all its branches for the trade on the most reasonable terms. Country orders executed on the shortest notice.—N.B. An Apprentice wanted for the above business.—Mr. CASENTINI, Modeller, No. 56, Oakley-street, Westminster-road.

TO COACH BUILDERS, WHEELWRIGHTS, AND OTHERS.

ABOUT 1,200 capital, dry, well-seasoned SPOKES, free from sap, at Mr. NASH'S, 13, Vauxhall, near Nine Elms Station.—Particulars of JOHNSON and SON, Timber Merchants, Hampstead.

ANCIENT HOUSE FURNITURE

In order to supply the deficiency which has hitherto existed in Furniture suitable for the many Mansions that have been erected or restored in the MEDIÆVAL STYLES, Messrs. CRACE have directed their particular attention to this subject, and have prepared appropriate specimens in the various branches of Furnishing.

STUFFS for HANGINGS, in simple Worsted Damask, in Silk; also in Tapestry of Bauderkin.

CARPETS, plain or in rich Velvet pile, with appropriate Borders.

PAPER-HANGINGS of various kinds.

OAK CABINETS, Buffets, Octagon Library and Occasional Tables, Benches, Chairs, and other useful and appropriate Furniture

They have also received from Messrs. HARDMAN, of Birmingham, samples of their Metal Work; Chandeliers, Sconces, Candlesticks for Tables, Salons, Flagons, and other Ornaments for Sideboards, after the manner of the Middle Ages.

The whole of the above-mentioned Furniture, &c. is designed after Ancient Authorities, and executed under the immediate superintendence of Mr. A. W. PUGIN, Architect.

To render this Furniture generally available, a considerable portion has been arranged in the simplest manner, consistent with its ancient character.

14, Wigmore-street, November, 1852.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¾ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

TO BUILDERS AND OTHERS.

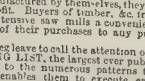
SEASONED WOODS by the Patent Desiccating Process for SALE, at E. I. FULLER'S Depot, 27, Wharf-road, City-road. Spanish and Honduras Mahogany, Wainscot, Hornbeam, Linntree, Birch, Beech, and Veneers. Flooring and Match Boards, &c.

SEASONED FLOORING PLANED to a parallel width and thickness by improved patent machinery, at very reduced prices, as under:

Per square.		Per square.
¼ inch yellow .....1s. 0d.	¼ inch white.....12s. 6d.	
⅜ " " 14 0	⅜ " " 14 0	
½ " " 16 0	½ " " 15 6	

24 per cent. discount allowed off amounts exceeding twenty pounds. Also timber, planks, deals, battens, scantling, sash-sills, &c. at equally low prices. Delivered free to any railway station in London. Terms, cash.

ARCHBETT and ATKINSON, St. Pancras Saw-mills, Cambridge-street, Old St. Pancras-road, close to the Goods Terminus of the Great Northern Railway.



SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANKS, DEALS, and BATTENS, &c., sawn on the most approved principle, Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks, and carted home free of charge.

Address to HENRY SOUTHAM, Saw Mills, Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD-CUTTING COMPANY, TIMBER WHARF, SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge, are prepared to supply timber and deals, &c. cut and uncut, to any extent, at the current prices of the day. They keep a large stock of WELL-SEASONED FLOORING and MATCH BOARDS, which, being manufactured by themselves, they offer at the lowest remunerating profit. Buyers of timber, &c. from the company, will find their extensive saw mills a convenience for the immediate conversion of their purchases to any purpose which may suit them.

The Company beg leave to call the attention of the trade to their NEW MOULDING LIST, the largest ever published, and to state that, in addition to the numerous patterns therein delineated, their machinery enables them to execute every description of mouldings, from drawings, &c. with an accuracy and despatch which must insure satisfaction.

The moulding list containing nearly 300 diagrams, with prices attached, may be had at the mills, or shall be forwarded on receipt of six postage stamps (the amount of the postage thereon).

LEONARD SUGDEN, Manufacturer of Doors, Sashes, and Frames to the Trade, 59, Grange-road, Bermondsey, begs to inform builders and others that he has always on Sale a large Assortment of DOORS, SASHES, and FRAMES of the best quality, at greatly reduced prices. Well-seasoned four panel 1¼ in. square doors, 3l. 10s. per dozen; 1¼ in. sashes and frames complete, with nosings and mouldings, sashes double hung, fitted and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

in and primed, 8 guineas per dozen.—P.S. A full list of prices may be had on application.

ROBERT WARD (late T. Adams), Bermondsey New-road, having taken the premises and purchased the good will of the business lately carried on as above by Mr. Thomas Adams, respectfully begs leave to inform Builders and consumers of wood generally, that the business will be conducted on the same principle as the late proprietor's. The stock, which is well assorted, will consist of every description of building timber, deals, mouldings, prepared floor-boards, mahogany, wainscot, English woods, &c

DURRAND'S "BONDED and SUFFERANCE WHARF," TIMBER-PRESERVING WORKS, ROTHERHITHE.—BETHELL'S process consists in preparing timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piers, Docks, Harbours, &c.; and the Outside Planking of Ships and Barges. And also for use in the colonies, as being perfectly impervious to the attacks of all land or marine insects. PAYNE'S, Sir W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and general Building.

Extensive and most complete Machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.

Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 2 Charlotte-row, Mansion-house, City.

WINDOW BLINDS.—TYLOR and PACE, Window Blind Manufacturers, 313 Oxford-street, adjoining Hanover-square, and 3, Queen street, Cheapside, London, submit the following PRICES OF WINDOW BLINDS, which they can recommend as being made in the best manner:—Venetian blinds, per square foot, 8d.; best holland blinds, on rollers, 6d.; best ditto, on spring rollers, 8d.; gauze wire blinds, in mahogany frames, 1s. 10d.; perforated zinc blinds, in ditto, 1s. 8d.; outside blinds of striped cloth in cases, 1s. 9d. Transparent blinds in great variety. Engravings, with prices and discounts to builders and the trade, forwarded on application, post free.

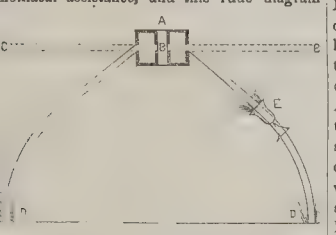
STAINING DEAL TO IMITATE ALL KINDS of WOODS. It requires NO SIZING, and will stand the exposure to the weather. Price 6s. per gallon. Varnishes for W. NAYLOR'S Stains may be had at the Factory, 57, James-street, Oxford-street.

STEPHENS'S LIQUID OAK, MAHOGANY, and SATIN WOOD STAINS, for staining various sorts of Inferior Woods so as to give them the appearance and character of the more costly and ornamental kinds. In the BUILDING and DECORATING CHURCHES, where it is desirable to give to the cheaper kind of woods the appearance of solid Oak, or to make Deal assume the character of Oak Panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these stains will be found more effective than any means hitherto employed. For the exposed Timbers of the inside of the Roofs of Churches, by brushing them over with the Stain, which operation is very rapidly, and of course economically effected, the appearance of an oaken roof will be produced. For colouring the backs of the seats, pews, the fronts of galleries, the pulpit, &c. it is equally advantageous.—Prepared by HENRY STEPHENS, and may be obtained at 54, Stamford street, and at the Office of "The Builder," at both which places may be had the proper Varnish and Size, with directions for use.

The Builder.

SATURDAY, NOVEMBER 13, 1852.

"LET there be light!" and there was light." Divine command: wonderful result! And what light is, and how it acts, we are as unable to say with certainty now, as was the first man on whose astonished eyes it broke in Eden. Call it a specific fluid, or consider it the effect of undulation, it is still a mystery. Its properties have been investigated, and the laws which govern it reduced, but further, philosophy only gropes. Of one of these laws a very remarkable illustration has been recently struck out in Paris by M. Dubosq, known for his philosophical instruments, to exhibit the phenomena of polarised light and other physical experiments, for which a council medal was awarded to him at the Great Exhibition of 1851. What would have been the effect produced in mediæval times on those who might be shown a fountain of scarcely opalescent water, which emitted on intensely bright light where it struck the basin in which it was received, and would do so at any part of the stream if the finger were passed through it? A wave of the hand—and the light was blue; another—and the flash was red. Nothing short of sorcery would have explained it. M. Dubosq, however, as we understand, manages it without demoniacal assistance, and this rude diagram



will, perhaps, enable our readers to understand how. A, shall be the source of the flow, a small metal box supplied by a pipe with water, with an upright opening through it in the middle, B, and four holes in the sides exactly in a line. The two holes in the upright opening are stopped with glass: the two outer holes are open. Charcoal points being inflamed by electricity at B, a ray of brilliant light would, if the box were empty, proceed in the direction C C; light, when transmitted through a uniform medium, always taking a rectilinear course. There is another law, however, to which we must refer, which is, that when light falls on a smooth polished surface, the greater part of it is reflected at an angle equal to the angle of incidence, and then pursues its course in a straight line, unless it meet with some other reflecting surface. In consequence of this, probably, when the water is admitted into our box, A, and flows out through the hole in the side, no light is seen; it is reflected from side to side of the column of water (boxed up in it, so to speak), and only becomes visible where permitted to escape, as at D. Or, if a wine-glass be introduced into the flow, E, a brilliant light will be given off on all sides of it, the colour of which may be altered by means of glasses before the holes at B. The parabolic curve which the outpouring fluid takes, may have something to do with it too, for the parabola has a property in virtue of which lines drawn from any point in it make equal angles with the curve. But we are not pretending to a scientific investigation of the phenomenon, but simply communicating a very striking fact.

The same investigator, who appropriately rejoices in the additional title of *Soleil* (Dubosq-Soleil), has made some remarkable discoveries with respect to the effect of metals on the spectrum,—the elongated image of the sun or other luminous body formed by a beam of light received through a small hole, and decomposed into its various colours by a prism. Copper produces a certain alteration of colour; zinc, we will say, another variation; and if a mixture of the two be employed, the two variations, as we understand it, are shown so as to establish the nature of the alloy. Into this we will not enter. We recommend the boxed-up light to the active demonstrators at the Polytechnic Institution as being capable of very interesting and effective elaboration. Some extraordinary effects might be produced by it at the new Crystal Palace, with the water power which they will have at command. The supply of water here at a depth of about 300 feet is said to be so considerable that one boring will probably suffice to supply all that will be needed.

The last novelty here determined on by the directors is one that will interest our readers. It was originally intended that the Nineveh Court should consist simply of casts of the various wonderful relics which have been obtained by Layard and Botta. At the suggestion of Mr. Fergusson, however, the directors have determined on reproducing an Assyrian palace, on the theory propounded by that gentleman, and set forth in our pages some time ago. The restoration determined on is that of the palace court at Khorsabad, which forms the frontispiece of Mr. Fergusson's book, "The Palaces of Nineveh and Persepolis Restored." It will perhaps be 120 feet long and 40 feet high, with the upper chambers formed on the thickness of the wall, and the projecting cornice profusely chromatised. The bulls, to be modelled for the purpose, will be much larger than those in the British Museum. It cannot fail to form a very striking feature in the Exhibition.

From France we hear, notwithstanding the liberality which some of the Paris papers spoke so much of a few weeks ago, and contrasted with an *untrue* statement respecting the trustees of our Museum, that the authorities at the Louvre have refused to allow casts of the Assyrian monuments to be made for the new Crystal Palace. Various letters have been addressed to them by some leading English statesmen, and we may expect the prohibition will ultimately be withdrawn. We are led to anticipate that the collection of casts and models which is being formed abroad will prove of great value to art in this country.

The works are progressing at Sydenham, but at present not much show has been made. The district surveyor, official referees, and commissioners of sewers have come into the field to see how they can assist in *accelerating*.

In connection with sewers, as we are "booking new things," we will mention here that a company is in course of formation to carry out what seems to us a very promising idea. Cream of lime, as our readers know, mixed with sewage water, causes a deposition of all the solid matter the latter may contain, so complete indeed that the water is made perfectly pure and tasteless, and, moreover, singularly well adapted, it is said, for dyeing and other industrial purposes. Various endeavours have been made with more or less success to dry rapidly the residuum: if by simple evaporation, a long time is required, and artificial heat is of course expensive. It occurred to Mr. Wicksteed to apply to it the principle of the "Wringing Machine," whereby wet clothes, being made to revolve rapidly, are deprived of their moisture by the centrifugal action in something less than no time. The new application (patented) is said to be perfectly successful. When the deposition is effected, and the purified water passed off, the mud is lifted by a simple mechanical arrangement into a cylinder of metal gauze turning on a vertical axis, within an outer chamber, and, rapid motion being given to it, the water flies off through the gauze and falls to the bottom, while the solid matter, in the course of a few minutes, is left perfectly dry in the cylinder, and is thence removed for use, by a piston working with the rest of the machinery. We do not pretend to say what effect the process may have upon the quality of the manure, what changes in its constituents may be made by the lime, but this of course will be ascertained. If the result be satisfactory in this respect, and our information be correct, we are disposed to think we have here the solution of a difficult question, involving most important results, especially if the operation can be conducted without offence to nose. Machines would be put up at the disembogue-ment of sewers, the defilement of our streams prevented, and the cost of fertility be lessened. What poisons in the river will produce the means of life in the fields.

The great command still operates,—

Let there be light.

SOME OF THE PRINCIPLES OF DESIGN IN ARCHITECTURE,—HAVING PARTICULAR REFERENCE TO ECCLESIASTICAL EDIFICES.

ONE of the results of our blind reverence for antiquity, and of the extravagant influence of precedent, has been forgetfulness of those unchanging principles by the application of which we can alone arrive at real beauty in architecture. Antiquarian research into the art of the past, discrimination of distinctions in style, anxiety after chronological truth in the recombination of ancient elements, have, indeed, left little time or inclination for study of what constitutes architecture itself,—for gaining a knowledge of those laws that are binding upon all styles, and that cannot be suspended in favour of any; and consequently ignorance of the conditions of beauty has produced a multitude of buildings which, however correct in style, do not give full satisfaction. I am not charging this error upon the professor of either of the prevalent styles in particular: both are guilty in this matter: both have mistaken the means for the end. In each school we have seen the most unreasoning search after ancient forms, without inquiry into the æsthetic principles on which they have been produced; and in both we have seen the result,—exuberance of production, but little advancement in art; for I am convinced that thirty or forty years ago, and in other periods when art-styles and their distinctions were less understood, there were produced churches and other works in many important respects superior to those

we have since seen erected. And the reason is, that the very deficiency of their required knowledge threw the architects on their own mental resources, and rendered them unable, had they been willing, to be copyists.

Now, whatever else we must have, beauty is essential to our art; beauty is its end and aim: but we can only have it on certain conditions; and both Gothic and Classic architect must know and be obedient to those principles and laws of proportion, composition, and the rest, to which Greek and Mediæval succumbed. Some of these form the subject of the following paper. I will take them as they naturally occur to me in the contemplation of an ecclesiastical edifice, to which my remarks more particularly bear reference.

Much of the beauty of Gothic churches depends upon the proportion of spire to tower; but the extreme difference existing in this respect between different buildings, leads me to suspect that no law has been observed in the adjustment of any. A law, however, there certainly must be: let us discover, if we can, what it is. It has ever been my impression that a spire cannot be the mere crowning or finish of a tower, but the principal feature in the composition. I believe that the introduction of a spire degrades the tower to the rank of pedestal, and that the latter must therefore in form and size be adapted to a new office, viz. that of supporting, elevating, and giving dignity to the spire, which, being incomplete in itself, calls for the tower as a basement: in other words, it must be an imperfect tower, *i.e.* a tower which, divested of its spire, would be seen to be incomplete, that must be associated with the spire. Certain I am that a spire on a complete tower, a tower perfect in its fully developed proportions, that would satisfy the eye as a tower, can never appear anything but an encumbrance to it, a thing to mar its beauty. To give the spire that effect of grandeur of which it is capable, it must be made the chief feature in the group, and be placed on a tower merely to raise it above the roofs of the church. The tower should not be even *equal* in height to the spire: if equal, they must challenge equal attention, and the whole appear disjointed: the eye is directed to the line of junction, and each component part is but secondary in the view. Moreover, when we surmount a tower with a spire, height is henceforth lost upon it; as it is upon the spire the steeple must be dependent for all effect of loftiness and sublimity.

It certainly goes far to lessen the evil of equality, when the upper story of the tower, by breaking out into greater relief, richness, and lightness, by the introduction of windows and buttresses, the pinnacles of which embracing the foot of the spire seem to unite that feature to it, make the lower part of the tower, by its contrasted heaviness, seem a pedestal for the whole.

The principle of proportion I have here suggested, has, I think, been acted upon at Litchfield and at some other churches; and if acted upon to a greater extent in the present day, would be productive of more picturesque and satisfactory piles than we see around us; towers being generally so high as to cause an entire height of steeple disproportioned to the church, and make the steeple appear as a thing not of it. And the defect is not confined to Gothic: even Wren's steeples, some of them, offend in this respect: their diminution does not commence soon enough: there is too much straight tower: if the latter were lower the whole would be better connected with the church, and the spire would be brought into greater union with the body of the building, and give to the composition a more simple and graceful outline. Expressional requirements may be had, I presume, consistent with goodness of composition.

Mr. Ruskin, in treating of proportion, speaks of the pinnacles being the third term to the spire and tower. I believe he is in error here, and that he, as well as Mr. Garbett, mistakes the meaning of the term proportion as generally used by architectural writers and understood by the profession generally. The latter writer quotes Euclid, according to whom proportion is the similitude of ratios, and consists of three terms at least. This is undoubtedly true, but true only of geometrical proportion, or proportion in the geometrical sense of the word. Proportion, in the common or architectural acceptation of the term, simply means, as I believe, the relation of two objects, lines, superficies, or bodies to each other with regard to dimension, and which is governed in architecture by some physical or æsthetic law without reference to the relative sizes of any two other objects, or of one of the former objects to a third. A building may, like many productions of nature, have three, four, or more parts, stories, or what not, in geometrical progression: or there may exist between two buildings a similitude of ratio, *i. e.* the ratio of their respective parts may be the same; but this is not the proportion meant by architectural writers; for the word is used intelligibly in reference to two parts only, and where no third part exists. We approve of the proportion or relative sizes of two things in many buildings, where certainly no third term can be found: a façade consisting of an order of columns on a rustic basement, or a centre and wing of a building, may have good or bad proportion: the depth of the entablature is undoubtedly well proportioned to the height of the columns in the Parthenon: where is the third term? In short, it will be found that the relative sizes of two things in architecture is founded on the nature of their relationship: the proportion of burden to support, for instance, being determined by a physical law arising out of the nature, strength, and quality of the materials, must vary according to these, and cannot be determined by the ratios of any other two objects, which may have a totally different relation to each other.

The tower being subordinated in the manner described, must be kept heavy and massive; undivided, except in its upper story, where it should break into more numerous parts, to assimilate the better with the spire. Keeping the foundation or basement solid, and confining the light pierced openwork to the summit, is most important: it is in accordance with the method of nature. The foundation, if decorated at all, must only be decorated by such delicate tracery as obviously will not interfere with its strength; while the spire may be pierced and sculptured to any extent, so it be kept broad and simple in outline; affording the greater effect by contrast with the massiveness and weight of its base.

In spires I think a good deal depends upon module,—the ratio of height to base. I believe the spire whose height is about five diameters of the base is in the most graceful proportion, —the Corinthian Order of spires. This height, by the way, being equivalent to ten times the centre diameter, gives a spire so proportioned a somewhat literal claim to be so termed.

The distances between the sculptured bands, or horizontal divisions of a spire, I would increase upwards in a gentle geometrical progression, say as 16, 20, 25. This would give emphasis to the aspiring expression, which should be more intense at the summit.

The proper connection of spire and tower is the point next in importance. Mr. Britton says he sees no beauty in Salisbury spire. Now Salisbury spire I think much like our other spires; but there is certainly a want of beauty in the steeple as a whole; and this arises, I am persuaded, from the mal-connection of its two great components. The whole steeple, though he might have found one far more faulty, is really no very great triumph as a fine-art production. The architect, it is said, was determined to make it the highest in England; and we can scarcely be surprised, that with such an aim he did not make it the most beautiful. There is certainly little feeling exhibited in a perpendicular line one hundred feet high, joined above by an inclined one, one hundred feet more. The chief scope for feeling in such structures consists in adjusting the tower to the harmonious reception of the spire, proportioning the latter to it, and in gracefully joining them together. A tower truly formed to receive a spire, and one built without reference to a spire, are, as I before intimated, very different things. A tower truly built, adapted by successive set-offs to receive a spire, *must* receive a spire, or for ever be imperfect. A spireless tower has most power and effect carried up perpendicularly, like those of Lincoln (west front), Canterbury, or Exeter; but a spire could never unite with such towers. So that, when surmounted by a spire, a tower must partake of the pyramidal and aspiring character,—anticipate, as it were, the diminution of the spire. In some continental examples the tower is so diminished as to bring its sides and those of the spire into almost one plane or gentle curve, giving the perfection of unity. Indeed, in many tower and spire are entirely blended, and present to the eye but one feature and one beautiful curve or outline. While too many in England have tower and spire, or tower, lantern, and spire, which all appear as if made without reference to each other, and then brought together: in these continental examples the parts are so fused, as it were, into one as to be almost lost sight of as distinct features. In spires like that at Antwerp we scarcely discern where one ends and the other begins. In some such examples I will not deny that this principle has been carried to too great an extreme; so far as to the sacrifice of power and the production of monotony.

It should be here observed that a spire does not make good composition unless carried out by other kindred forms, such as pointed gables, turret-roofs, and finials of buttresses; and is most consistent when rising from a cluster of subordinate pinnacles. A great objection to the spire in classic architecture is, that in buildings in that style, there are no other pointed features to keep it in countenance, and link it to the body of the church. In this style it stands alone, unsupported, uncalled for, unjustified by other features of the structure; while in the Gothic, on the contrary, the widely distributed pinnacles nearly equal, and the various points of gables of different heights and sizes, call loudly for one pre-eminent feature of the same character to unite them.

A spire would greatly improve, nay, rectify many of our cathedral piles. Every architect who takes an attentive general view of York Minster, must feel the want of a centre spire as a crowning to the noble composition, to give it unity and completeness. What the dome is to a classic pile, I believe the spire is to a Gothic one. To me a spire appears indispensable to a perfect Gothic pile. To say the least, a spire-crowned church has a great advantage over one that is spireless. The spires of Litchfield, I consider, place that cathedral on a level with cathedrals otherwise far superior, and render it a truly noble composition. The great centre spire is really stirring to the imagination; and a feature so striking by its size, form, or position, is of incalculable value in an æsthetic point of view, as the imagination, excited by its image, must colour with its hues every other feature, and magnify more or less the entire structure with which it is connected.

A composition can be made of course that would admit harmoniously a square tower-termination; *i.e.* sufficient squareness in composition may be observed below in the body of the building: but most Gothic compositions seem to call for the crowning pyramid, or finial presented by the spire. Besides, the spire is more proper expressionally. The aspiring principle is best carried out by it; and it is the most significant and true. A tower having reference to defence, is in the present day meaningless. There is a majesty about our old Norman towers, but they are scarcely of peaceful and ecclesiastical character.

I intimated above that, beyond a certain height, a tower is not only disproportioned to the spire, but causes a disconnection between the spire it bears and the body of the church. This is an important point. We should not only secure a beautiful tower and spire, but we should attend to beauty in the entire composition of church and steeple, which latter should be so placed and so proportioned, that it will have the most intimate union with the mass of the building. To me, all composition seems to want unity where the base-tower goes

igh above the church: the spire in such case s quite alienated. If an effect of greater randeur be wanted, I would say—dispense vith spire, and have a lofty and perpendicular ower; but, surmounted by a spire, the lower he tower the better must the whole be nited, and conform to a general pyramidal utline.

Lanterns and spires, like those of St. Nicholas at Newcastle, and St. Dunstan's-in-the-East, London, are liable to great objection on hese grounds. These steeples each present a yramidal composition above, that has not the east connection with the body of the building. The high perpendicular tower on which they re placed cuts off all connection between them nd the church, the composition of which they annot at all aid; and they figure as a mere apping on a tower that is complete without hem. Besides, there exists between them nd the towers themselves no proper conection: there is, on their part, too great a isparity in size: they seem too small to have ny real relationship to them. Such objects re, at least, fantastic and inappropriate in xpression for a church; and, with their niniature windows and other features, have omewhat of a toy-like appearance. Their ntroduction is architectural daring, which is llowable only when the purpose is worthy f it.

Some architects go back to the original type f the spire, and finish the tower with a high-itched and slated roof, showing eaves. These, owever, having a roof character, cannot, I hink, be carried beyond a certain very moderate height; as, for the mere purpose of throwng off rain, a pyramid approaching the proportion of the spire is ridiculous; whilst, kept ow, the objection to such roofs is, that they present planes too nearly parallel with the planes of the main roof. Spires so elevated above all the roofs call for the extreme measure of the aspiring spirit, that they may form a climax with those below.

Not only in reference to spires, but to even spireless towers, are these principles to be kept in view. In many otherwise good designs, no composition has been aimed at that unites in one the church and tower, and embraces the whole into a harmonious group; the height of the latter being generally determined on without reference to the body of the church it adorns. But no good reason can be given why the laws of composition are here to be set aside. If the tower cannot be properly united to the church, then detach it at once like the Italian campanile.* S. H.

SANITARY ARCHITECTURE.

In case your correspondent "D." who writes at the end of your current number, should be led, or lead any one else, to practise my "view" of ventilation with his "addendum," allow me to state some reasons against the addendum, which was neither overlooked in my view, nor omitted without thought.

First, his fundamental assumption that the respired breath (which he loosely calls "carbonic acid") will *ever* become like a "heavy palpable fluid" requiring *downward* drainage, is more than doubtful. Is he aware what is the utmost proportion of carbonic acid it ever contains? Not, I believe, a *fifteenth* even when just leaving us, before beginning that mixture with the surrounding air which must, before it has cooled, have irrecoverably diffused it; for he must remember that gases, however unequal in weight, never float one on another like water on mercury for many minutes or even *seconds*, but always *actively* mix by the action which Faraday has lately investigated under the name of "gaseous diffusion." For instance, two narrow-necked bottles or globes are filled, not the one with pure air and the other with breath (whose densities may be perhaps as 50 to 51), nor yet with air and carbonic acid (whose densities are as 2 to 3), but with carbonic acid and hydrogen, whose difference of weight is no less than as 20 to 1, or as great as between the very heaviest and lightest of liquids, between mercury and ether. They communicate only by a long narrow pipe with a stop-cock, and are placed with the heavy gas downward. Yet Faraday finds that, in a very few minutes, both globes contain only a perfectly equable mixture of the two gases; and this is hardly a minute longer in happening than if the hydrogen had been in the bottom instead of the top globe. There is nothing approaching this activity of intermixture in the case of *liquids*, even those that have chemical attraction for each other, as alcohol and water. They would be hours in mixing thoroughly under the above circumstances. Yet, place even *these* in the relations of the fresh and foul air, *i.e. reverse* their natural difference of weight by a sufficient difference of temperature, warm the water till it is lighter than cold alcohol, and though you may conceive it rising through the alcohol, as our breath through pure air, and even floating thereon, as hot milk on cold water, yet you would hardly expect it to remain unmixed not only long enough to cool down to the lighter fluid's temperature, but then to sink through it, and still maintain its separate condition at the bottom: would you? No, you would say, if only for the reason that in this cooling down from the state of being lightest to that of being heaviest, there must be a moment at which the hot fluid must be exactly *equal* in density to the cold one through which it is then beginning to descend. If "D." will try the experiment, I do not think he can, even with liquids, obtain this result, or make the milk (for instance) *first rise* through water because it is hotter, and *afterwards sink* through the same water because it is heavier. Of course, the experiment would not be fair with unmixable liquids, as *oil* and water, because we know of no gases analogous to this: all known gases are not only mixable, but mix actively, and when once mixed, never again separate mechanically.

Hence we see why, notwithstanding the constant production of carbonic acid, in so many ways, all over the earth's surface, it never drains down like a palpable fluid, as "D." supposes, or stagnates in depressions of the surface, except where *produced cold*, out of the ground itself, in mines and certain *extinct* volcanic places, or from cold ingredients in wells and sewers. All the general and necessary sources of this gas, animals, volcanoes, and artificial fires, send it forth hot enough to rise (from fires always, and from ourselves in all states of the temperate, and almost all states of the tropical atmosphere) out of our way, by its own temporary levity. And yet, by that same levity, and its subsequent cooling, it is more quickly diffused through the whole air, so as to be harmless to us and serviceable to vegetation, than it could be if either heavy from the first, like cold carbonic acid, or permanently light like hydrogen. Both these, observe, would pretty soon be thus mixed throughout, but not so quickly as the warm carbonic acid, which yet, by this exquisite adjustment, is, during the process of mixture, kept entirely out of our way.

Indeed, observation as well as theory seems to show that carbonic acid *once* heated enough to rise, does, from these causes, never sink again in the isolated form of choke-damp, or pollute any particular portion of air more than neighbouring portions, much less tend again to collect and drain downward. It is even found, I believe, that at great heights, whether on Mont Blanc, or attained by balloons over our plains, the air contains slightly *more* of this heavy ingredient than down here where it is being constantly produced (but also constantly absorbed by vegetation). Again, in the experiment of tapers burning in a confined space at different levels, the *upper* ones are the first extinguished.

We have no proof whatever, then, that even the almost *undiluted* carbonic acid from fires and lights, once raised by their heat, ever tends to drain downward, or be diffused in this direction more than others, either in the natural atmosphere, or *necessarily* in buildings. Of course in such needlessly unnatural circumstances as under our flat ceiling, it may and does, because every new warm breath, as it rises to that noxious plane, displaces and sends down the previous one that had just been spread out and cooled by it. Hence chemists find, in the air of our theatres, the natural order so exactly reversed that the air of the upper galleries, though much hotter, is, if there be any difference, rather *less* impure than that of the pit. A flat or undraining ceiling (such as all that we now use) plays battledoor and shuttlecock with our breath, bandies the carbonic acid up and down, and is the most effectual means that could possibly be contrived for thoroughly mixing it throughout the limited space of the *building only*; whereas it ought to be as quickly mixed throughout the *external air only*. And this, nothing but a ceiling expressly designed to do so can effect.

To show this quickly mixing and thoroughly polluting action of a flat ceiling, if the experiment of the tapers be tried in a space so covered, they will all go out *so nearly together*, that sometimes the highest, sometimes the lowest, may be first.

2ndly. But not only will carbonic acid that has once risen have no tendency to descend the proposed pipes—they will, unless many times larger or more numerous than any water-pipes, most needlessly obstruct the action; for observe, that the whole power by which self-ventilation is kept going must be derived from the current through the ceiling-vents. It is at the ceiling alone that any air is pressing to pass through from one space into another: it is there alone that the mere formation of the surface and opening of holes in proper places will be followed by a passage of air through them of its own accord, and constantly the same way; and this current must precede and cause all the others, must be the sole motive power, both to draw in behind it fresh air through the inlets near the floor, and to drive out before it the foul air that has already got above the ceiling. This order of causation (as I have shown in the appendix to the work whence this "view" was quoted) is of the utmost importance to remember. We can no more reverse it—no more make the entry of fresh air cause the exit of foul—than we can reverse the causation in a rope by which a steam-tug is towing a dead hulk, and say the hulk shall (still remaining behind) drive on the steamer by this same rope. The fresh air has neither tendency of itself to enter, nor, if it did, could it drive out the foul air, any more than a gill of water poured into a pint measure brim-full of a mixture containing a gill of wine, could drive out the wine. No mechanical power on earth can either *expel* or *extract* foul air from fresh. No power can rid you of it except its own levity, allowed to act *immediately* as it leaves you, before cooling or diffusion, and unchecked by one needless disturbance or obstacle. For, observe, this power is *only just* adequate to that effect, and it can receive no extraneous aid: no amount of steam-engines can either supply its place or do any portion of its work. Hence I have not scrupled to declare in the plainest terms, that everything in sanitation — *literally everything* depends on the right forming of the whole ceiling surface and its vents; and that *literally nothing* can remedy their wrong form. It grieves me, of course, in reading the late thick blue-book on this subject, to find how much trouble, time, and money have been sunk in the contest with an insuperable difficulty; but such a difficulty each foot of Sir Charles Barry's flat-ceiling planes presents. I do not mean to imply that the unity of a great work of consummate art springing from one mind and for one mind, should be broken in upon by such utilitarian vulgarities. No; let this mighty monument be finished and left to bear his name with *circumspice*. The senate-house for use may well be separated from that of ornament, and erected elsewhere (an expedient Mr. Bull has applied to almost everything else, and which solves many difficulties), but in this proposed second Westminster Palace, the alternative is plainly this,—if Sir Charles cannot Gothicise without flat-ceiling surface, Parliament CANNOT have what it desires,—two rooms retaining air of the same purity when the occupants leave as when they entered them. I do not touch the questions, observe, whether it is the office of architects and engineers to make difficulties or

* To be continued.

talk about them or solve them, but whoever attempts the last will find that no science yet known, no steam-power, and no number of millions the coffers of England can supply, will meet the difficulty here presented by a foot of flat ceiling.

Well, as the ceiling-surfaces and vents, then, are the only engines which can keep the required current in motion throughout the building, and as their prime mover is of limited power, not only is *their* form and structure all-important, but so is the avoidance of all needless obstruction to their work, or to the exit of the air already above them, which is only passively expelled by their agency. Now, the descending-pipes added by "D." would offer it a most needless resistance by their mere length, supposing them, of course, to have an area at least equalling that of all the ceiling-vents, which would require them to be far larger or more numerous than any rain-pipes.

3rdly. But I have shown (in the appendix to the work quoted) that wherever there is a chimney and fire fed from the room, the *chimney* is the only available final outlet. Any other passages, as the pipes proposed, would become inlets. So that, as the chimney *must* be the general foul-air outlet in winter, there is no reason why it should not continue so in summer. A change to rows of wall-outlets between the ceiling and roof, or ceiling and floor above it, would certainly be preferable, because the higher the external temperature, the weaker becomes the self-ventilative power, and the less resistance should be opposed to it. But this refinement might be left to superior buildings.

4thly. As to the objection of "D." against "cold carbonic acid pouring out" of apertures on the faces of the building, and infecting the air about to be drawn in, he forgets that, as these apertures must be either all round the building, or at least on two opposite sides, the foul air would always escape to leeward only, while the supply of fresh comes necessarily from windward. Moreover, these external wall or cornice outlets are proposed only for chimneyless apartments, and consequently would be general only in warm climates. In ours they would be confined to public buildings.

5thly. If all that has been said would apply to pure "carbonic acid" (as "D." miscalls the foul air), much more will it apply to this refuse as actually constituted. Can "D." be aware how little of that heavy gas it ever contains? It was shown (I think by the late Professor Daniell), that the greatest change the lungs produce on air passing through them, is to convert one-third of its oxygen into carbonic acid. Now a third of the oxygen is about a *fifteenth* of the whole air, and oxygen takes up just three-eighths of its own weight of carbon to become carbonic acid. The addition we make to our breath, therefore (and which from vital renders it poisonous), is simply a little carbon, in no case more than three-eighths of a fifteenth (that is, *one fortieth*) of the weight of the said breath. If then, its bulk were increased one-fortieth (or in the same proportion as its weight is increased) it would neither rise nor sink in the atmosphere. Now this amount of expansion would be produced by raising its temperature about 10° or 12° Fahr. above that of the general atmosphere. Hence, unless the animal temperature 97°, exceeded the atmospheric temperature by *at least* 10° or 12°, there would be no ascent of breath, and no ventilation except by extraneous force, —by *wind*, natural or artificial; and those who have lived much within the tropics will confirm this deduction, that when the general temperature approaches within 10° or 12° of that of the body, that is, when it exceeds 85° or 87°, there is an entire change in the conditions of comfortable life. There is somewhere about 85° a critical temperature at which we feel the difference of one degree above or below it, more than we feel the difference between 60° and 80°, or between 90° and 109°. Above 85° a perfectly *calm* air becomes as unendurable as it is, by providential appointment, uncommon and even phenomenal. We become dependent as it were from hour to hour on the constancy of the sea or mountain breezes, because self-ventilation no longer acts even out of doors, and no dwellings would be habitable which did not give free passage to the winds. While the temperature exceeds 85° therefore, the form of ceilings becomes indifferent; but as there are, I believe, no habitable spots where the air, at any season, exceeds this critical point for even *a few hours* together, there will be no part of the globe where this attention to ceiling-forms becomes unimportant. The warmer the general climate, the more important it becomes, because the feebler becomes the breath's ascensional force.

Hence, in conclusion (without entering on the bearing of sanitary domestic architecture upon the more general and extensive *moral* question of *bloody or bloodless engineering*, which I hope to show includes much besides this), I think I may say, without riding a hobby too far, that a strict attention to this element of architecture, would no less than *double the extent of man's habitable earth*, by adding to it those millions of square leagues of *intertropical inland plains*, mostly of such inconceivable fertility that their perches are equivalent to our acres, yet hitherto left wildernesses, not from heat (which there is no reason to suppose averages higher than that of the coasts), not from the failure of those brisk aerial currents which, being excited only by the inequalities of temperature between land and sea, or between highlands and lowlands, are constant only within a few miles of either mountain chains or coasts. For these breezes, we have seen, are only *really* necessary to life in continued heats of above 85° (which point is rarely exceeded for more than the hottest part of the day anywhere). In the ordinary equatorial temperatures, between 75° and 85°, such currents are not naturally necessary, but only rendered so by chance-constructed dwellings; so that by the *substitution of scientific for random architecture*, these vast and exuberantly-teeming regions (which we cannot doubt are included in the "earth" Adam was to "replenish and subdue") would from uninhabitable become habitable. E. L. G.

ON PORTABLE FARM BUILDINGS,

SUGGESTED AS A REMEDY, IN SOME DEGREE, FOR THE SCARCITY OF FARM LABOURERS.

On the 24th of July, 1852, a friend wrote for my opinion as to the best plan for a complete set of new farm-buildings, and, as I had reason to suppose that they were to be erected on a farm not yet enclosed, or in any manner fettered by roads or other artificial works, it seemed that, as these would be unusual circumstances, the more caution was necessary to begin in a right manner, because if the best plan was not adopted there would not be the usual and unanswerable excuse of old buildings being in the way.

It seemed obvious that, as the general fault of old plans was, that they did not leave space for adopting all subsequent improvements, it would be desirable to discover, if possible, some new plan that would *expand* and adapt itself to circumstances, so as to admit of future improvements, as well as include all those known when the buildings were first erected.

Each building should be, not only the right thing in itself, so far as knowledge in such matters has advanced, but also so contrived, if possible, that it may be, on each occasion for using it, in the very best place on the farm for economising labour, and whatever else is valuable, so as to obtain the largest value in produce at the smallest cost.

Knowing that some of the best plans hitherto produced have obvious faults of position, when tried by this economical test, and believing it to be almost impossible to *fix* a whole set of buildings so as to prevent the chance of this being proved by experience, or by improvements in the modes of carrying out agricultural operations, I was forced to the conclusion that to make the buildings *portable*, or removeable from one part of a farm to another, would be one of the most likely means, if not the only means, whereby to correct errors of position, and to give room for expanding or contracting the general plan as circumstances might prove to be necessary.

I have known cases in which it was clearly proved that some of the best farm machinery was worse than useless (leaving the cost of the machinery itself out of the question), because more extra expense was incurred by bringing the farm produce to and taking it from the machinery than the value of the work done by the use of the machinery; but if this machinery had been "portable" it could have been applied with decided advantage.

It may be said, with truth, that portable farm-buildings would be more generally beneficial in the colonies, or in other countries where the land is at present unenclosed and in its natural state; but the same remark would apply more or less to almost every other agricultural improvement, and particularly to all such as relate to railways, tramways, trucks, carriages, and modes of conveyance generally; but as some of the inhabitants of other countries are likely to adopt real improvements whether we do or not, that is a reason why we should apply them so far as they are likely to be beneficial under our circumstances, but no further.

In a case where all was to commence, that is, where there were no roads, fences, gates, ponds, or buildings, it might, but I do not say it always would, be desirable to have all the buildings moveable.

Where the reverse of all this was the case, and the farms were also small and compact, probably there would generally be so much the less necessity for moveable buildings.

Where the farms were large, and the land scattered, or far from the present buildings, it might be good economy to have new and portable buildings for the outlying fields.

In no case should present buildings be pulled down hastily, especially if they are in good repair, and likely to cost little by remaining where they are.

In short, I wish it to be clearly understood that I do not advocate rash and costly changes, or any changes that after due consideration are not likely to be profitable.

If any one doubts the value of having farm-buildings moveable, let him bear in mind what a saving of labour there would be in some cases, by having portable cattle-boxes, &c. to take to one end of the farm, instead of bringing the turnips and straw, &c. from that end of the farm and then taking them back again as manure.

Unnecessary labour causes other labour that would not otherwise be necessary; for instance, unnecessary carting on roads causes labour in repairing them.

By avoiding the first error, and consuming the produce, or part of it, near to where it was grown, the number of operations saved would vary according to circumstances, so I will not attempt to enumerate them; but in some cases the saving in the cost of labour, and in the quality of the corn by harvesting it more rapidly, might be equal to the whole rent of the land.

It may be said that, to do this, the cattle and their "boxes," &c. would want a labourer to look after them; and "where would he live?"

My answer is,—Why should not he live in a portable cottage close by his work, if that would pay the landowner and occupier the best as a means of enabling them to cultivate the land?

When 1,000 men can live in a portable building at sea, surely a labourer, and his wife, if necessary, may be provided with a portable residence on land that would contain more comforts and conveniences than they are accustomed to.

If horses had portable stables close by their work, they would lose less time in going to and from it; therefore they would be able to do more real and necessary work in the same time.

They could be comfortable in the stable close by when not wanted on the land, and what is more, they could be making the best manure by eating a green-crop of lucern, tares, or whatever else was most likely to be profitable to grow close by, and the manure so made would be close by where it was wanted.

I have no doubt it is quite practicable to make every necessary farm-building moveable, and in many cases I am quite certain that it

KNOCKER FROM FLORENCE.



would pay well to make part of them portable, especially now that there is a probability of an increasing scarcity of farm-labourers,—which proves how important it is to employ such as there are on labour that is really necessary and profitable.

* * * * *

I am not aware that any one has previously suggested the trial of "portable" farm-buildings, and I am prepared to receive the usual proportion of ridicule as a proposer of a new plan; but I wish to submit it to the fair consideration of all persons who take an interest in such subjects, and I am more particularly desirous of drawing the attention of agricultural implement makers to the idea that, if some farm-buildings, such as cattle-boxes, were made "portable," they would afford to them another source of profitable employment for their capital and skill, and a means of being useful to others. BARUGH ALMACK.

A KNOCKER FROM ABROAD.

THIS knocker was sketched in Florence. It is composed of wood and bronze, and is altogether 4 feet in height. No one will say it is "not worth a rap;" nevertheless, we do not give it for imitation. It is a curious piled up vagary, made valuable by the skilful hand which put together its incongruous constituents.

A BANQUET IN HONOUR OF ART AND LITERATURE is to be given shortly at Birmingham.

NOTES IN THE PROVINCES.

Cambridge. — The University and Town Waterworks Company, lately formed, has employed Mr. James Simpson, C.E. to examine and report upon the scheme; and the water, according to the *Cambridge Chronicle*, has been favourably reported on by Dr. Alfred Taylor, Professor of Chemistry, who has analysed it.

Ryde.—An attempt was lately made to form a water company to supply this place with water; but the promoters of the Public Health Act have resolved to await the formation of a local board of health, who will have power to supply the town with water.

Cowes.—It is proposed to have a floating bridge between Medina-wharf, West Cowes, and the old Custom House-quay, at East Cowes. A plan of the proposed bridge, according to the *Hampshire Advertiser*, has been prepared by Mr. Dredge.

Kemerton (*Tewkesbury*).—The church at Kemerton has been decorated and re-opened. The chancel has been painted in polychrome, and two windows have been filled with stained glass. An oak screen and a new organ have been added.

Cirencester.—It is proposed to take down the north gallery of the parish church, and to throw open Trinity Chapel to the back of the building. Earl Bathurst, it is said, will give 200*l.* towards the cost of alteration.

Kidderminster.—A spirit of improvement appears to be at work here in street architecture. A shop front, 102 feet in length, has lately been remodelled on a design by Mr. T. Smith, of Stourbridge, architect, executed by Mr. J. C. Harris, of Clifton, builder, at considerable cost, and with more than ordinary pretensions to provincial splendour. It has five windows, each containing four panes of plate glass, each pane being 9 feet long and 3 feet broad, and one with two panes. The lower portion of the building is faced with stone, the upper is stuccoed. Between the windows are eight pilasters with moulded capitals, which support a moulded and enriched cornice, balconies, parapet, &c. There is a lavish use of gold upon the parts in relief. The pavement in front of the shop, too, has been much improved, and the whole will, doubtless, lead to further improvements amongst rival drapers and others in the shop-keeping line.

Glasbury-bridge, Herefordshire.—This bridge appears to have been a constant and standing subject of discussion and annoyance at county sessions for several years back; and now that the old one has given place to a new, the annoyance and discussion, so far from being brought to a conclusion, only seem to be increased. The new bridge is on the suspension principle, with spans of 60 feet, and inch and quarter girders as the main support, besides the piers. The first contractor who attempted to carry out the plan found that he had to build his piers upon sand, and seems to have thrown up his contract in despair. This difficulty was overcome by a new contractor, Mr. Wylie, who has carried out the contract so far on the original plan that traffic has been allowed, without testing the strength of the bridge, and now it appears that the vibration with an empty cart is so great, that foot-passengers are apt to be upset by it, and several of the tie-rods have already been broken. The contractor states that the welding was defective, and proposes to substitute or add timber props in the middle of each waterway, to which many of the magistrates indignantly object. The contractor complains that twenty tons of gravel, on which he had not calculated, have been placed over each watercourse. He is bound to make a secure structure on the plan given, and to keep it so for seven years. He expresses his willingness to do this, but asks permission to erect, at his own cost, the timber props referred to as the best way to secure stability; only he is ready, if the magistrates choose, to have better welded tie-rods instead; but these, he alleges, will even then prove to be a continual source of annoyance so long as the bridge exists. The matter, in the meantime, has been referred to the county surveyor for his report on the points in question.

St. Bride's Major, Glamorgan.—The ancient parish church of St. Bride's Major, which contains some interesting tombs of the Butler family (formerly possessors of Dunraven), having undergone a restoration, was reconsecrated by the Bishop of Llandaff on 28th ult. The nave has been almost entirely rebuilt in the Decorated style, covered with an open roof of timber of the waggon-head form, and fitted with open seats. The chancel has been also fitted with stalled seats for the Dowager Countess of Dunraven and family. The pulpit is of Sutton stone, carved. Owing to the refusal of the lay impropriator some contemplated repairs of the chancel have been abandoned. The alterations were carried into effect from the designs and under the superintendence of Mr. Egbert Moxham, of Heath, architect.

Hanley, Staffordshire.—The corner stone of St. Luke's Church, Wellington District, Hanley, in the Staffordshire Potteries, was laid on 30th ultimo by Mr. Smith Child, one of the members of Parliament for the northern division of the county. The building which will be in the Decorated style of Gothic architecture, will be formed of a local stone, and will consist of a nave 69 feet long by 24 feet wide; a north aisle 68 feet long by 15 feet wide; a north porch; a chancel 25 feet long by 19¾ feet wide; and a steeple at the south-east corner of the nave (at its junction with the chancel) which is appropriated to the purpose of a vestry. There will be a firing vault under one portion of the chancel for the warming apparatus, with approach from the outside. A gallery for children will extend across the west end, with a staircase approach from the outside, and carried up as a turret. The font will be of

stone, and will stand against the westernmost pillar. The roof will be open-framed of deal, and stained, as will also the pulpit, desk, and pews. The chancel will be paved with Minton encaustic tiles (Mr. Minton gives 100*l.* towards the building besides). The accommodation will be for about 670, and the cost is about 2,000*l.* Messrs. Ward and Son, of Hanley, architects; and Mr. Richard Wilson, of Hull, builder.

Oldham.—The corporation of Oldham have resolved to purchase the gas and water works, and to manage them for the public benefit. The unseemly conduct of gas companies, in their squabbles with one another in the first place, and their conspiracies against the public in the next, together with the inferior quality and high price so frequently complained of, and so seldom amended without compulsion, are likely to promote the adoption of the system carried out at Manchester and elsewhere so successfully, and so much to the public profit and the extension of municipal improvement.

Slaidburn. — Dale Head Church, in the parish of Slaidburn, was consecrated on Wednesday in last week by the Bishop of Ripon. The architects of this building were Messrs. Healy and Malinson, of Halifax: contractor, Mr. N. Wilkinson.

Hull.—The members of the Hull Literary and Philosophical Society, and of the Hull Subscription Library, have resolved to unite in the formation of new buildings on a site in Albion-street. The outlay contemplated by the former is about 5,500*l.*; and by the latter, about 4,000*l.* Plans have been prepared by Mr. C. Brodrick for the proposed buildings, which will have a single façade of 160 feet. The site comprises 1,534 yards, and is to cost 1,329*l.* The lecture-hall of the society, by the plan, is 74 feet by 55 feet. There is a corridor 90 feet long and 20 feet wide, in which statuary may be placed, and the museum, on either side of the corridor, is 96 feet long by 32 feet wide on one side, and 90 feet long by 28 feet wide on the other. There are also committee-rooms, laboratory, &c. There appears to be an anxiety to have the new building ready for the intended meeting of the British Association at Hull.

Glasgow.—The new bridges, at present in course of erection over the Clyde, are being proceeded with. The piers of the suspension bridge, which were taken down lately, owing to their insufficiency, are nearly rebuilt. Some of the arches of the Victoria-bridge are nearly thrown across from pier to pier.

Inverness.—A plan by Mr. Mitchell for improvements on the Castle-hill has been agreed on, and the execution contracted for by Mr. Henry, who is to proceed with the work forthwith. The contractors for the new bridge, according to the local *Advertiser*, are likely to continue the works, having shown a satisfactory balance-sheet to their creditors at a meeting lately held in London.

"The Guidon."—Dear Mr. Editor,—The occurrence of this term in the Order for the procession on the occasion of the Duke of Wellington's funeral led me to look for its signification; and as some of your other readers may not be acquainted with it, I send you what I found. In an ordinary encyclopædia it says: "*Guidon*—A semicircular banner used at funerals, on which are painted the crest and motto of the deceased with ornaments. This trophy cannot properly be carried in any funeral procession except that of a field officer." In the Harleian MS. No. 2358, is written, "Every *guydhome* is to have in the chiefe (i.e. the part next the staff) the crosse of St. George, to be slitte at the ende, and to conteyne the crest or supporter with the poesy, word, and devise of the owner." The cross of St. George would now give place to the Union Jack. In Parker's Glossary of Heraldry a *Guidon* or *Guidhomme** is described as "a flag resembling the standard in form, but less by one-third." A duke's standard is seven yards, so the size of the guidon can soon be discovered.
—'Bella B.

* In this mode of spelling may perhaps be found its derivation. He who carried the banner was sometimes called the *guidon*. The name *guidons* was given to a company of priests established at Rome by Charlemagne, whose office it was to guide pilgrims to Jerusalem.

DESIGNS AND THEIR EFFECT IN EXECUTION.

Disappointments frequently arise in carrying out certain designs which look exceedingly well on paper, often to the astonishment of committees, who advertise for, and afterwards decide on, competition drawings. It may be a matter of surprise to them, as well as to amateurs in general; but that they are disappointed in their expectations of beholding models of taste and elegance in their preferments, is a common occurrence. The result probably happens through want of experience in contrasting drawings with their respective constructions, and ignorance in the application of truthful geometrical features to edifices;—particulars, neither understood by the amateur nor the "practical man:" many designs which are prepossessing on this scale, grow displeasing on the full scale of construction, and when the deep shadows of every little break and panel almost disappear, or blend into the tone of the material used, the builder stares at the monotonous expression of his edifice.

There are, too, certain small matters, scarcely ever taken into consideration, which render the best outlines displeasing, and sometimes make a wide difference between drawings and buildings; even wherein we may acknowledge the neatness of the former, in contradistinction to the slovenliness of the latter. One of these instances is, where the same colour is given to stone and cement, by the draughtsman; and again, in execution, where one material, by being painted, is made to resemble some other. Such deception produces many failures, as may be observed in façades, where cement capitals surmount stone columns, and ornamental members, in any kind of foreign composition, are mixed up with stone, for the sake of cheapness.

A brick building, cased with stone, is, perhaps, required for a public institution. From the fifty designs sent in, the committee, without partiality, may select one of a quadrangular form, or rather laid out in three sides of a square; with a tetrastyle porch on each flank, and a hexastyle one on the principal front, for the sake of distinction. The drawings also recommend the choice, finished with accuracy; and every little break and minute line of moulding being well marked and deeply shadowed, the design shows an elaborate variety, and a pleasing union of art with novelty. Thenceforward it is forced on the approbation of the public, who patiently await the result of the undertaking. The edifice is finished, but it does not produce the admiration expected. It turns out to be a plain stone building, with the usual number of commonplace windows. What was intended to be a cornice appears a simple string: the flimsy mouldings on the capitals cannot be seen, and the imaginary pilasters altogether disappear from the surface; and, at the distance of 300 yards, this colossal building, which cost the community so much money, does not show one tenth part of the features exhibited on the drawings, resembling an asylum built for a needy corporation in indigent times, instead of an institution erected by wealthy and benevolent citizens.

The committee should not allow themselves to be misled by errors, arising from want of judgment, while there are architects in this country to whose decision an appeal can be made.

Some of our provincial buildings are strange compositions. One market-house has a templar vestibule, another is like a convent, a third like a prison: an infirmary may be mistaken for a well-built factory, a library for a chapel, a town-hall for a theatre:—it were endless to cite the inconsistencies. But out of the anomalous mass, one useful lesson may be learned—that utility of purport, one of the principal points necessary to be remembered, in order to render a design perfect and harmonious, is altogether lost sight of in the artist's mind. To this neglect may be traced all useless ornamentation, whimsical appendages, and exotic ramifications. By bearing it in mind, we know that designing useless work is wasting material, if not wasting intellect; that when introducing a number of blank windows, with drip-moulds, bosses, and columnar jambs, an architect cannot be serious. Although each may flatter himself that his composition looks well, particularly on paper, when there is no utility of construction connected with such untoward aids for effect, what embellishment can be derived from introducing them? If each member have any beauty in itself, it is heedlessly passed over by the beholder, on account of its inutility, and therefore condemned as superfluous, if not nonsensical.

F. Sullivan.

BUILDING SCRAPS FROM IRELAND.

A new bank is to be built at Londonderry by the Belfast Banking Company, from the designs of Mr. C. Lanyon, architect.

Mr. Dargan has now in progress the works of the Waterford and Limerick Railway from Tipperary to Waterford, from Dublin to Dundrum, and Dundrum to Wicklow; Killarny Junction from Mallow to Killarney, and the extensive tunnel at Cork, near the new docks on the Lee; also the Dublin Exhibition Building. We may mention that he constructed the Dublin and Kingstown Railway in 1833; the lines from Dublin to Cork, with Carlow branch from Enfield to Galway, from Belfast to Ballymena and to County Down; also to Dublin, with Howth branch; Newry to Warrenpoint (worked by himself), Dundalk and Enniskillen; Irish South-Eastern; Cork Blackrock and Passage; also the Ulster Canal (43 miles in length), which joins Lough Neah and Upper Erne, he has constructed and is working on lease; the new canal and basin at Newry; new channel at Belfast Harbour (and the reservoir on the Bann); he is an extensive flax cultivator on his property of 3,200 acres at Kildinan; has built for himself a large flax-mill at Rathcormac; has placed a line of steamers on Lough Neah, and between Newry and Liverpool; farms 2,000 acres near Moate, county Westmeath; also at Killester and Kilmacud, county Dublin.

We believe it to be the intention of the Cork and Bandon Railway Company to extend their line to Trimoleague, with a branch to Clonakilty, at an outlay of 200,000*l.*

The contract for the lattice and swivel bridges about to be erected over the river Bann, by the Commissioners of Public Works, has been taken by the Drogheda Iron Company.

A new club-house is to be erected by the Royal Cork Yacht Club of Queenstown, but we are given to understand it is not to be commenced until some time in spring. The plans exhibit the ordinary apartments of dining, reading, billiard, and coffee rooms, with library and all the requisite culinary offices, &c. The probable expenditure will be from 2,500*l.* to 3,000*l.* Mr. Benson, county surveyor, is the architect.

Steps are being taken for the permanent preservation of the Industrial Building in progress of erection at Dublin, we believe on a more extended site than the lawn of the Royal Dublin Society's house.

An extensive hotel is being erected at Queenstown by the Messrs. Scott, and the foundations are already advanced.

The works at the Roman Catholic Church at Ballinamore, county Leitrim, have been resumed after a lengthened suspension. It will be an extensive building in the Gothic style.

The establishment of an extensive linen factory in the neighbourhood of Galway is projected.

A new brewery on a large, and what is said to be improved principle, is in progress of erection at the north side of Dublin. The buildings occupy a large space of ground between Russell and Portland streets. The plans, &c. have been furnished by Mr. Davidson, and the carrying out of the works is entrusted to Mr. E. P. Gribbon.

The R. C. church at Balbriggan is to be newly decorated in the interior, to have a groined ceiling, &c. Tenders have been received according to plans originally furnished by Mr. P. Byrne, architect.

New stations are to be erected at Balbriggan and Kells, on the Dublin and Drogheda Rail-

way, according to plans furnished by Mr. Papworth, architect.

In Dublin, the builders have had the best season for many years. House building is brisk, particularly about Rathmines and Rathgar. At Howth, also, improvements are going forward. Preparations are being made for the "Monster House" (between Richard Allen's and the Imperial Hotel) in Sackville-street. The front will be 82 feet long, and of an unusually ornamented description, although the sum specified for the *entire* building was only 4,500*l*. The builder is not yet declared.

ROYAL RECOGNITION OF THE ARTS AND PRACTICAL SCIENCE.

WE hail with gratification the following paragraph in her Majesty's Speech from the Throne on the 11th, and shall look anxiously for the measure to which it alludes:—"The advancement of the Fine Arts and of Practical Science will be readily recognised by you as worthy of the attention of a great and enlightened nation. I have directed that a comprehensive scheme shall be laid before you, having in view the promotion of these objects, towards which I invite your aid and co-operation."

LEEDS ACADEMY OF ARTS.

THE proposed Academy appears to be taking a shape, and the following gentlemen were elected Academicians, with power to add to their number: Messrs. Rhodes, Burras, Waller, Eastwood, Perkin, and Bromley, upon the condition of their presenting, in accordance with the rules of the Academy, "diploma works of art of sufficient merit to testify their ability to that honourable rank." The committee are working hard to enlist the public and to obtain for students in the provinces the means of becoming acquainted with works of art in their own locality. "It is true," says one of their number, Mr. Collinson, who has written a series of letters on the subject to the local papers, "that London, 'the chief city of the world,' will of necessity take the lead of every mere provincial district in collections of art: notwithstanding, however, that such be the case, it is certain that to deny to any but to metropolitan students the means of self-improvement, and opportunities of cultivating their taste by the examination of master-pieces of art as models and *studies*, is *per se* a piece of neglect suicidal to our progress in art as a great and thriving people. The way to encourage and foster it in the provinces generally is to have artists, and students of art, at home; and, as an initiatory step, to show those we have at present amongst us that we can appreciate the full value of their ennobling pursuits, and in attaining to comparative excellence, in which many of them—considering the difficulties they have had to surmount, and the few opportunities of improvement held out to them—have certainly evinced a devotion and an enthusiasm worthy of all praise and emulation. We cannot expect our population to have a taste for the beautiful even in design, unless we furnish them with specimens of the works of genius, and afford means and appliances of study in the higher, as well as rudimentary, principles of art. In this way the requirements of art will be properly met, not merely in presenting to the eye the actual

"Creations of the painter's, sculptor's skill;"

but, also, by giving the members of the Academy a ready access to books which are specially calculated to direct them how to proceed in their studies, and what to aim at; to imbue their minds with general lore and expanded sentiment; and thus, in the end, make them into scholars as well as artists, and thereby the better qualified to excel in the higher departments of the glorious profession for which their talents are peculiarly adapted, and a due appreciation of which is a sure test and ample guarantee of our claims either to individual or national refinement."

We cordially wish success to the endeavour. The council will of course avoid pretending to more than they can achieve in the first instance.

THE DESICCATION OF TIMBER.

AT a recent meeting of the Liverpool Architectural Society, the secretary (Mr. Joseph Boult) read a report from the committee on the desiccating process of Messrs. Davison and Symmington. The subject was brought under the notice of the society by Mr. Boult in April 1851, when a committee was appointed, who have since had an opportunity of testing the efficacy of the process, at the saw-mills of Mr. Matthew Gregson, in Harrington-street. The report described the apparatus and the nature of the experiments which the committee were permitted to make, and they drew the following deductions:—"That the process of desiccation, patented by Messrs. Davison and Symmington, is of great practical value in reducing the time requisite for seasoning timber, and in accomplishing that result more perfectly than can be effected in any other way. That it is peculiarly applicable to the seasoning of flooring boards, and of the wood used in joiners' work. That to timber scantling it should be applied with considerable caution, at a moderate temperature, and for a comparatively lengthened period, in order that the scantlings may not be twisted or riven. That this process possesses the advantages of being available at all seasons of the year, and in all weathers, though of course care must be exercised, when removing the timber from the stove to the building in which it is used, that it be not exposed to the wet, nor even to a damp atmosphere for any lengthened period. That the advantage of this process over the ordinary stoving consists in the temperature never being so high as to scorch the wood, by which the strength of the fibres would be injured; and in the facility for removing the vapour as fast as it is expelled from the wood, in consequence of the air being propelled through the stove at any required velocity and temperature, from a gentle summer's breeze to a stifling simoom."

It appears from a statement made by the agent of the company, on the same occasion, that the system has been extensively adopted in the cotton, woollen, and flax manufactories, and its use is increasing on the continent. By it woods of all kinds, and in any degree of age, can be better seasoned in weeks, according to the agent, than by the best weather seasoning in years. As compared with furnace and steam stoving, ordinarily employed, to desiccated woods, the very great superiority of this process is established, by its seasoning the wood quite as rapidly, but much more thoroughly, and, instead of wood being rendered brittle and weak, as it is by stoving, this mode increases its strength and tenacity. The principle of this invention, viz. propelled currents of heated air, was said to be adapted to warming and ventilating buildings, whether modified by furnace or steam heat. In many cases the use of steam heat is preferable; and a model of an apparatus was exhibited to show how it might be applied to rooms or buildings of any capacity.

INDUSTRIAL INSTRUCTION ABROAD.

IN the opening address for the session at the Museum of Economic Geology, Dr. Playfair gave an elaborate statement of the means of industrial instruction now afforded in various foreign states, with the view of showing the necessity for improved instruction in this country. The fact is, he said, every day more apparent, that mere muscular labour, in the present state of the world, is little better than raw material, and that both these are sinking in value as elements of production, while intellectual labour is unceasingly rising. The whole of the industrial competition is now resolved into a struggle to obtain a maximum effect by a minimum expenditure of power. But this power is derived from natural forces and not from brute strength. Mental labour has engrafted itself upon muscular effort, and, in a healthy growth, has reduced the size and relative importance of the latter. Every new acquirement in the knowledge of natural forces is the acquisition of a new sense, which may be applied to production; and as every substitution of a natural force for muscular exertion depends upon a knowledge of the former, it surely requires no laboured argument to prove that the economical application of it must rest upon a perception, and not merely upon empirical knowledge. Allusion to these considerations was necessary, because, owing to them, foreign countries established the system of industrial education.

In our own land, the rapid development given to production by our richness in natural resources raised at the same time a vast amount of experience, and art advanced before science. This experience was often produced by trial and error, and was attained by great expenditure of time and capital, but, when arrived at, afforded much help to production. Hence we see many manufacturers, and even engineers, in our own country, practising their arts by the aid of empirical experience only, little guided by scientific laws. Hence, also, has arisen an overweening respect for practice and a contempt for science, as if man could better use the powers of nature by stumbling against them in the dark rather than by reverentially seeking them in the open light of day. But the continental producers, being behind us in the race of competition, and having industries to create, preferred to profit by our empirical experience, and then pass us by their knowledge. Abroad, the scientific element of production is carefully nurtured, because the truth is there fully recognised, that nothing is so fertile in utilities as absolute abstractions; but it is known, also, to be essential to industry, that there should be a race of men who translate these abstractions into worldly utilities, and who can solicit nature, in language understood by her, to lend her powers to the fulfilment of practical ends. The creation of this class of men was a necessity of foreign competition. By taking hold of it, the continent has seized the growing element of production, while we are left in possession of the decreasing one.

The lecturer moved the wrath of some of his audience by the low view he took of his own country; and one ardent Englishman could scarcely be prevented from shouting—

"Hearts of oak are our ships;
Hearts of oak are our men:
We have lick'd them before,
And we'll lick them again."

It must be understood, however, that the Doctor refers mainly to the future, and none can doubt that with such an industrial army as our foreign neighbours are preparing, it is time that England gave her energetic and persevering sons the means of placing themselves on an equality in knowledge with their competitors.

RAILWAY MATTERS.

OUR advocacy of reduced fares is now somewhat more likely than it has been to be rewarded with success. Mr. Constable, chairman of the Leeds Northern line, lately observed, at a general meeting of his constituents, that the passenger traffic during the last three weeks had averaged 1,200*l*. per week, being 400*l*. in excess of the receipts for passenger traffic for the corresponding period last year; and when they considered the low fares at which they had been obliged to work this traffic, they could not consider this anything but a satisfactory result. It was *a proof how well-founded was the feeling which was developing itself, even amongst railway companies, that it is almost impossible to go too far in low fares for passenger traffic, where you have a sufficient population.*——"The greater cheapness of railway travelling on the continent," says the *Scotsman*, "is remarked by all travellers. The keeping up of fares to the highest possible point has always been an object of effort on the part of our railway directors. Except in the case of excursion trains they have never given a trial to *cheapness*. Yet the very success of excursion trains might have afforded hints in this direction. There can be no doubt that hundreds who are driven by the tempting cheapness to take places in excursion trains would infinitely prefer having their own times, and company of their own choosing, even at a little extra ex-

pense,—to travel, in short, by ordinary trains, were not the latter so extravagantly high in comparison with the others."——The main trunk lines being now pretty well ramified throughout the country, and branches too having shot up in many quarters; twig feeders, if we may so call them, are now likely to be formed; and when that is the case, the whole population of the country will be on the move, and a noble harvest will be reaped by railway shareholders. Hitherto the railway system may be fairly compared to a newly planted tree whose minutest rootlets, not yet thrust through the ground, are of vastly greater importance in supplying it with nutriment than either its branch roots or its main root stems. The shooting of these rootlets, therefore, ought to be fostered and hastened if the tree is to prosper. This process in the railway system has fairly begun, and it will now probably more and more rapidly increase. The more immediate occasion of these few remarks is the fact that the "Mayfield Railway Company" is just formed, with a capital of only 12,500*l.* in 10*l.* shares. This line, which is a branch of the Hastings and Tunbridge Wells Railway, is only six miles in length, and is to run from Lewes to Mayfield, for the transport of agricultural materials and ironstone. Only a single line of rail is to be laid down. A project is also coming out, called the Poplar and Greenwich Railway and Steam Ferry Company, being an extension of the Camden-town and Blackwall Railway, through the Isle of Dogs to Greenwich. The capital required is 90,000*l.* in 20*l.* shares.

REFORM OF EPITAPHS.

As you have taken great pains, more than once, to expose the absurd, not to say blasphemous, inscriptions on the headstones in many of our churchyards, I think it right to forward the inclosed, which I copied a few weeks since, *verbatim et literatim*, from a headstone in a village about five miles from Birmingham:—

"Tho'h I was born on Christmas-day,
My parents was so glad of me,
That to the wise man they did go
The nature of my birth to know,
Who said ingenious I should be,
So a good trade provide for he;
So to the nailblock I was set,
As if the Lord they meant to fret,
Which I persude till 23,
Then 7 years sawing was for me;
Then to the plane and other tools
My God directed me to use,
For wat was offer'd me to do
My heart and hands could it go thro'h."
* * * * * *

The last four lines are not legible.

J. Brine.

The following remarkable epitaph was taken from the tombstone of Margaret, or commonly called Margery Scott, Duchess of Dalkeith, seven miles from Edinburgh, who died at the age of 125 years:—

"Stay, passengers, until my life you read,
The living may get knowledge by the dead:
Five times five years I lived a virgin life,
Ten times five years I lived a virtuous wife,
Ten times five years I lived a widow chaste,
Now, weary of my mortal life, I rest.
I, from my cradle to my grave, have seen
Eight mighty kings in Scotland, and a queen:
Twice did I see the proud palace pulled down,
And twice the cloak was humbled to the ground.
I saw my country sold for English ore,
And haughty Steward's race subsist no more.
Such revolutions in my time have been:
I have an end to all perfection seen."

F. P.

I copied the following from the churchyards named.

C. Lahee.

St. Alban's churchyard, Herts:—

"The dame that lies sleeping in this silent tomb
Had Rachel's heart, and Leah's fruitful womb;
Abigail's wisdom, Lydia's faithful heart,
Martha's just care, and Mary's better part."

In the same churchyard:—

"Silent grave, to thee I trust
This precious pearl of worthy dust:
Keep it safe, oh, sacred tomb,
Until his friend shall ask for room."

Bonchurch, Isle of Wight, on two brothers, aged 19 and 20—(1754):—

"We lay us down to rest,
And God above will raise us at the last.
Lead your lives no worse than we,
You need not fear but Christ to see!"

I find the following matter-of-fact epitaph in "Notes and Queries." Mr. Thos. Hammond, parish clerk of Ashford, in Kent, was a good man, and an excellent backgammon player; and what is singular, was succeeded in office, on his demise, by a man of the name of Trice:—

"By a change of the dye
On his back here doth lie,
Our most audible clerk Mr. Hammond.
Tho' he *bore many men*,
Till three score and ten,
Yet, at length, he by Death is backgammon'd.
But hark, neighbours, hark!
Here again comes the clerk,
By a hit very lucky and nice.
With Death we're now even,
He just stept up to heaven,
And is with us again in a Trice."

NEW RECTORY HOUSE AND CAMPANILE, MARTIN'S-LANE, CANNON-STREET EAST.

The parish of St. Martin Orgar, now united to the adjacent parish of St. Clement, near Eastcheap, formerly possessed a church on this spot, which, after having served as a place of worship for the French Protestants for about twenty years, was pulled down in the year 1820. The old clock tower remained standing till 1851, together with two adjoining houses belonging to the parish, formerly known as "the rectory."

The important improvements in forming the new street from King William-street to St. Paul's, and for which one or both of the parish houses were required, suggested to the parish the expediency of providing a new house for their rector, and at the same time by widening the entrance to the lane, and by erecting a suitable clock and bell tower, contributing to the convenience and the embellishment of this locality: with these objects, an arrangement was made with the city authorities to widen the entrance to the lane 5 feet, and the present structure was commenced. It will be seen by the view we present to our readers that the lower part of the tower is united with and forms part of the rectory-house; the upper part only being appropriated for the reception of the clock, whilst the cupoletta, which crowns the composition, receives an ancient bell, which is highly valued by the parish.

The tower, as well as the rectory, is faced with red brick, having stone quoins, cornices, and dressings. The cupoletta is wholly of stone. The height is about 110 feet to the top of the pine, which forms the finial. The tower is five diameters high to the top of the cornice, the proportion adopted in most of Sir Christopher Wren's towers. The cupoletta, rising 30 feet above the cornice, is an irregular octagon, 9 feet in diameter, with bold carved angular consoles and enriched vases at each corner. It was originally intended to have four clock faces in the upper part of the tower, but the parishioners have decided to return to the old picturesque bracket clock, similar to that which formerly projected from the old tower, so well seen by every passer by. Messrs. Thwaites and Reed have undertaken to communicate from the works in the tower to the new dial plates by a simple arrangement of conducting rods. The new clock case and bracket is to be of English oak, carved and varnished.

The first stone was laid on 25th May last, by the Rev. William Johnson, the present incumbent. Mr. John Davies, M.I.B.A. is the architect, and Messrs. Ashby and Sons are the builders.

On the whole, we think the architect has been successful in carrying out the spirited views of the parish, and in meeting the rather novel requirement of combining a campanile with a private residence, and so perpetuating recollections and associations to which a parish are naturally attached. Mr. Davies had to contend with special difficulties in the great height of the new houses and chimney stacks in New Cannon-street. His composition promises, however, to *tell* from many points of the new street and from the bridges (particularly from the Southwark-bridge), and will group not ungracefully or unworthily with the tower and belfries, monuments of the genius of our great Sir Christopher, which rise on all sides around it.

It seems to us that the dials would be better placed higher up the tower; and as they are not yet fixed, we suggest a reconsideration of the question. Where shown in the design, the mind does not pleasantly reconcile them with the windows in the other face of the campanile.

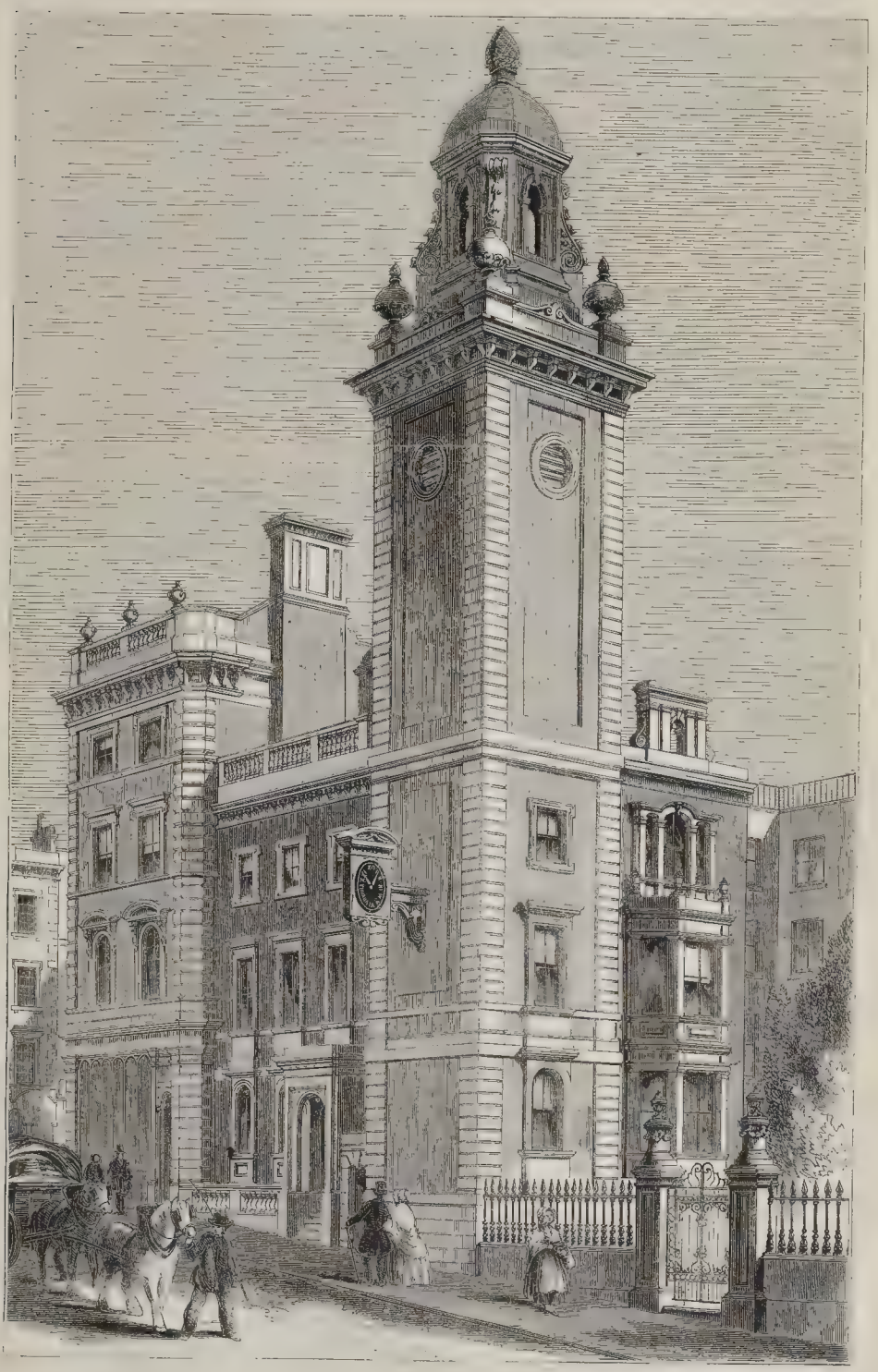
Mr. Davies's two chief London works are the Synagogue, Great St. Helen's, and the restoration of Crosby Hall, which he adapted to its present purpose some time ago, contributing north and west façades and the organ and gallery ends of the interior.

Cannon-street is so rapidly approaching completion, that there seems to be no reason why the western end should not at once be opened, so as to assist the old thoroughfares. At a prominent corner of Budge-row and the new street, a building has been erected for the Minerva Life Office, Mr. John Foulon being the architect, and Mr. Myers the builder. Adjoining to this some stone-fronted warehouses are being carried up.

THE IRON TRADE IN SCOTLAND.

In Glasgow and its suburbs there are no less than thirty-eight iron-foundries all in full operation, besides two now building, and three old ones not at work. The extensive malleable iron-works of the West of Scotland Iron Company, at Motherwell, near Glasgow, were lately exposed to sale at the upset price of 32,000*l.* and sold, after a keen competition, for 42,050*l.* to the Glasgow Iron Company. These works were erected a few years since at a cost of upwards of 100,000*l.* They are to be set to work immediately, with at least 250 workmen, to produce malleable iron. It is said, by the *Falkirk Herald*, that the iron trade about that town has all at once resumed a degree of activity unprecedented for some years past, and that the price of coals has risen. Should prices continue as at present, the *Herald* declares that the Messrs. Baird (of Gartsherrie, we presume) "will realise nearly 100,000*l.* a year of *additional* profit on the produce of their own furnaces!" If the English masters ever had reason to dread the over-production of the Scottish furnaces they would now appear to have it. The *North British Mail*, in reference to the present and prospective state of affairs, says, "Does the increase in shipbuilding, which may warrant a rise in plates and bars, justify the advance in pig iron of 6*s* per cent.; or will shipbuilding, although carried on to three times the extent it now is, take away the yearly surplus of iron that is now made? We think not. If the railway mania of 1845 and 1846 could not clear away the stock that the few furnaces then in existence could produce, how can it for a moment be thought that even a great increase in shipbuilding and the same railway mania again can take away what the lately discovered ores of the counties of Ayr, Durham, Northampton, and Cumberland are adding to the production? In Glasgow and neighbourhood alone we have surplus of 400,000 tons, which speculators are busy putting into the same stores, where, in 1846, many of them left their fortunes behind them." The last report of the Glasgow market conveys an intimation, which may perhaps check the mania which appears to be breaking out in more quarters than one. It says:—"Our pig iron market opened good this week at 60*s.* but has since gradually declined to 57*s.* cash for warrants, at which sales were made to-day for prompt payment. The late advance has materially interfered with both shipments and local consumption, and the very large quantity of iron being delivered into store has quite alarmed the trade here, who now operate with great caution. The stock is decidedly on the increase."

RECTORY HOUSE AND CAMPANILE, ST. MARTIN'S ORGAR.—MR. JOHN DAVIES, ARCHITECT.



SCAFFOLDING FOR EXTERNAL REPAIRS.

AMONG the doings elsewhere, which you occasionally notice in your valuable columns as suggestions to us to go and do likewise, permit me to add one which, if adopted here, would prevent much inconvenience and expense.

A denizen of Moorgate-street, I have frequently contrasted the contrivances, either laborious or perilous, which are *here* resorted to to paint the façades of the houses, with the simple, secure, and inexpensive appliances by which the same office is performed in the Rue Royale at Brussels. In the fronts of the houses *there* may be observed a row of rosettes or other similar ornaments. These rosettes are the tops or heads of plugs, which, when repairs are necessary, are withdrawn, and short poles or yards inserted into them: from these is suspended a substantial platform, which can be lowered to any extent required, and on which the workman carries on his craft with ease and security. True, the fronts are quite flat in Brussels; but it would be derogatory to our artisans to suppose that the projection of cills, balconies, or porticoes are insuperable difficulties.

Where these plug-holes do not exist, the expense of making them would, probably, be more than saved on the first avoidance of the erection of scaffolding. OBSERVER.

HOUSE AGENTS' AND BUILDERS' DISPUTES.

LAMBETH COUNTY COURT.—*Buckland* v. *Warner.*—The plaintiff, a house-agent of Walworth, sought to recover 10*l.* of the defendant, who is a builder, for commission on the sale of two houses to a person of the name of Taylor.

The plaintiff said he was employed by Mr. Warner to sell two houses, and that he introduced a Dr. Wellborne to the defendant as a purchaser, but they could not agree as to price. The doctor, after this, named the houses to a friend of his of the name of Taylor, who eventually became the purchaser at 205*l.* The defendant had agreed to give him 10*l.* if he found a purchaser. He considered that as he introduced Dr. Wellborne, who found a purchaser, he was as much entitled to the commission as if the doctor had himself bought the houses.

Dr. Wellborne was then called, who supported the evidence of the plaintiff, and he further stated that he was in company one day at the Queen's Arms, public-house, with Mr. Taylor, the purchaser, and the defendant. That the defendant told Taylor to go to the plaintiff, who would agree with him as to price; and that Mr. Taylor would not have been introduced to the defendant if the plaintiff had not spoken to witness about the houses.

Mr. Taylor was next called.—He stated that he was introduced to the defendant by Dr. Wellborne, and purchased the houses at 205*l.*

Mr. E. T. Smith, solicitor, of St. Martin's-court, cross-examined this witness, who swore that no such conversation as that spoken to, by the doctor took place; that Mr. Buckland's name was never mentioned, and that he had nothing to do with the plaintiff.

Mr. E. T. Smith, solicitor, ubmitted to the jury that the contract to pay 10*l.* commission was conditional in two respects. Firstly, on Dr. Wellborne's becoming the purchaser; and, secondly, at the defendant's price. He would show that the plaintiff sought out his client, and induced him to promise him the commission, on a representation that Dr. Wellbourne would become the purchaser of the houses. That at this time the defendant had already placed his houses in the hands of another house agent to dispose of. That he would not have employed the plaintiff except to sell to the doctor, and that when that negotiation went off, he ceased to recognise the plaintiff as his agent. He urged that no fresh contract was proved to have been made with reference to Taylor becoming the purchaser. The jury could not imagine the many attempts made upon builders by house-agents for fictitious commissions, it not unfrequently happening that six or a dozen different agents would send in claims for douceurs or commissions, each asserting that he introduced the purchaser through a friendly doctor or somebody. Mr. E. T. Smith then called Mr. Warner, who stated, that after Dr. Wellborne declined to purchase, the plaintiff called upon him and stated that he should require 15*l.* if Mr. Taylor became the purchaser, 10*l.* for himself, and 5*l.* for the doctor. He at once declined paying that sum, upon which plaintiff said, "Well, I shall take Taylor to some other property, and you may consider the matter off." He, witness, replied, "Very well, be it so." That when Mr. Taylor afterwards came to witness to purchase the property, he said, "If you come to me through Buckland, I must decline negotiating."

Mr. Bussell, in reply, contended that Taylor would not have known of the property but for his client, and that plaintiff, according to the usages of the trade, was entitled to his claim.

The judge left it to the jury, who found for the defendant. Verdict for defendant and costs.

ILL-USAGE TO WORKMEN.

BROMPTON COUNTY COURT.—SKELTON *v.* DALRYMPLE.

THE plaintiff in this action is one out of a number of workmen lately employed in taking down the Crystal Palace, who have been compelled to sue the defendant for labour, and breach of contract. The workmen mustered outside the court in great numbers.

Mr. Skelton said he undertook to take up a certain bay of flooring at the same rate as other men, but no fixed price was stated. For this he was paid. Before he could remove this flooring, it became necessary to take from the surface an immense weight of iron columns and other debris. He asked defendant for the job, and he agreed to give him 8*l.* to remove it. He had only received 8s. 3d. There was no written contract. It took thirty-two men eleven days to remove it. He was not the only man by many who had been served in the same way, and who had been obliged to summon the defendant. He called a witness, who confirmed his statement.

The defendant, who throughout appeared to treat the claim with some contempt, for which he was rebuked by the Court, said the plaintiff certainly asked him for the contract, but no price was named. He told the plaintiff to bring in his estimate, but he had not done so. He could not say the work was not done, but he did not know what was done. He had 400 men on the job, and it was not possible for him to see to every particular.

Mr. Pakenham, said he heard plaintiff ask for the contract, and Mr. Dalrymple tell him to furnish an estimate, and that, in his opinion, there were only 58 tons removed. They paid so much per ton.

His honour, Adolphus, said, it was a very loose way of employing men. The defendant could not say what was done, although he appeared to know the plaintiff was removing the materials. The plaintiff ought to be paid something, and his order would be for 6*l.* and costs.

Subsequently the plaintiff came into court and stated that being ignorant of the practice of the Court, he had suffered the defendant to leave without paying him his wages. He had been to Mr. Dalrymple, for the money, who laughed at him, and said he would have his revenge now, as he was not compelled to pay him until Nov. 3. He lived at Blackwall, and considered it very cruel for working men to be served in this way, and he had lost a whole month in trying to get his money. He had pledged every valuable to pay the Court fees, and he thought there was no justice to be had for poor men.

The Chief Clerk said he was sorry the Court could not further assist him.

The plaintiff said the defendant would have left the neighbourhood before Nov. 3rd, and it was a chance if he got one farthing.

THE WEIGHT THAT CAN BE TRUSTED ON A PILE.

WE find the following rule for calculating the weight that can be safely trusted upon a pile which is driven for the foundation of a heavy structure, by Major Saunders, in "The Journal of the Franklin Institute."

A simple empirical rule, derived from an extensive series of experiments in pile driving, made in establishing the foundation for Fort Delaware, will doubtless prove acceptable to such constructors and builders as may have to resort to the use of piles, without having an opportunity of making similar researches. I believe that full confidence may be placed in the correctness of this rule, but I am not at present prepared to offer a statement of the facts and theory upon which it is founded.

Suppose a pile to be driven until it meets such an uniform resistance as is indicated by slight and nearly equal penetrations, for several successive blows of the ram; and that this is done with a heavy ram (its weight at least exceeding that of the pile), made to fall from such a height that the force of its blow will not be spent in merely overcoming the inertion of the pile, but at the same time not from so great a height as to generate a force which would expend itself in crushing the fibres of the head of the pile. In such a case it will be found that the pile will safely bear, without danger of further subsidence, "as many times the weight of the ram as the distance which the pile is sunk the last blow is contained in the distance which the ram falls in making that blow, divided by eight." For example, let us take a practical case, in which the ram weighs one ton and falls 6 feet, and in which the pile is sunk half an inch by the last blow; then as half an inch is contained 144 times in 72 inches, the height the ram falls, if we divide 144 by 8, the quotient obtained, 18, gives the number of tons which may be built with perfect safety, in the form of a wall, upon such a pile.

Notices of Books.

Proceedings of the Somersetshire Archæological and Natural History Society. Taunton: May. London: Bell. 1852.

THE Somersetshire Archæological History Society have published their proceedings during the year 1851 in a well-looking and well-illustrated volume. As the papers contained in it have for the most part been quoted or noticed in our pages at the time, it will be unnecessary to particularise them now; but we must mention that there are, in addition to various lithographs, two very good outline engravings, from drawings by Mr. F. T. Dollman, of the reredos lately discovered at the east end of the Ladye Chapel, in St. Cuthbert's Church, Wells; and the reredos in Tanner's Chapel, mentioned by us some time ago, when we visited the church. With respect to the former, accidentally found by the removal of some panelling, Mr. Ferrey says "that the design was most magnificent; the groining of the niches being of peculiar richness, and the execution of the whole work exceedingly delicate and beautiful. The centre of the lower range of niches is larger than the others, and probably contained the figure of the Virgin: the groining of the canopy was very different to the others, and was much richer. The centre of the upper range of niches may probably have contained the figure of our Saviour; the sacred monogram being there several times introduced. In this, as in the other, the niches were found filled with the fragments of figures, all more or less mutilated, and with their faces turned to the wall, to give a smooth surface for the plastering by which they were concealed from view. In one of the windows on the north side of the chancel, which had been filled up to receive some plastering and panelling, were also found an immense number of fragments of figures, canopies of niches, pinnacles, and other ornamental portions . . . many of them of great beauty, and the colouring and gilding were as fresh and bright as though only recently executed. . . . . The reredos in Tanner's Chapel is, as I think, of later date than the other . . . . . the design of it has not so much variety, the niches being similar in every instance, and the execution not so good in some respects; a portion of it has been entirely destroyed."

Plague and Pestilence in the North of England in the Middle and Later Ages. By G. BOUCHIER RICHARDSON, F. S. A. Newcastle.

THIS essay was the subject matter of a memoir recently read before the Society of Antiquaries of Newcastle-upon-Tyne. It has been printed in an enlarged form, and with a sanitary purpose, at the suggestion of Mr. Rawlinson, Superintending Inspector of the General Board of Health. It contains details of dread and instructive interest as to the ravages of plague and pestilence in Newcastle and elsewhere, in former times, and as to the obvious causes of the recurrence of these fearful epidemics. From the narration here given, it will be seen that our forefathers were by no means ignorant of the causes referred to, and did much under imperfect police and municipal regulations to keep their towns "sweet and clean,"—at all events (as we still do) when too late as a pre-

ventive, and not of much use as a palliative. That such should still be the state of matters in reference to the modern forms of plague and pestilence which periodically visit this country, is a deeper disgrace to the present generation than the older forms of these epidemics were to those by whose comparative ignorance, and by whose sad experience, the present generation ought to have profited, as well as by its own not much less fatal neglect of recent years. It ill becomes us who dwell in towns whose subsoil is saturated with those abominations which of old were cast into the streets to be evaporated by winds and washed away by rains, to revert with inconsistent horror to ancient practices only a little more openly, but not a whit more essentially noxious and filthy than our own. The substitution of cesspools below our dwellings for dunghills before or behind them may have been an improvement in the time of a past generation, ere the soil was saturated with the contents of these pits of corruption; but that time is passed, and the period of plague and pestilence is again at hand. The deadly cholera can scarcely be called a mere precursor of these terrible death dealers: it is the resurrected pestilence itself which is gathering strength as the interval of comparative cleanliness, under the now exhausted cesspool system, has expired. There is now as pressing a necessity to supersede that system *by complete and thorough drainage*, as there ever was to originate it in the dunghill days of plague and pestilence.

Miscellanea.

Brilliant Condition of the India House.—The papers in the *Art Journal* on the "Embellishment of Public Buildings," to which we have referred, are continued in the present number. We quote some remarks on the condition of the India House, Leadenhall-street,—the seat of government of millions of people. "Except in the Court of Directors, there is no decoration in colour which will call for the slightest remark; but every part of the walls is fringed with dirt and dust, almost sufficient to justify a suspicion that neither paint nor simple soap and water were appliances within the knowledge of the company. For an eastern potentate to omit his ablutions would be scarcely more extraordinary than the way in which these homely expedients are misused or neglected in our public buildings. We had found ourselves, in other cases, really compelled, for the proper treatment of the subject, as regards painting and sculpture, to enter into the preliminary question of appropriate structure, and we must now, forsooth, descend even to these details of the bucket and mop. It should not be necessary to say, that no building or apartment can have its proper effect, or is fit for the reception of works of art, unless it be at least clean. We generally find that the desire for cleanliness is dormant, until it runs into the extreme of allowing all the beauty of mouldings and ornaments to be destroyed by paint or whitewash. All, however, that is in general necessary or desirable is the timely and regular use of the more vulgar expedient, and this we seriously counsel the Court of Directors to try the effect of." We were surprised to find the intelligent writer seriously discussing Mr. Ruskin's amusing dictum against the decoration of buildings or things belonging to purposes of active and occupied life.

Restorations in Ely Cathedral.—A statement recently put forth shows that,—"The subscriptions realised have amounted to about 7,000*l.* of which 3,150*l.* was given by the bishop of the diocese, the canons, and other members of the Church. The expenditure upon the works of the new choir, without including large sums expended before the subscription list was formally opened, have exceeded 9,000*l.* About 1,500*l.* more will be required to complete the altar steps and pavement, the wings and other portions of the altar-screen not included in Mr. Gardner's noble gift, and in the restoration of the monuments for the inclosure of the choir." As a guide to those who may wish to undertake specific works, the following rough estimate of the expense of executing some of them is given:—"The single figures on the screen, about 10*l.* each; the groups beneath the canopies of the upper stalls, about 30*l.* each; the groups on the bench ends of the substalls, about 10*l.* each; the complete restoration and decoration of the great shrine canopy, formerly placed upon the tomb of Bishop Hotham,—as the workmanship of this canopy is of the most elaborate description, the entire cost of its restoration would not be less than 250*l.*; the painting and gilding of the bosses of the side aisles of the choir, about 25*l.* for each aisle; the pavement of the side aisles of the choir and the retrochoir, with encaustic tiles, about 60*l.* for each of them,—if marble be extensively employed, as in the interior of the choir, the cost will be much greater; the decorations of the vault of the lantern, about 350*l.*; the eight new windows in the lantern, about 30*l.* for each of them; the turrets and pinnacles of the outer corona, about 100*l.* each; the painting the vault of St. Catherine's Chapel, about 50*l.*; the painting the roof of the south-west transept, about 150*l.*; the painting and decoration of the north, in the same style as that of the south transept, the repairs of the woodwork and carving not included, about 100*l.*"

Improvement of Land—Sewage.—The attention of some thinking men is beginning to be directed to the expediency and the practicability of diverting the sewage of towns and cities from rivers, into which it now runs to waste, through channels leading to reservoirs in which it may be received for use in agriculture. Of all measures which powerful influence can effect, there is, I believe, not one so beneficial to the country and mankind as this. As the benefits which it must confer, in increasing, every year, the "kindly fruits of the earth," will arise peculiarly from that profession of which you are the organ, may I hope that your pen will be used to draw to the subject the attention of scientific minds? I learn, though I have no professional knowledge on the question, that in this city, Bristol, the annual returns from such an operation would be from thirty to thirty-five per cent. on the outlay. And as Bristol, having *three* streams on each of which channels must be made on *both* sides of the water, will require a much greater outlay than other towns (of the same population), which generally have only *one* running stream,—if the rough estimate which I give be something near the mark,—the case claims, as a source of revenue, the immediate attention of all municipal corporations.—An Accountant.

Pulsations from unequal Expansion of Material in a "Haunted" House at Hull.—Certain mysterious knockings in a house in a retired lane leading from the Anlaby-road, having excited great commotion and terror amongst superstitious people about Hull, and attracted the attention and investigation of the police, who appear to have been satisfied that they arose from something else than trickery, the premises were examined by Mr. Sollitt, who thus gives his views of the matter:—"The two ends of the house consist of brick walls four-and-a-half inches thick, with inch deals running the whole length of the wall at every nine or ten courses of bricks. The insides of these walls are stoothed from top to bottom, the uprights of the stoothing being nailed to the whole of the horizontal deals in the walls. Now, these thin walls, together with the deals between them, have had a thorough drying through the long hot and arid season, and now that the damp weather has returned the whole are swollen out, and consequently become too high for the uprights of the stoothing, which, of course, do not become elongated by the moisture, as wood is only expanded by moisture across the grain and not in length. As the whole are firmly fastened together, this unequal expansion produces a kind of pulsation or beating, which is greater or less in proportion to the quantity of the contrary expansions or opposing effects of the uprights to the expansion of the walls. The effect is always strongest after the passing of a railway train, which shakes the various parts and sets them in motion. The beating, likewise, often commences after the shutting of the front door of the house. The effects are considerably increased from the fact that the stoothed walls are covered with paper, and therefore perform the part of a large tambourine, in increasing the sound, and thus rendering it, in many cases, as is stated by some parties, *really fearful*." The noises, Mr. Sollitt thinks, "might be prevented either by covering the ends of the house with a good coat of Roman cement, or by other houses being built on each side of the dwelling; for either plan would defend the house from the effects of moisture, and effectually keep out the *dreadful* intruder."

The late Mr. Geo. Buchanan, C.E.—The *Scotsman*, in a notice of the death of this gentleman, states that he was about sixty years of age; that he commenced business about 1812 as a land surveyor, but his strong scientific bent in a few years led him to devote himself to the more interesting and elevated vocation of a civil engineer. In this capacity, continues our authority, he was engaged on several public works of importance, harbours, bridges, &c. These brought him into notice, and in 1822 the directors of the School of Arts solicited him to deliver the course of lectures on Mechanical Philosophy, which he did. At an after period he lectured for one or two sessions on Natural Philosophy, and was very popular and lucid in his style; but his increasing engagements as a civil engineer compelled him to abandon the lecture-room. He appears to have been much consulted by the Lord Justice Clerk, the Dean of Faculty, and others, in law disputes as to river and estuary limits in salmon fishing. The sheriff of Edinburgh selected him to superintend the formation of the dangerous tunnelling beneath the new town of Edinburgh, for the Granton railway. Mr. Buchanan was a member of the Royal Society of Edinburgh, and during the session of 1847-48 he was elected president of the Royal Scottish Society of Arts, to the transactions of which body, along with his friend Mr. Grainger, he was a constant contributor. Mr. Buchanan was brother-in-law to Mr. Faraday.

New Royal Park for Finsbury.—On Wednesday evening last a public meeting, very numerously attended, was held at Highbury Barn Tavern, London, to consider what measures should be adopted to urge upon the Government the necessity of securing the ground already surveyed for this object. The chair was taken by the Right Hon. the Lord Mayor, M.P. Amongst the speakers were Sir James Duke, M.P. Mr. Lloyd, the original projector and indefatigable promoter of the park, Mr. Charles Pearson, and Mr. Charles Woodward, F.R.S. all of whom advocated the advantages of a park in this locality with very great warmth, and viewed it as a demand which the borough of Finsbury had a right to expect. It was resolved and carried unanimously that a deputation wait upon the Premier for consent to bring in the Bill, and urging upon him the necessity of renewing the notices immediately to prevent another year's delay. A map was shown to the meeting, prepared by Mr. Barnet, indicating the situation of the park relative to those already made.

Memorials of the Duke of Wellington.—The inhabitants of Liverpool have passed a resolution to erect a column surmounted by a statue of the Duke on some suitable site to be granted by the council. The site of Old Islington Market is named as the probable site; and 20,000*l.* has been spoken of as the sum requisite.——The obelisk erected on a hill near Wellington, in Somerset, has been examined by Mr. Paul, of Taunton, architect, and is reported by him to be badly built, and so dilapidated as to endanger its stability. Some of the plinth has already fallen. A subscription has been opened for its repair, and it is proposed to carry out the original design of placing a bronze statue of the Duke on the top, and erecting a building for three military pensioners to take charge of the monument.——It has been resolved at a public meeting held in Norwich, to erect a statue of the Duke in that city. A considerable sum has already been collected.

Worcester School of Design.—The first annual meeting of the friends and subscribers of this institution was held on Wednesday in last week, in the Assembly-room, Guildhall, Worcester. Lord Ward, the president of the school, took the chair, and was supported by a numerous and influential party. A satisfactory report was read, and prizes were distributed. Lord Ward, Sir E. Lechmere, bart. the Rev. John Pearson, and other gentlemen addressed the meeting. Although this school was opened only about a year since by the master, Mr. Kyd, with two pupils in the mornings, and thirty to forty in the evenings, the return for October last was 172, and the average had increased from 165 in the previous month. Besides the works of the students exhibited at the meeting, there were various select paintings from the Dudley Gallery of Lord Ward on the walls.

Liverpool Architectural Society.—At a meeting of this society held, last week, the chairman, on behalf of the council of the society, presented to Mr. Hans F. Price "Memorials of the Colleges and Halls in the University of Oxford," "in testimony of their appreciation of the sketch-book prepared by Mr. Price during the summer of 1852, and submitted in the competition promoted by the council amongst the student members of the society." Mr. Horner exhibited some firebricks of a light texture, and which would float in water. They were composed of a description of silicious earth, found in considerable quantity in Tuscany, near to where is supposed to be the centre of the site of old Etruria. Mr. Chantrell doubted whether, in consequence of the distance which it would have to be carried, the material could ever be brought into extensive use here. He thought it might be applied to the making of crucibles. Mr. Huggins read a portion of a paper "On some of the principles of composition, form, and decoration in architecture, with particular reference to ecclesiastical design, and the question of the embellishment of St. Paul's."

Leeds Mechanics' Institution and Literary Society.—Mr. Yapp, of London, lately gave a lecture on the "Encouragement of Inventions," at this institution, with especial reference to the old and new patent laws; and in which he urged that it is eminently useful to offer premiums for the exercise of ingenuity in increasing the comforts of mankind, and to economize time and material, maintaining that the limited privileges granted to a patentee, as a compensation for his anxious labour, skill, and expenditure of capital, in the perfecting any useful invention, are not to be viewed as a monopoly. Mr. Yapp indicated several imperfections in the new law, and stigmatized the clumsy expedient of leaving a question essentially scientific and commercial, to be dealt with by the legal profession, with merely permissive power to consult authorities competent to give valid judgments on disputed points. The lecturer also strongly commended the whole subject to the members of Mechanics' Institutions, and showed that a field of enterprise was now opened up, in the cultivation of which the instruction afforded by the libraries, classes, and lectures might be turned to the most profitable account by the diligent and inquiring mechanic.—*Leeds Intelligencer.*

M. Camille Seguin, the well-known engineer, has just died, at the age of fifty-nine. He introduced the system of suspension-bridges into France, and constructed eighty-six of them in France, Spain, and Italy.

Drainage Tenders.—I beg to hand you for insertion in The Builder, a list of tenders received for roads and glazed pipe sewers, to be formed and laid upon the Church of England and General Freehold Land Society's Estate, at Finchley, Middlesex: Mr. Langford, architect:—

Martin	£500
Green	452
Marshall	450
Lovegrove	442
Pound	330
Brown	320
Gatfield	320
Murray (accepted)	309
Baum	225

A. B.

Conference of Glass Manufacturers.—A large and important meeting of manufacturers of crown and sheet glass was held on 29th ult. in Newcastle—in which the trade of the kingdom was more fully represented than at any former period, every establishment, with the exception of one, being represented. It was unanimously resolved, that notwithstanding the increased cost of production, any advance in price was inexpedient, the more moderate portion deeming that any advantage to be gained by an increase of price would be more than counterbalanced by its tendency to check consumption. It was understood that there was no stock, either in the hands of the manufacturers or the merchants, and that the trade generally was in a very healthy and satisfactory state. So much for free trade in glass. —*Gateshead Observer.*

Fall of a New Church in Sheffield.—On Monday last the tower of an almost completed new church in Sheffield fell. It was in the course of erection in a part of the town called Moorfields. The foundation stone was laid on the 29th October, 1849, but owing to the difficulty of raising money in one of the poorest districts in the town, the work was only now approaching completion. The style of the edifice was the Early English, in the form of a cross, consisting of base, measuring 36 feet by 19 feet; transept, 16 feet by 12 feet; chancel, 24 feet by 19; and aisles on each side of the nave and chancel, 12 feet wide. At the intersection of the base and chancel with the transept was an octagon lantern tower, 19 feet square and 60 feet high. The church was to accommodate a congregation of 950 persons. When the workmen left off at the close of last week, the tower was at its full height, and ready for roofing, the remainder of the structure being already roofed. According to the *Morning Advertiser* the architect, in his report to the Ecclesiastical Commissioners, speaks of there being no doubt that the recent heavy fall of rain had caused the ultimate destruction of the tower, but that the primary cause was the fact of the tower piers resting on different strata, one part being clay and the other rock.

The Bristol Hospital Competition.—We continue to receive letters on the subject of this competition, strongly objecting to the ultimate decision. One writer says,—"A protest against it has been signed by all the architects, members of the society in the city, with the exception of the successful competitor. You will notice that the satisfaction you expressed as to the conduct of the committee is not participated in by the resident architects." We expressed no satisfaction as to the decision. What we said was, that notwithstanding the objectionable nature of the proceedings, as the commi tee had ultimately acted on the advice of two professional advisers, we were not prepared to question its justice. The competitors object, with reason, that the whole of the plans were not submitted to the referees.

Skating Grounds.—In laying out parks in the vicinity of London, might not a certain space be levelled and surrounded by a bank a yard high, into which space, on the approach of frost, water may be introduced, to a uniform depth, whereby skating might be enjoyed in safety?—W.

Louth Church, Lincolnshire.—Messrs. Maughan and J. Fowler, architects, have drawn and lithographed for publication a tinted view in outline of the tower of St. James's Church, Louth, and a section of it. It is a very fine example of the Lincolnshire towers of the Perpendicular period, and the drawing is exceedingly well executed.

Agreeing to differ.—Favour me by inserting the following tenders for a farm-house and buildings for Mr. Robert Greaves, Charlton, near Shaftesbury, Dorset. Mr. Dean, architect:—

Fletcher, Salisbury	£4,589	7	0
Brammell and Buxton, Manchester	3,142	0	0
Targett and Bustable, Shaftesbury	3,110	0	0
Miles, Shaftesbury	2,680	0	0
Hall, Queensborough (accepted)	2,670	0	0

One of the Competitors.

D and S Traps.—A correspondent, "C. J." remarks on the strangeness of the fact, that, notwithstanding the introducers of the cheap water-closets have adopted the S, or syphon trap, and their superiority has been over and over again pointed out, the D trap should be still in constant use in houses of the better class,—such fertile sources as they are of nuisance and expense to owners and occupiers. That plumbers should continue to apply them, he says, may be readily accounted for by the repeated demands made for their services in case of stoppage; but that any architect or clerk of the works should provide for them in their specification, or sanction their use, is not so easily explained.

Opening of the New Public Hall, at Wisbech.—The formal inauguration of this new building took place on Wednesday in last week, the Earl of Aboyne in the chair, when Dr. Layard, M.P. delivered an inaugural address of varied interest. The building contains on the ground floor two rooms 22 feet by 18 feet, and 12 feet high. Above these is a lecture-room, 40 feet long by 22 feet wide, and 15 feet high; and at the back of these, are the dwelling and sleeping rooms of the housekeeper. The public hall is on the ground floor, and is approached by a large entrance hall. It is 87 feet long, 40 feet wide, and 27 feet high, and has a raised platform at the end in an arched recess with coved ceiling: under the platform are two retiring rooms. The hall, it is estimated, will seat from 800 to 1,000 persons, and afford standing for 2,000 persons.

Drainage of Cardiff.—To such an extent has this matter been carried at Cardiff that the municipal elections have turned upon it. In the north ward, we are told, two "bricks" and two "pipes" appeared as candidates for seats at the council board. The "bricks" (Mr. C. Vachell and Dr. Edwards) and one of the "pipes" (Mr. Bradley) were successful. Messrs. David Lewis, William Prichard, and John Owen ("bricks"), polled in the south ward between two and three times as many votes as an unfortunate "pipe" who opposed them, in the person of Mr. Pride, one of the retiring councillors.

St. Paul's.—Are means provided for the escape of the enormous volume of heated air from the building? If not, it will fill the whole of the dome to the level of the gas-flames around the whispering-gallery. Is there not an enormous wooden framework on the exterior of the inner dome? Is not the base of such framework bound around with an iron chain? If so, the wood must be highly dried and inflammable. The iron chain would expand dangerously by the heat. Will not the depression or lowering of the canopy on approaching Temple-bar be a mournful imitation of a lively pantomime trick?—Precaution.

Fatal Earth-slip at Sheffield.—While forming a deep foundation for a locomotive engine-shed on the Manchester, Sheffield, and Lincolnshire Railway, on Friday in last week, an earth-slip occurred which buried three men, who, with great labour and after many hours' inhumation, were extricated: two of them lived for a short time, but all of them are now dead.

Royal Institute of British Architects.—The first ordinary general meeting of the ensuing session will be held on Monday, the 15th inst. when a paper will be read containing suggestions for altering and enlarging the present National Gallery, by Mr. C. H. Smith.

Maps of Public Roads.—A correspondent remarks that it is a strange circumstance that while the private rights of railway companies are looked after by the legislature, public rights are neglected, and he suggests that the routes of public roads ought to be recorded on maps, as those of railways are. Our correspondent also suggests that many public roads might be levelled or made less hilly and more passable by pauper labour.

Adoption of the Burials Act in Marylebone.—At a vestry meeting on 10th inst. after some discussion it was unanimously resolved, "That the Metropolis Burials Act be adopted by the vestry."

DESTRUCTION OF A SUSPENSION BRIDGE.—On the 26th ult. the magnificent suspension bridge of La Roche Bernard was swept away by a hurricane. This stupendous structure cost a million of francs, and, with the exception of that at Cubsac, was the finest in France. It connected all Southern Brittany with Nantes and its vicinity. The diligence laden with passengers from the town just mentioned, had crossed it but a few minutes before it fell. It is remarked that the architect of this bridge is the same with that of Angers, which gave way some years ago, when crowded with soldiers.

THE BUILDING TRADE IN SEAPORT TOWNS.—During the last ten years, says a Hampshire paper, a great impetus has been given to the building trade, more especially in the seaport towns of England. To go no further than our immediate district, we find that from 1841 to 1851 there were built in Southampton no less than 2,497 houses; in Lymington, 63; in Christchurch, 65; in Wareham, 196; and Weymouth, 480.

PROVINCIAL CEMETERIES.—From a letter received by the mayor of Newport from the Central Board of Health, it appears that the Government entertain a hope of being able to introduce into Parliament, during the approaching session, a measure to facilitate the creation of provincial cemeteries.

COMPETITION: KILLARNEY JUNCTION RAILWAY HOTEL.—We hear that in answer to an advertisement from the above company, twelve architects have submitted plans. After investigation, the directors have selected out of the entire number the designs of Messrs. Atkins and Johnson, and Mr. R. Brash. These have been submitted to a Dublin architect, upon whose report they will decide.

LECTURE BY MR. LAYARD, M.P.—While on a visit at Dowlais House, Merthyr, Dr. Layard, by request, delivered a lecture in aid of the Dowlais Library, at the Temperance-hall, Merthyr, to an overflowing audience, on "The Antiquities of Nineveh." The chair was occupied by Mr. H. A. Bruce, and the lecture was divided into two parts by interlude performances of the Dowlais Choral Society.

DECAY OF THE LARCH.—Within the last twelve or fourteen years a mortality began amongst the larch-trees of a few years' growth. The disease spread to the older trees, and those of fifty, sixty, and seventy years old are now dying in the same manner. I do not know how far south the mortality has spread, but I know it exists in Oxfordshire, and northward in Cumberland, Northumberland, and throughout the south of Scotland. I venture to propose as a query,—what is the cause of this general decay and death of the larch-tree in Britain? Perhaps it might be worth while to procure seed from the shingly and rocky slopes of the Alps and Apennines, its original habitat. None, I believe, who know anything of the larch will dispute that the loss of it in this country will be a great one.—*Notes and Queries.*

TENDERS

For taking down and rebuilding a public-house in Bowling-green lane, Clerkenwell. Mr. W. P. Griffith, architect.

B. and C. Haynes	£1,259	0	0
W. Elston	1,178	0	0
Gadsby	1,117	0	0
H. W. Cooper	1,090	0	0
D. Fowler	1,028	0	0
W. Patience	1,017	0	0
Elston, jun.	960	0	0
James Brake (accepted)	910	0	0
Robert Hughes	849	19	6

For erecting and finishing three fourth-rate houses (shops) at Upper Norwood, Surrey, for Mr. W. Macleod. Mr. Dyke, architect.

Scott	£1,396	0	0
Humphries	1,375	0	0
Brown	1,349	0	0
Jinks	1,325	0	0
Edwards and Bishop	1,170	0	0
Armstrong	970	0	0

For a public-house and offices at Norwood, for Messrs. Goding and Co. Mr. Edwards, architect. Quantities supplied.

Holland	£1,714	0	0
Locke and Nesham	1,645	0	0
Gammon	1,490	0	0
Patrick and Son	1,385	0	0
Ashby and Horner	1,375	0	0
Chutter (withdrawn)	1,246	0	0

TO CORRESPONDENTS.

Moving Loads.—Will one of your correspondents tell me how I can ascertain the number of pounds or tons, exerted in a horizontal direction, required to move a weight of 50 tons, upon wheels of from 2 feet to 5 feet diameter, running upon iron rails, at a speed of from 2 to 10 miles per hour? Also, half a ton, as above?—E. S. S.

Hydrofluoric acid.—To liberate this acid from fluor spar, two parts of *sulphuric* acid are put to one part of the spar; but it would be dangerous to corrode glass with it *whilst* so liberating the acid from the spar, it being so virulent, that the minutest quantity of its vapour would ulcerate the flesh or destroy the eyes. The acid should be previously liberated in a leaden retort and receiver, or purchased ready made in a leaden bottle, and even then most cautiously used.

"Lightning" (connect the bottom of the copper tube with the main conductor), "C. R. W.," "R *Clericus*" (iron windows are not much used in churches now), "A Clerk" (it depends on private arrangement), "W. H. W.," "M. and F.," "D. and Son," "J. S." (next week), "R. B.," "C. A. W.," "W. W.," "Ed. L. G.," "W. B." (useless at this moment), "J. S. B." (Bangor), "J. H. H." (protest did not reach us), "Quondam," "E. M.," "T. G.," "W. H.," "G. W.," "O. S.," "J. P. S.," "W. M.," "J. H.," "Mr. S.," "T. B." (we do not know of any elementary drawing school in Hackney yet. As to instruments, apply at Society of Arts).

ERRATUM.—*New Theatre, Hanover*—The notice of this theatre, given last week, was from the *Literary Gazette*, and not the *Athenæum*, as accidentally stated.

"Books and Addresses."—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY.
TRUSTEES.
Jeffery Smith, esq. | David Fergusson, esq.
Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.
Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
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NON-FORFEITURE OF POLICIES.
Assurers who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.
Loans granted on personal and other securities, in connection with life assurance.
BONUS.
The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:—

No. of prems. p'd	Age when assured.	Annual premium	Sum assured	Bonus added	Amount now assured.
		£ s. d.	£	£ s. d.	£ s. d.
5	50	45 19 2	1,000	84 13 0	1,084 13 0
4	40	32 19 2	1,000	65 0 0	1,065 0 0
3	30	24 15 0	1,000	43 14 5	1,043 14 5

GEORGE THOMSON, Manager.
5, Chatham-pl. Blackfriars. THOS. MUSGRAVE, Secretary.

IMPERIAL LIFE INSURANCE COMPANY,
1, Old Broad street, London.
Thomas Newman Hunt, esq. Chairman.
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A NEW SCALE OF PREMIUMS on Insurances for the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 50 years.
FOUR FIFTHS, or 80 per cent. of the Profits are assigned to Policies every *fifth* year, and may be applied to increase the sum insured, to an immediate payment in Cash, or to the reduction and ultimate extinction of future premiums.
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INSURANCES without participation in Profits may be effected at reduced rates.

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Nineteen-twentieths of the profits are divided among the insured.
EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy.	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£.	£ s. d.	£. s. d.
1806	2,500	79 10 10 extinguished.	1,923 2 0
1811	1,000	33 19 2 ditto	231 17 8
1818	1,000	34 18 10 ditto	114 18 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
521	1807	900	982 12 1	1,882 12 1
1174	1810	1,200	1,160 5 6	2,360 5 6
3302	1820	5,000	3,558 17 8	8,558 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

A DESIRABLE INVESTMENT.—To CAPITALISTS and OTHERS.—A Gentleman possessing on lease, for a long term of years an extensive Granite set Quarry, and other valuable mineral possessions in North Wales (now in work), desires one of merchant with gentleman to join in the undertaking as an active PARTNER, or otherwise with a capital of from 5,000l. to 8,000l. which amount is required to extend the present working. The rock of this quarry is of the eyenite class, being a compound of felspar, quartz and hornblende of the specific gravity, and possesses great hardness with adhesiveness, adding safety for horse travelling over the town streets, with durability in wear. Connected with these works there is a waterfall of great power, which can be made available to work the quarries and mines by machinery, to considerable advantage and saving of expense. The actual value of these works is very considerably enhanced by their being water and railway conveyance in the immediate proximity of the quarries. The profit realised by this undertaking are great. Parties wishing to treat can obtain all necessary information on application to EVAN HARE, Esq. solicitor, 1, Mitre-court, Temple.

SOUTH WALES RAILWAY.—GOODS SUPERINTENDENT WANTED. The Directors require the services of a Gentleman qualified to Superintend the Mineral and Goods Traffic upon this railway. Applications for the situation, stating salary required, accompanied by testimonials, must be delivered to the undersigned not later than TWELVE o'clock on TUESDAY, 23rd inst. By order,
FRED. G SAUNDERS, Secretary.
10, Eastbourne terrace, Paddington, Nov 8, 1852.

TO PARENTS AND GUARDIANS.
AN Architect and Engineer, within ten miles of London, in full practice, wishes for a respectable intelligent YOUTH, about sixteen years of age, as an OUT-DOOR PUPIL. He must be of industrious habits, write a good hand, have a taste for drawing, and be quick at figures. A moderate premium expected. Apply to Mr J. FAULKNER, Ironmonger, 62, St. Martin's-le-Grand. References given and required.

WANTED, an APPRENTICE to the TOOL TRADE. A premium required.—Address, G. M. 65, Crawford-street, Bryanston-square.

TO ENGINEERS
WANTED to ARTICLE, a YOUTH, 18 years of age, for two and a half years, in-doors, to the above Trade. A month's trial to be given.—Address, post-paid, to A.B. 2, Silver-street, Golden-square, stating terms, which must be moderate.

TO JOINERS.
WANTED immediately, for a few months, SIX GOOD BENCH HANDS.—Apply (if by letter post-paid) to E. LAURANCE, builder, Broughing (near Ware), Herts.

WANTED, in a Builder's Office, a CLERK, conversant with the general routine of the building business, who can write a good hand, and understands drawing and measuring masons's and work. To attend the same hours as the workmen.—Address, S. T. at the Office of "The Builder," stating salary, age, and capabilities.

TO LAND SURVEYORS, ARCHITECTS, OR ENGINEERS.
WANTED, a Young Man, who writes a very good plain hand, and understands book-keeping and figures, to check builders' accounts, and do the general writing business of a Surveyor's Office. Also, a LAND SURVEYOR, who is a fair draughtsman, and can calculate areas, &c. &c. Both situations will be nearly permanent if the parties suit. Testimonials will be required. Address, post-paid, stating terms and age, to A.B. care of Housekeeper, Old Jewry chambers, Old Jewry.

TO BUILDERS' CLERKS
WANTED, in the office of a Builder, a respectable Young Man not under twenty years of age, who understands the general routine of the office. None need apply but those who have been at least three years engaged in a similar capacity.—Apply by letter only to T. H. Office of "The Builder," 1, York-street, Covent-garden, stating age, amount of salary required and where last engaged.

WANTED, by a Young Man from the country, an ENGAGEMENT for Two Years, who is desirous of improving himself, as a CARPENTER and JOINER.—Address, P. W. N., 25, Caledonian Coffee-house, Westminster bridge-road, Lambeth. N.B.—No objections to being bound.

WANTED, SITUATIONS, by Two Young Men,—one a BRICKLAYER and PLASTERER, &c. the other a PAINTER. Can measure and keep accounts, &c. and willing to assist in an office.—Address to C. D 6, Bond street, Commercial-road, Lambeth.

TO BUILDERS AND ARCHITECTS
WANTED, by a Young Man, aged twenty-one, a SITUATION as CLERK of the WORKS, or as DRAUGHTSMAN and CLERK. Understands taking out quantities and the general routine of a Builder's Office. Salary moderate. Reference, present and former employers.—Address, A. S. 5, Albany-place, Kentish-town, near the Castle. No objection to the country.

WANTED, by the Advertisers, Two Young Men of fourteen years' practical experience in paving and road-making, and have a knowledge of drainage, &c. SITUATIONS. They are first-rate workmen, of sober and industrious habits, and are well conversant with taking levels, laying out roads, &c. No objection to go abroad. Reference as to character and ability unexceptional. Address, G. S. No 18, Layston-street, Gray's inn-lane.

TO ARCHITECTS
A PRACTICAL DRAUGHTSMAN is desirous of an ENGAGEMENT.—Apply to T. P. Q. Office of "The Builder," 1, York-street, Covent-garden.

A BUILDER'S CLERK wishes to obtain a SITUATION. Can be highly recommended for knowledge of business, punctuality, &c. &c.—Address, with particulars, to H. W. care of Mr. Horton, 16, Allen-street, Lambeth.—N.B. Is not a surveyor.

A YOUNG ARCHITECT wishes to obtain a SITUATION in an Architect's Office, either in London or any large provincial town, as Liverpool, &c. He has served an architect in London, holding a public appointment, for a term of seven years. Is competent to make fair and working drawings, and to superintend the erection of buildings, &c. The highest references can be given.—Address H. S. L. Office of "The Builder," 1, York-street, Covent-garden.

TO PLUMBERS, DECORATORS, AND OTHERS.
THE Advertiser requires Partial or Permanent EMPLOYMENT in making up Books and Accounts, Measuring, &c.; has no objection to assist in the decorative department if required; he has also a thorough knowledge of glass embossing. Good reference from last situation. Moderate salary.—Address, A. T. Office of "The Builder," 1, York street, Covent-garden.

TO PAINTERS, BUILDERS, AND RAILWAY COMPANIES.
THE Advertiser, a Painter, Grainer, Writer, and Paperhanger, having had the management of workmen for sixteen years, and of contracts of one kind and another, is desirous of a RE-ENGAGEMENT as WORKING or SUPERINTENDING FOREMAN, either in town or country. Most satisfactory references will be given as to ability, honesty, and sobriety. Apply by letter, prepaid, to A. L. W. 7, Hide-place, Vincent-square, Westminster. N.B.—Or would take a large job task work.

WANTED, within a quarter of a mile of the Post-office, large business PREMISES, with Dwelling-house, Stables, and Outbuildings adjoining, or ground sufficient for building the same, either cleared or by pulling down old dwellings.—Address, Y. Z. Mr. Griffiths, Post-office, Clerkenwell-green.

ROYAL COLOSSEUM.—Every MONDAY, at One Shilling.—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. open daily from half-past ten till half-past four o'clock. In the Evening from seven till ten, Paris by Night, and the whole establishment brilliantly illuminated. Admission, Day or Evening, 2s.; children and schools half price.

CRYSTAL PALACE (admission 1s. only). At the CYCLORAMA, Albany-street, daily at three, evening at eight o'clock, seven stupendous Tableaux of the Great Exhibition and its contents, painted by Mr. M'Nevin, from the original studies, and on a scale nearly equal the original. Reserved seats, 2s.

PATRON—H. R. H. PRINCE ALBERT.

ROYAL POLYTECHNIC INSTITUTION.—ENTIRELY NEW EXHIBITION.—An Optical and Musical Illustration of "A Midsummer Night's Dream," the words from Shakespeare, the music by Hoch, Stevens, Henry West, Bishop, and Dr. Cooke, every Evening except Saturday, at Half-past Nine. Lecture by Mr. Gregg on Ball oming and the Prospects of Aerial Navigation, illustrated by a beautiful Model of Poitevin's Parachute. Green's Guide Rope Diagrams, &c. Lecture by J. H. Pepper, esq. on Chemistry and its Manipulations. Lecture by Dr. Bachhoffner on Frictional Electricity, illustrated by the Hydro-Electric Machines. Dissolving Views, Chromatrope, &c.—Admission, 1s.; Schools and Children under ten years of age, half price.

NEW YORK EXHIBITION of the INDUSTRY of ALL NATIONS, opening 2nd May, 1853.—APPLICATIONS FOR SPACE are to be made to C. BUSCHEK, sole authorised agent for Europe, at the office, No. 6, CHARING CROSS, LONDON, where all particulars can be obtained. Articles intended for Exhibition must be ready for shipment on or before 10th FEBRUARY, 1853, at the latest.—A VIEW and GROUND-PLAN of the BUILDING appeared in "The Builder" of Saturday, 23rd October, 1852.

ZINC ROOFING.—The Corphalie Zinc Mining Company of Belgium.—GEORGE HAMLIN and Co. sole agents in London, are prepared to receive orders for slips' sheathing, roofing zinc, bolts, and other products of the above mines.—Offices, 193, Leadenhall-street.

GREAVES'S BLUE LIAS LIME.—The superior manner in which the above is ground renders it cheaper for concrete or stucco than any other lime or cement. The small lime for mortar is burnt on an improved principle, leaving scarcely any core. The satisfaction constantly expressed by Engineers, Architects, and Contractors for the above lime is the best recommendation.

Gibbs, Canning, and Co.'s Blue Vitrified Bricks, Pipes, Junctions, Bends, and Fire Goods.

ROMAN, PORTLAND, PARIAN, ANSTON, and LIAS Cements of the best quality.

SECONDS, PAVIORS', STOCKS, and other Bricks.

CHARLES RICHARDSON, 6, South Wharf, Paddington.

DURRAND'S "BONDED and SUFFERANCE WHARF" TIMBER-PRESERVING WORKS, ROTHERHITHE.—BETHELL'S process consists in preparing timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piers, Docks, Harbours, &c.; and the Outside Planking of Ships and Barges. And also for use in the Colonies, as being perfectly secure from the attacks of all land or marine insects. PAYNE'S, Sir W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and Horticultural Building.

Extensive and most complete Machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Commercial Docks, is advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.

Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURTT'S Office, 2, Charlotte-row, Mansion House.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by fishjointing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half yearly meeting of shareholders held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fishjoints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Ferrybank,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Morayshire,
North and South-Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet furnished with rails, the company draw attention to W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Mid land Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Compression Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

Eastern Counties,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E., 2, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 36, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25th of August:—

"The system of 'fishjointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway, held on the 25th August:—

"The result of the three months' working of the new rails between Penzance and Gulval has fully borne out the expectations which had been formed as to the durability of the description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of my board having been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from altering that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the Londonderry and Enniskillen Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the cast-iron road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

BATH STONE OF BEST QUALITY.

RANDELL and SAUNDERS, QUARRYMEN and STONE-MERCHANTS, BATH.

(DEPOTS.)

Great Western Railway Station....	PADDINGTON.
Great Western Railway Station....	BRISTOL.
Hope-street, Mount-pleasant	LIVERPOOL.
Castle-fields	MANCHESTER.

List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Laths, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulines let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

CHEAP STONE.—Paving, 32s. 36s. and 42s. per 100 feet; York sinks very low prices, viz. 1s. 8d. per foot; 9 in. 7d. to 10d.; coping, 8id. to 11id. per foot. Chimney-pots, stone pipes, clay ditto, tiles, &c. at reduced prices. Country Builders will find a decided advantage in making their purchases at this wharf, which is most conveniently situated for conveyance by railway or canal. A priced list sent free on application to E. and W. STURGE, Bridge Wharf, City-road.—N.B. Cash prices on the wharf

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed. Apply to JOHN PILKINGTON, PAVIOR AND PAVEMENT CONTRACTOR, PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Flooring laid with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. &c. manufactured by J. M. BLASHFIELD, Mitre Wall, Isle of Dogs (near the West India Docks), and sold at No. 1, Praed-street, Edgware-road, Paddington.

WILLIAM ASPDIN'S PATENT PORTLAND CEMENT. Messrs ASPDIN, ORD, and Co have much pleasure in informing consumers of this valuable Cement that as extensive arrangements are in operation they are prepared to execute any orders they may be favoured with.

New Wharf, Abingdon-street, Westminster, Sept. 23, 1852.

PERMANENT STUCCO WASH, WITHOUT SIZE OR OTHER CORRUPTIBLE INGREDIENT.

As used at St. George's Hospital, Hyde Park Corner.

JOHNS and CO. having effected some important improvements in the manufacture of this very useful material, confidently offer it to the notice of the Trade and the Public generally, as possessing every advantage over the common Lime Wash or Water Colour for STUCCO or BRICK WORK. It is a Stone Colour, but may be tinted to any other.—DOES NOT WASH OFF—is perfectly dry in twenty-four hours, and, being a permanent colour, is particularly adapted for Railway Stations, Union Workhouses, Barracks, Schools, Prisons, &c. One cwt. will cover 250 square yards. It will look good for years, and MAY BE EXPORTED WITH PERFECT SAFETY.

JOHNS and CO.'S STUCCO CEMENT. This cement, from the great reduction in price, and its suitableness for internal as well as external surfaces, places it before all other materials of the kind. It has no caustic qualities; may be painted or papered in a few days; never blisters, cracks, or vegetates; soon becomes as hard as stone; and may be cleaned with a brush and water.

The merits of the PAINT are well known for its application to stucco work of all kinds, and external work generally. Numerous testimonials, for nine years, and every variety in use be obtained, on application to the Sole Agents, PHILIP HARE and Co. at the Warehouse, 22, Steel-yard, Upper Thames-street. A liberal allowance to wholesale dealers.

PARIAN CEMENT for internal use, to be PAINTED IN A FEW HOURS AND PAPERED WITHIN A COUPLE OF DAYS.—CHARLES FRANCIS and SONS, Patentees, and Manufacturers of Roman and Portland Cement, &c. &c Nine Elms, London.

MEDINA (ROMAN) CEMENT.—The material of which this cement is made is obtained in the Isle of Wight. It has all the properties of the Sheppy Stone, but is much better adapted to engineering purposes, from the facility with which it sets and hardens under water. It has been long used at the great Breakwater at Cherbourg; in a similar work at Alderney; and at Dover New Pier, to unite the masonry. The foundation of the centre pier of the Tubular Bridge at Menai Straits is laid in Medina Cement. A new groyne at Sandown Bay, Isle of Wight, has been constructed of no other material but this cement and pea shingle. The work extends 300 feet into the sea, and is exposed to the most violent gales of the Channel, in a position where every former construction had been repeatedly washed away. The inconvenience of the varied qualities of Roman Cement are superseded by the use of this improved manufacture.

CHAS. FRANCIS and SONS, Nine Elms, London; or West Medina Mill, Newport, Isle of Wight.

Agent for Southampton, R. L. FLUDER, American Wharf.

6, South Wharf, Paddington

PORTLAND CEMENT.—CHARLES RICHARDSON has the greatest confidence in introducing to the trade the above superior CEMENT, being of uniform colour and quality (a desideratum never before attained in Portland Cements). It possesses extraordinary cementitious qualities, resists the action of frost and heat, and is more durable than any other Cement; does not vegetate, turn green, or crack; combined with which its eminent hydraulic properties stamp it at once as the first cement of the day for work where all the above qualities are requisite. It is manufactured on the only principle Portland Cement can be, and contrary to the statements put forth by those who have hitherto had the monopoly. Manufactured by R. GREAVES, Esq. at his Works, near the River Avon, and sent to all parts of the kingdom per boat or rail, at a reduced price to the trade.

PORTLAND CEMENT.—THOMAS FREEN and CO. having completed their works at WOULDHAM-ON-THE-MEDWAY for the manufacture of PORTLAND CEMENT, beg to inform their friends and the public that they are now ready to supply them with cement of superior quality on reasonable terms.—Roman Cement and Plaster of Paris Works, Tuscany Wharf, Canal-road, Kingsland-road.

PORTLAND CEMENT.—JAMES WESTON, having commenced manufacturing the above Cement, begs to inform the trade in general that he can supply them with any quantity they may require, either at his Works, Mill-wall, Poplar; St. Andrew's Wharf, Earl-street, Blackfriars; or Middle Scotland-yard, Westminster. Manufacturer of Roman, Lias, and Mastic Cements, French and English Plaster, &c.

PORTLAND CEMENT.—The difficulty of procuring this valuable Cement of uniform colour and strength has hitherto prevented its more general use. Contractors and Builders will find that these two important qualities may be depended on with the greatest certainty in that manufactured by CHARLES J. HILTON, at his Roman and Portland Cement and Plaster of Paris Works, Faversham, Kent, at which place, as also at his Wharfs in London, 6, Upper Thames-street, City, and Great Scotland-yard, Westminster, orders can now be received to any extent.

PATENT PORTLAND and ROMAN and ANSTON CEMENTS.—WINKFIELD, BELL, and CO. of East Greenwich, Kent, having now completed some heavy contracts, are prepared to execute orders to any extent for the above Cements. Many highly respectable references can be given where their cements have been successfully used, both at home and abroad. Orders received and executed either from their works at Greenwich, or their wharfs, Lindsey Wharf, Chelsea; 34 Wharf, Narrow-road, Paddington; Phœnix Wharf, Whitefriars, City; Bridge Wharf, King's-cross; and Messrs. COLWELL, Bros. and Co.'s, Bridge-st. Covent Garden, opposite the Office of "The Builder."—Agent at Southampton, Mr. GEORGE SHARP, Union Wharf.

ATKINSON'S CEMENT, so long known and esteemed in London, for plastering purposes, is a quick-setting Cement, that requires no alteration; sold exclusively by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster; and Seel-street, Liverpool.

KEENE'S and PARIAN CEMENTS and FRENCH PLASTER for internal uses.—These well known hard stuccoes dry quickly, and can be painted upon within a few days. Sold and made only by JOHN BAZLEY WHITE and SONS, Millbank-street, Westminster.

PORTLAND CEMENT is the cheapest, because the best Cement for external uses. As a stucco, it requires no colouring, does not vegetate, and is not affected by frost. As a mortar for brickwork, it may be mixed with three to four parts of sand: and, for concrete, it will carry ten to twelve times its volume of sand and gravel.—Manufactured by JOHN BAZLEY WHITE and SONS, 17, Millbank street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT WORKS, NORTHFLEET, KENT.—Messrs ROBINS and CO. solicit the attention of their friends and the public to their superior Cement, confident that the great improvement in the manufacture thereof during the present year will insure to them a continuance of that patronage with which they have so long been favoured.—Orders received at the Works, and at Great Scotland Yard, Whitehall.

Great Scotland-yard, Whitehall.

NOTICE.—PATENT PORTLAND CEMENT. The CO-PARTNERSHIP lately subsisting between ROBINS, ASPDIN, and COX, having been DISSOLVED on the 7th day of November last, by a decree of his Honour the Vice-Chancellor Turner, and an injunction granted, restraining William Aspdin, then of Ormiston House, Northfleet, Kent, from intermeddling with, or receiving or disposing of any of the moneys, property, or assets of the said late partnership, and from using or pledging the name thereof for any purpose whatsoever, Messrs. ROBINS and COX, being alone authorised to wind up the affairs of the late Co-partnership, respect the Creditors of the late Firm forthwith to render their claims, that the same may be discharged; and the Debtors to the late firm will be pleased to pay their accounts, to pay their accounts, either at the Cement Works, Northfleet, Kent, or at Great Scotland-yard, Whitehall, where Messrs ROBINS and COX continue to carry on their Manufacture and Trade in Portland Cement, in connection with Messrs. Goodwin and Schmidt, under the style or firm of ROBINS and COMPANY

TO ARCHITECTS, BUILDERS, &c.

ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by HERBERT and SON, Modellers, &c. 43, Parker-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Centre Flowers, Balusters, Trusses, &c.; Elizabethan and other Chimney Shafts.

ENCAUSTIC TILE PAVEMENTS at VERY LOW PRICES.—MAW and CO. of Worcester, being about to remove their works to Benthall, near Broseley, Salop, which will be their address after Christmas), are disposing of all second quality tiles, viz. such as are somewhat defective, but which form good, durable, and handsome pavements, at prices which afford an opportunity not likely again to occur of so cheaply paving public and private edifices with this useful production of mediæval art. Estimates furnished, with designs, showing the patterns, ancient or modern, arranged to suit any given dimensions, but an extensive assortment is necessary, as the stock diminishes in variety of pattern as well as quantity. N B MAW'S BOOK of ENCAUSTIC TILE PATTERNS and their arrangements will be sent free on application to MAW and CO. Worcester.

PAN TILES, 48s.; Plain, 32s. 6d.; superior White Suffolk Facing, Red Rubbers, Fire Brick, &c.—Best Stourbridge, Welsh, and Newcastle Fire Bricks, Lumps, Tiles, Clay, Windsor Loam, &c. Gas and other shapes Goods, Windsor and Nonsuch Green Tiles and Bricks, Dutch and English Clinkers, Patent Malt-kiln and Corn-drying finely-perforated Tiles, 12 in. and 9 in. Paving ditto, unequalled in quality and colour, at WARD'S old-established Honduras Wharf, Bankside, Southwark, London. Thames Sand, Concrete, Gravel, &c. &c.

BRICKS.—Malm Cutters, Yellow and Pale Seconds, Paviors, and Pickings, of good and sound quality, constantly on sale at H. DODD'S Brickfields, which are only a quarter of an hour's walk from the City. H. D. earnestly requests purchasers to favour him with a visit, in order to inspect his stock, and to judge for themselves.

Malm Place, half-washed Stocks, and Place Bricks, also on sale. These bricks are sound, well burnt, unusually free from defects; a very large proportion of the stock being suitable for external facing.

Apply to HENRY DODD and CO. at the Counting-house, Hoxton Brickfields, Orange-walk, near the Rosemary Branch, Hoxton.

N.B. Red pit sand of approved quality constantly on sale upon reasonable terms. The sand, from its peculiarly amalgamating any saline matter, is acknowledged to be preferable to river sand

WHITE SUFFOLK and RED FACING BRICKS of superior quality. Moulded Bricks to any pattern.

Apply to COWLEY, KENT, and ESSEX BRICKS; also Yellow and Pale Malm Seconds, Cutters, Paviors, Shippers, &c. &c.

KENTISH RAG STONE of the finest quality, and of the blue tinge so much approved by architects, can now be supplied, at a FURTHER and CONSIDERABLE REDUCTION in PRICE.

Apply to Mr. BENJAMIN GOUGH, 37, Newington-crescent, Newington Butts.

WHITE BLUNHAM BRICKS and TILES.—These Goods, so justly celebrated for retaining their colour without vegetating, and, combining great strength with a fine face, can now be obtained in London, in various forms and sizes, and in any quantity. The Paving Tiles, Clinkers, Splays, Bullnose, and Facings are well worth attention. Sole Agents: PHILIP HARE and CO. 22, Steel-yard Wharf, Upper Thames-street.

PRIZE MEDAL AWARDED TO PEAKE'S TERRO-METALLIC TILES, PIPES, &c.

ILLUSTRATED TRADE LISTS, containing much information useful for reference; also unsolicited testimonials respecting a MATERIAL which, when well brought, is probably superior to every other for drains or conduits, for ridges, tips, valleys, and every part of roofs, for plain or chequered floors, for paving and erections, as strong and durable nature, also many other purposes, supplied genuine by THOMAS PEAKE (proprietor of Peake's "Terro-Metallic"), No. 4 WHARF, CITY-ROAD BASIN, LONDON, and at THE TILERIES, TUNSTALL, STAFFORDSHIRE. The lists contain both prices by number, and approximate cost by measure. It is solicited that letters be prepaid, and state if Staffordshire or London prices are wanted. Specimens were at the GREAT EXHIBITION, Class 37, No. 132 (having been at first No. 111).

SLATE MERCHANTS can have their SLATES LIGHTERED upon very advantageous terms, by CHARLES STRUTTON, Lighterman, 34, Commercial road, Lambeth.

SAW MILL PROPRIETORS and TIMBER MERCHANTS can have their GOODS LIGHTERED upon very advantageous terms by CHARLES STRUTTON (sole lighterman to the Commercial Dock Company), 34, Commercial-road, Lambeth.—Barges let on hire.



JENNINGS'S PATENT SHOP SHUTTER-SHOE and FASTENER costs HALF the PRICE of the usual shutter fixings. May be had from any Ironmonger, or from the Patentee GEORGE JENNINGS, 29, Great Charlotte street, Blackfriars road.

CALORIFERE.—Gold Medal, Paris Exhibition, 1849.—A 500,000 cubic feet room warmed by hot air only, at 60 degrees Fahrenheit, in burning 16 lbs. of coal per hour. The most complete safety against fire, the healthiest and most powerful ventilation, without any machinery, are obtained by BOILEVE'S PATENT CALORIFERE. The constant supply of fresh air carries out instantaneously, by a new well improved process, all damp or vitiated air, that makes it very desirable for churches, assembly, theatres, hospitals, manufactories, clubs, houses of any size, laundries, and green houses. The Calorifere has been adopted by his Grace the Duke of Bedford, at Woburn Abbey, by several architects, and it may be seen in operation in many places in London and country.—Apply, per post, to T. BOILEVE, French Engineer, 147, Fenchurch-street, London.

TO ARCHITECTS, BUILDERS, CONTRACTORS, &c.

HARTLEY'S PATENT ROUGH PLATE GLASS,

1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for

RIDGE AND FURROW ROOFS, GREENHOUSES, RAILWAY STATIONS, ENGINE SHEDS, MILLS, MARKET HALLS, AND PUBLIC BUILDINGS GENERALLY.

It being universally admitted that Glass in Roofs of a permanent character should not be less than one-eighth of an inch thick, weighing two pounds to the foot, Messrs. JAMES HARTLEY and CO. have directed their attention to the manufacture of a description of

ROUGH PLATE GLASS THAT COMBINES SIZE AND STRENGTH WITH ECONOMY OF COST.

The PATENT ROUGH PLATE is manufactured in sizes expressly for Ridge and Furrow Roofs, giving a span of from 6 to 12 feet, at a price not exceeding weight for weight that of common Crown Glass. Not being transparent, blinds are unnecessary, and when used in Greenhouses no scorching occurs; its NONTRANSPARENCY and strength render it eminently suitable for the Glazing of Conservatories and Roofs of all kinds; also Factories, Workshops, &c., for which purposes it is supplied in squares of all sizes, from 6 by 6 inches and upwards.

For further information apply to Messrs. JAMES HARTLEY and Co., Wear Glass Works, Sunderland

N.B.—The Patent Rough Plate is supplied at a much lower cost than the common Rough Plate.—May 1, 1851.

GLASS IN EVERY VARIETY MANUFACTURED

FOR SHOP FRONTS, WINDOWS, AND HORTICULTURAL PURPOSES.

THOMAS MILLINGTON, IMPORTER AND DEALER, 87, BISHOPSGATE-STREET WITHOUT

GLASS.

SHEET GLASS, 16 oz. to the foot, in 100-feet Boxes, and many other sizes, at 18s. each, box included

10½ by 8½	12½ by 9½	18 by 13	17 by 13	22½ by 20
11½ by 9½	12½ by 10½	16 by 14	23 by 15	15½ by 10½	24 by 15

Cases in large sheets, superior, for Shop Fronts or cutting up, in either 10½ 8½, or 300 feet cases, at 20s per 100 feet, or 2½d. per foot.

ROUGH PLATE GLASS, for Skylights, Conservatories, and Pavements, from ¼ in. to 1 in. thick. Estimates given for Plate Glass and Patent Plate, for Shop Fronts, &c.

COLOURED GLASS:—Ruby, 1s. 4d.; Green, 1s. 2d.; Blue, 10d.; Purple, 10d.; Yellow, 10d.; and Orange, 10d. per foot. Ornamental Glass, 1s. per foot, in the sheets. Ventilating Glass. Glass Shades of pure white, for models, &c.

SLATES AND TILES, with every article, on the lowest terms.

MILLED SHEET LEAD, PATENT LEAD PIPE, SOIL PIPE, COCKS, WATERCLOSETS.

VARNISHES AND COLOURS.

GENUINE WHITE LEAD, BRUNSWICK GREENS, BLUE, CHROMES, PAINTERS' BRUSHES, GLAZIERS' DIAMONDS AND TOOLS.

REDUCTION IN THE PRICES OF PLATE GLASS.

THE UNION PLATE GLASS COMPANY respectfully inform the Trade and the Public generally, that they have revised their Tariff of Prices, and made considerable reductions therein.

The New Lists may be had on application at the Works, Pocket Nook, St. Helens.

Warehouse, 39, Hatton-garden, London; 11, York-street, Manchester; 15, South John-street, Liverpool; Messrs. C. and J. MALLOCK, 30, Turner's-court, Glasgow; JOHN DIX and CO. Bath-street, Bristol.

ALFRED GOSLETT, 26, SOHO-SQUARE,

Begs to inform Builders and the Trade generally, that the following descriptions of GLASS can be procured either wholesale in crates, as manufactured, or cut to given sizes, at his extensive establishment:—

PLATE GLASS at the RECENTLY REDUCED RATES.
ROUGH PLATE GLASS, ¼, ⅜, ½, and 1 inch thick.
HARTLEY'S PATENT ROLLED ROUGH, PATENT FLUTED, and PATENT QUARRY GLASS, ¼, 3-16, and ½ inch thick.
ORNAMENTAL GLASS of every description, at prices ranging from 1s. per superficial foot.

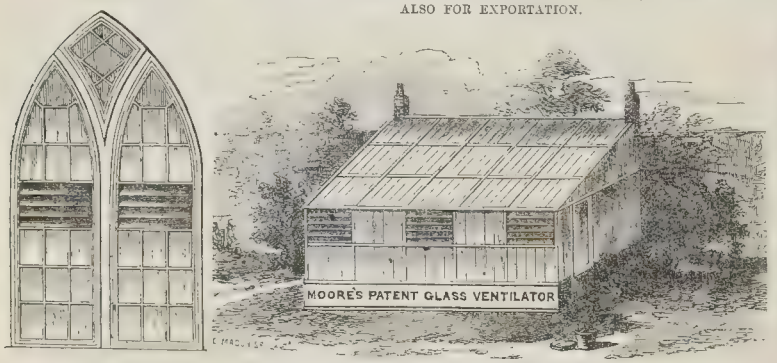
STAINED, COLOURED, and CATHEDRAL GLASS.
CROWN and SHEET GLASS of every description manufactured.
BELGIAN SHEET GLASS in 200 feet cases, at 40s. per case; in parcels of five cases, at 38s.; and in parcels of ten cases, at 37s. per case, for cash on delivery.

In the LOOKING-GLASS DEPARTMENT there are THREE EXTENSIVE SHOW-ROOMS devoted to the display of Looking Glasses, Console Tables, Girandoles, Cornices, Picture-frames, and Mahogany Dressing and Cheval Glasses, in every variety of modern design.

MOORE'S PATENT LEVER GLASS VENTILATOR,

FOR WINDOWS, PARTITIONS, RAILWAY AND PRIVATE CARRIAGES, GREENHOUSES, STABLING, &c.

ALSO FOR EXPORTATION.



Size in inches	No. 4.	No. 3	No. 2	Best.
10 by 9	0 18 0	0 10 3	0 11 6	1 5 0
12 „ 8	0 18 0	0 10 0	0 17 6	1 5 0
11 „ 9	0 18 0	0 11 0	0 19 0	1 7 0
12 „ 9	0 18 0	0 11 6	0 18 6	1 8 0
13 „ 9	0 18 0	0 12 6	1 1 6	1 9 0
14 „ 9	0 18 0	0 13 0	1 2 0	1 11 0
15 „ 9	0 18 0	0 13 6	1 3 0	1 14 0
12 „ 10	0 18 0	0 13 3	1 3 6	1 12 0
13 „ 10	0 18 0	0 13 6	1 5 0	1 14 0
14 „ 10	0 18 0	0 14 0	1 5 6	1 15 0
15 „ 10	0 18 0	0 14 6	1 6 0	1 16 0
16 „ 10	0 18 0	0 15 0	1 7 0	2 0 0
17 „ 10	0 18 0	0 15 6	1 7 6	2 1 0
18 „ 10	0 18 0	0 16 0	1 8 0	2 2 0
19 „ 10	0 18 0	0 16 6	1 8 6	2 3 0
20 „ 10	0 18 0	0 17 0	1 9 0	2 4 0
21 „ 10	0 18 0	0 17 6	1 9 6	2 5 0
22 „ 10	0 18 0	0 18 0	1 10 0	2 6 0
23 „ 10	0 18 0	0 18 6	1 10 6	2 7 0
24 „ 10	0 18 0	0 19 0	1 11 0	2 8 0
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35 „ 10	0 18 0	1 4 6	1 16 6	2 19 0
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The Builder.

SATURDAY, NOVEMBER 20, 1852.

ENGLAND has been burying her Hero; and London has been transformed into one vast scaffolding. For these last ten days little else has been thought of; and though the whole affair has taken, as we think, too much the character of a show and a festival, unmistakable evidence has been afforded of the supereminent position which the Duke of Wellington occupied in the public mind. The specialty of our province does not remove from us the necessity of offering grateful tribute to the great General who took 3,000 cannon from the enemy, and never lost an English gun. But for the security which his ability, his character, and his fortune gave us, the sister Arts might still have been skulking unknown in England. While war occupies men's minds, and wastes worse than uselessly their substance, we do not expect to see buildings arise, or painters and sculptors flourish. These are the arts of PEACE; and to Wellington, as the instrument under Providence who gave us this, restored confidence to the world, and allowed the mental powers securely to develope themselves, we owe honour and reverence. "Forty years of peace," as Mr. Disraeli said on Monday night, "have hardly qualified us to be aware how considerable and how complex are the qualities which are necessary for the formation of a great General. It is not enough to say that he must be an engineer, a geographer, learned in human nature, adroit in managing mankind; that he must be able to perform the highest duties of a Minister of State, and sink to the humblest offices of a commissary and a clerk; but he has to display all this knowledge and he must do all these things at the same time and under extraordinary circumstances. At the same moment he must think of the eve and the morrow,—of his flanks and of his reserve; he must carry with him ammunition, provisions, hospitals; he must calculate at the same time the state of the weather and the moral qualities of man; and all these elements, which are perpetually changing, he must combine amid overwhelming cold or overpowering heat; sometimes amid famine, often amid the thunder of artillery. Behind all this, too, is the ever-present image of his country, and the dreadful alternative whether that country is to receive him with cypress or with laurel." In the present case the laurel has been bestowed, and now comes the cypress,—cypress not strewn over the grave to be swept away on the morrow, but planted and watered by a nation's tears, to flourish always. Thousands—

> "Mourn for the man of largest influence,
> Yet freest from ambition's crime,
> Our greatest, yet with least pretence,
> Great in council and great in war,
> Foremost captain of his time,
> Rich in saving common-sense,
> And as the greatest only are,
> In his simplicity sublime."*

Thousands on thousands have pressed to see his coffin in the soldiers' refuge at Chelsea, and on Thursday the whole population of the metropolis, with armies from the provinces, filled the streets, the windows, the roofs, the steeples, to see the "solemn, silent, melancholy train," which accompanied his remains to their final field. They needed no urging,—no Homer to sing,—

> "If e'er ye rushed in crowds, with vast delight,
> To hail your hero glorious from the fight,
> Now meet him dead; and let your sorrows flow!
> Your common triumph, and your common woe."

So great, indeed, were the crowds at Chelsea Hospital, that, through defective arrangements for their safety, life was lost, as all by this time have heard. To say that the provisions were "defective," however, is too mild a term, they were disgraceful to all the parties concerned. A hedge-carpenter who had ever seen a London mob would have made better provision against accident than was provided on the first public day of the ceremonial. We shall not soon forget the scene we looked down upon on that day. The surging mass of people, steaming, struggling, screaming, crushing each other by the momentum given and checked, was frightful to contemplate. There was no controlling head, and the effect of what the police did was simply to make matters worse. On the following days barriers were erected, and the arrangements otherwise improved; but even to the last they were grossly defective, and that, too, though there were facilities of no ordinary kind, in the shape of a noble approach in front of the entrance. If *zigzag barriers* had been constructed here forming a *queue* not much wider than the stream that could enter the hall, the progress might have been nearly continuous, and the public, feeling assured that, although they entered slowly, none went in before their turn, would have been satisfied. In the rush that was made from barrier to barrier, as these were respectively opened, scores of persons were knocked down and trampled on.

Within the hall, the arrangements were little better, partly consequent on the plan of the building. The approach up steps was execrable, the doorway too small. The exit also should have been larger, and then there might have been two gangways down the room, and before the bier, one higher than the other, so as to have allowed a much larger number of persons to have passed through in the same length of time.

Of the artistic arrangement of the hall there was nothing to complain, and at the same time little requiring special comment, unless we except the arrangement of the lights on the platform, to which we have before alluded.

On Tuesday and Wednesday night the Strand, Fleet-street, and the neighbourhood of St. Paul's, presented a curious sight: scaffoldings were being erected in every direction; the gas was flaring and the hammers going all night. At Somerset House, where a scaffolding was erected by the Society of Antiquaries, a horizontal gas-pipe with jets in it, had been carried from each of the two lamps in front of it, forming a regular figure, and producing a singular effect. Some awoke and fancied London had become a vast undertaker's shop, so constant was the tapping on all sides; and one tells us he dreamed he was Charles I. and that the men were preparing the scaffold. How glad he was when he awoke, and found he was a subject, and not a king, we need not say.

At the club-houses, too, in Pall-mall, the Athenæum in particular, the works were going on by gas-light, and a stirring effect was produced. Temple Bar was very appropriately and effectively draped with black cloth and decorated.

The appearance of the streets on Thursday was very striking. Every available corner was filled; the pavements presented a compact mass of spectators, and every where the greatest decorum and propriety was preserved. The measured tread of the soldiery produced a striking effect; and as the car passed bearing the body, every head was uncovered.*

According to the official account of the car, "The leading idea adopted was to obtain soldier-like simplicity, with grandeur, solemnity, and reality. Whatever there is—coffin, bier, trophies, and metal carriage, all are real, and everything in the nature of a sham has been eschewed. The dimensions have been controlled by the height and width of Temple Bar, which will not admit anything much higher than 17 feet. The design of the car, based upon the general idea suggested by the superintendents, was given by the Art Superintendent, Mr. Redgrave; but its constructive and ornamental details have been worked out and superintended by Professor Semper, whilst the details relating to the woven fabrics and heraldry, have been designed by Mr. Octavius Hudson, both being professors in the department of practical art." †

Although there is a certain massive richness about the car, it cannot be pronounced wholly satisfactory: it strikingly recalls a railway truck, and no defence can be offered for the half-halbert, half-candelabrum character of the supports for the canopy.

We give a view of the cathedral church as it was fitted up for the ceremony, looking towards the north-west. By a misunderstanding, however, only one gallery is represented in the transept: there were two.‡ The fittings were done in the most substantial and complete manner, but there was no attempt at decoration; such as were seen, for example, in the church of St. Roch in Paris, on the occasion of the burial of Marshal Soult.

It was stated that the doors of St. Paul's would be opened at six o'clock, but it was nearly eight o'clock before the workmen re-

* Tennyson.

* "Whom bear ye thus with heavy tread,
With arms reversed, and arms depress't?"
"Comrade, we bear the mighty dead
In glory to his place of rest.
A nation throngs the city's ways,
In grief for him whose race is run;
On, in dark state, beneath their gaze,
Comrade, we bear great Wellington."
March—slowly march—hark! in the hush, I hear
Assaye's hurrah, and Badajos's cheer.
* * * * * * *
On—bear him on to where they sleep,
Our greatest, whom we name with pride;
Lay him by Moore, in slumber deep;
Lay him by Abercrombie's side.
Nay—place him by the only one
Who fixed, with him, red victory's smile!
Room for the dead, by him who won
For us Trafalgar and the Nile!
On—bear him on—hark! in the hush, I hear
Toulouse's charge and St. Sebastian's cheer.

Throw wide the doors; dust unto dust;
O'er him the yawning marble close;
Give him to Death, with trembling trust,
Calm in his last stern cold repose.
In reverent silence, in the gloom
Brooding beneath the mighty dome,
Conqueror, to share the conquered's doom,
Leave him to fame in his last home.
March—comrades, march: hark! in the hush, I hear
Quatre Bras' hurrah and Waterloo's fierce cheer.
W. C. BENNETT.

† The modelling was executed partly by Mr. Whittaker, a scholar, and Mr. Wilcs, a student of the department, and partly at Messrs. Jackson's establishment. The modelling of the Duke's Arms was entrusted to Mr. Thomas. The castings were apportioned as follows:—The wheels to Messrs. Tyler, of Warwick-lane; the corner figures of Fame holding palms to Messrs. Stuart and Smith, of Sheffield; the panels of Fame to Messrs. Hooles, of Sheffield; the Lions' heads to Mr. Messenger, of Birmingham; and the spandrils, moulding, and Duke's Arms to Mr. Robinson, of Pimlico.

‡ See page 739, in our present number.

treated from the building, and the public were admitted. No arrangements had been made for inspecting the tickets on entering; nor were there any directions, nor any person competent to give the information as to where the different staircases led. Consequently, after the people had rambled about for a short while, and were in perfect despair of getting any seat at all, they took the matter into their own hands, and remained just wherever they happened to find themselves, irrespective of whether it was the right or the wrong place. This subsequently caused some annoyance, as on the tickets being asked for, many persons were found to be in the wrong galleries, and were made to move from the places they had taken up, to their infinite disgust.

It was unfortunate that the daylight had not been more thoroughly excluded from the building, as the effect was much marred by the struggle between the natural and artificial lights. An endeavour to remedy this defect was made at the last moment, by colouring the windows of the dome, but, as may be conceived, such an attempt was utterly futile. The addition of black drapery over the windows would also have added greatly to the solemn appearance of the interior, and would have tended to tone down the vast mass of light-coloured stonework.

Peers arrived a little before eleven o'clock, but the attendance was not by any means numerous. Not so, however, the Members of the House of Commons, who arrived shortly afterwards, and mustered in great numbers.

On the east of the Peers a space was set apart for general officers, and the bright scarlet and gold of their uniforms had a very fine appearance.

It was about half-past eleven when the first indication of the procession having reached the Cathedral was observed. The sound of the bands, as they successively passed the west door, playing the "Dead March" in "Saul," reverberating through the building, and alternating and partly mingling with the solemn peals of the great bell, was grand in the extreme, and served at once to still the congregation.

The Chelsea pensioners were the first to enter, and were ranged on benches on each side of the west nave. They were followed by the representatives of the different regiments in the service,—picked men, and the flower of our army,—two officers from each regiment having previously been provided with seats in the side aisles. The deputations from the various public bodies next succeeded, and were conducted to the places assigned to them by the vergers. On the floor level chairs were placed at the head of the bier for the chief mourner and his supporters; and on the right was a chair for H.R.H. the Prince Albert. On each side of the bier there were seats for the pall-bearers, and the bearers of the bannerols. At the foot, two rows of seats were assigned to the foreign officers who took part in the mournful ceremony. The standard and pennon and the guidon borne in the procession were stationed at the north-west and the north-east angles of the open space respectively; the Banner of Wellesley and the Great Banner on the north and south sides of the bier.

About a quarter to one the canons and prebendaries, accompanied by the vicars choral and choristers, to the number of about 150, walked to the great west door to receive the corpse. As they filed out of the east nave, and round the enclosed space to the west nave, the effect was striking, the white surplices crossed by the funereal scarf, contrasting very strongly with the military uniforms and ordinary civilian's attire.

At one the procession moved from the west door. First came the Right Honourable the Lord Mayor and the City officers, succeeded by H. R. H. the Prince Albert and staff. Then followed the choristers, vicars choral, and minor canons of St. Paul's Cathedral, assisted by the gentlemen of the Chapel Royal, and by the vicars choral of Westminster Abbey, intoning the verses, "I am the Resurrection and the Life," &c. Of the whole of the musical part of the ceremony, this was perhaps the most successful, as the time was admirably marked and kept. The choristers were succeeded by the church dignitaries, and immediately in front of the body came the foreign officers, bearing the different batons. After the corpse, was the Marquis of Anglesey, bearing the coronet, and the chief mourner; the rear being brought up by a dense body of troops and others, who completely filled the west nave. While the coffin was being placed on the bier, which occupied some little time, the choristers made their way to the galleries on each side of the organ, and on the arrangements being completed, chanted the two psalms *Dixi Custodiam* and *Domine, refugium.* They then sang the new anthem, composed for the occasion by Mr. Goss, the organist of St. Paul's. The merits of this composition are rather questionable. The lesson was then read in a clear, distinct, and audible voice by the Very Reverend the Dean (Dr. Milman). After the lesson the choir sang *Nunc Dimittis,* and then a new dirge, also composed for the occasion by Mr. Goss. To give effect to this composition, a number of instrumental performers had been engaged. The result was most satisfactory. The dirge itself is a masterpiece, and its performance could scarcely be excelled. During the lowering of the body the "Dead March" in "Saul" was performed, and afterwards the choir sang the verses commencing, "Man that is born of a woman." It was rather before half-past two that the mortal remains of England's greatest son were committed to the ground. The earnestness with which the "Lord's Prayer" was repeated by the whole congregation, showed how intense were the feelings of those assembled.

After the other prayers had been read by the dean, Garter king-at-arms proclaimed the long list of titles of the late Duke, and then the Comptroller breaking the staff, the pieces were deposited in the vault by Garter. The hymn "Sleepers wake" having been sung by the choir, the blessing was pronounced by the diocesan, the Lord Bishop of London, which terminated the ceremony. A salvo of artillery and a flourish of trumpets proclaimed this to the thousands out of the building, that all might know that the last sad rites had been performed over the remains of him, the beloved of the sovereign, the revered of the people,— that, in the words of the funeral anthem,

> "His body is buried in peace.
> But his name liveth evermore."

THE ORDNANCE SURVEY OF SCOTLAND.—The county authorities of Clackmannanshire have memorialized the Treasury for a substitution of the six-inch scale for the one-inch now about to be applied to this county.

SOME OF THE PRINCIPLES OF DESIGN IN ARCHITECTURE,—HAVING PARTICULAR REFERENCE TO ECCLESIASTICAL EDIFICES.*

CHURCH towers, with pinnacles at the four angles, and nothing in the middle, have been objected to by some writers; but perspective in a measure corrects the fault of equality, as it causes one of the pinnacles in most views of the tower to be visually supreme: the great height of towers above the eye generally throws one angle up so high as to produce much of the pyramidal form to the eye of the spectator. Perspective, it should be observed, greatly aids the picturesque, and is indeed one of its sources. The placing a tower at each of four angles of a building is justifiable, I consider, when there is a centre feature to unite them, though of less height, provided it be superior in some other respects, as of more beautiful form,—that of a dome, for instance, as in the mosque of Achmet, with its guard of minarets. That centre feature may even be a tower, if greater in diameter, or more light and elegant in shape: it binds all together, as they all refer to it, and seem to exist for its protection or honour.

I have hitherto, in treating on composition, confined my remarks to the general disposition of the masses: I must now enter more particularly into the subject of outline. In the interesting and valuable work of the late Alfred Bartholomew, the the author endeavours to establish the form of the pyramid as the exact enclosure of good architecture. With reference to the designing of steeples and similar structures, he asserts that two straight boundary lines, meeting at the top, are the guide in adjusting all set-offs and projections, which are to touch and be confined by these lines. Now, of the examples he has given, it is only in the shaking minarets of the mosque of Ahmedabad that the straight line coincides exactly to the salient angles of its stories; and the effect of this building, it is needless to say, is very tasteless. Had his theory embraced agreeable curve lines, he would have found the edifices he instanced answering more satisfactorily to his conditions. Indeed, in the most beautiful architecture it will be found that the salient angles range, not within a straight line, but within a pleasing curve, or curves of some kind, either simple or compound; either one beautiful curve or harmonious combination of curves; and a building with this quality in perfection will have its masses so grouped that from all points of view its circumscribing line shall be of a pleasing form, *i.e.* its extremities will be united in all directions by agreeable lines, not downwards to the ground only, but sometimes in a horizontal and other directions. I believe that in most really beautiful structures of this kind, this has been aimed at: the architect of Waltham-cross could not have produced his design without first drawing the beautiful enveloping curve: his first conception would be this ideal line, which would be his guide in drawing the extremities. Some have doubtless been led to a graceful adjustment of the extremities by feeling: a strong feeling for the beautiful has, I believe, frequently produced graceful and beautiful results in the absence or ignorance of principle, *i.e.* by men who knew not the conditions on which they are obtained.

A composition that would come exactly within a straight line would be, if not very monotonous, at least insipid. The tameness of Chinese pagodas arises from their being formed to a straight line instead of a curve; and the shaking minarets before named prove anything but the virtue of the principle. The queen-Eleanor-crosses, — our ancient and beautiful market-crosses,—are not of straight lined contours.

While confinement to the straight line would be a restriction, the free use of curvature opens design to the infinity of beauty, and gives full scope to individual feeling, which are limited only by attention to the intended expression of the building according to its natural or moral type. As I have already intimated, the

* See page 715, *ante.*

circumscribing line need not be restricted to one curve. Among structures of this class justly celebrated for their beauty, we sometimes see a straight upright line crowned by a single curve or ogee; while some, on the contrary, St. Stephen's, Vienna, for instance, presents one beautiful ogee curve in the tower, receiving harmoniously the straight line of the spire: Bow Church, London, is a repeated ogee: St. Bride's steeple, however, is a slight convex curve, *too slight* rather, forming one lofty pointed arch. If abstract beauty were the sole aim in architecture, a series of beautiful curves, mainly repetitions of Hogarth's line of beauty, would be the actual contour of most buildings. But structural and expressional requirements in an art that is to fill at once the mind as well as the eye, demanding other lines and forms than these, confines purely æsthetic considerations to the general outline, and to the details and ornaments, against which they do but little militate.

Yet this application of abstract beauty, though thus limited, is of magical effect in architecture. In the more graceful of its productions, all manner of fair forms are suggested to the imagination: over such, an ideal form of beauty, modified somewhat by each susceptible fancy, invests as it were the whole in a mantle of light.

There are principles, however, besides beauty of outline, to be sought and embodied in these works: there is power of effect,—expression of definite character; and these have more frequently been neglected in the Italian style than in the Gothic.

Wren's towers and spires have been celebrated for their beauty, and for their constructive ingenuity: the latter quality in a greater or less degree they undoubtedly all possess; and in point of beauty I think many of them are worthy of all praise, not only for the design of the spires, but for the graceful manner in which they unite with their supporting towers, and the great beauty of their outlines. I consider, however, that the interiors of some of, his churches evince more ingenuity, greater victory over untoward circumstances, and more of the skill of the geometer, combined with the pure taste and inventive power of the artist, than any of his spires. And when I see by some of his interiors, and by his steeple of St. Mary-le-Bow, how much he was capable of his mastery of geometrical form, I am surprised that he should have allowed beauty so frequently to escape him in designing the most prominent objects of the city. While Bow Church is crowned by one of the most graceful steeples in the world, two or three of the productions of the same class by the same eminent hand are amongst the most indifferent objects of the metropolis.

Wren's steeples were to distinguish the house of prayer when it could not be otherwise distinguished than by such features towering above the street dwelling-houses, within which the body of the church was too often almost entirely concealed; and however well this purpose was answered, and however great the scientific skill embodied in their construction, it may be urged against the whole of them that they are wanting in that simplicity and solemnity that should characterise the sacred fane of religion, and which I am well persuaded it is within the power of the Greek and Roman style, as it was within the power of the architect, to have effected. They have answered their purpose, doubtless; but, by association, and not by abstract qualities do they express the solemn object of the edifices to which they are appended.

It is, I consider, unfortunate for the art generally, that Wren so far failed, as his unquestionable eminence caused these to become types of a host of pagoda-like spires. Wren had a few able successors, and among them Gibbs, who produced one or two beautiful spires,—St. Martin's-in-the-Fields, St. Mary-le-Strand; but they are open to the same objections as those I have urged against Wren's, viz. want of solemnity; and among later edifices of the class, I know none that I could hold up as a model except that of All Saints', Oxford, by Dean Aldrich. Of this church, simplicity and power are the great charm: it is in most respects the best I have seen. Its peculiarities are—1st. A circular peristyle (only one) placed immediately on a square tower, and receiving delicacy by contrast with it, while none of the paltry expedients to prevent abruptness in the transition from square to round, which are generally productive of eyesores, are here resorted to. 2nd. The columns are thickly set, which gives the circular temple an effect of richness and solidity so far in keeping with spire and tower; qualities which are lacking in most other structures of the kind, their columns being in general thinly set, and their *ensemble* presenting a tame and meagre aspect: 3rd. The spire is small, as it should be, as if conscious, so to picture it, of not being quite at home in the style; and the whole presents a circumscribing outline, such, that whether seen by sunlight, or moonlight, or twilight, it is always beautiful.

The spire, I remarked, was kept small; now spires of Classic or Italian, and spires of Gothic churches, are totally different features, and call for different proportion and different treatment. How sensible Wren was of this fact may be gathered from the smallness of his Italian steeples generally. Indeed, it would seem as if it were to get rid of as much spire as possible that he repeated his different stages so often with increasing diminution; and Gibbs, in St. Martin's, truncated it evidently to divest it of some portion of its Gothic character. Indeed, the proper crowning of such steeples is not the pyramidal spire, but the dome, either hemispherical or ogee in section. With the dome, however, in these comparatively small features, there is great danger of perpetrating that bugbear of architectural designers and heir-loom of critics, ycleped the pepper-box.

The great charm of Aldrich's steeple, I remarked, lies in its simplicity and power. Complexity and tameness are the characteristics of most later ones. Piling order upon order in mid-air to the extent sometimes practised in these works, seems a jesting with classic architecture, and produces, at best, but so many rivals of the pagoda. Neither in St. George's Church nor in St. Michael's of this town (Liverpool) have the architects made suitable provision for light and shade, or caught the secret of general effect in the composition, which is contrast between the form of the orders or stories. St. George's presents the transition from an octagon to a circle with no increase of columnar richness, and, consequently, looks weak and tame; and St. Michael's Church, though far more effective, rises but from a square to a slightly-expressed cross; while All Saints' Church, Oxford, breaks at once from a plain square tower to a rich thickset circular peristyle, the square basement giving increased effect to the latter, which strikes at once with its classic and artistic beauty.

We must fail in such works unless we look not only for inspiration of beauty on the fairer forms of nature, but also for models of power on her grander and sublimer imagery.

This brings me to an important point in my subject: we must bear in mind that there are other qualities to be expressed in architecture than those elegant ones embodied by the pyramidal. I am here again at issue with Bartholomew, who says the most perfect architectural composition is that which forms one immense pyramid of decoration, consisting of many minor subservient pyramidal masses. Now, these conditions would exclude, besides the Greek temple, which he names as an exception, the Italian palaces, and other great buildings of acknowledged power and beauty. In fact, it is true of but one class of buildings, viz. all graceful and elegant buildings. Of all grand and sublime buildings it is not a condition. Of the greatest and sublimest, such as would strike terror into the beholder, the very reverse is the form,—the inverted pyramid; and I consider the pyramidal mass, and the inverted pyramidal mass stands, in theory, at the two extremes of the graceful, and the sublime or awful, in architecture.

The latter principle is carried to its utmost practical result in lofty towers with overhanging battlements, or jutting turrets. But though limited in its application, it is of great value in architecture; and Ruskin, who refers to it in treating on the power of magnitude and height, has not overrated it; for architecture exerts great power over the imagination by bold and abrupt projections, which, from being suggestive of great constructive power, excites emotions of awe and wonder in the beholder. Imagine the effect of this kind, produced by a tower such as the Victoria Tower at Westminster, with a top jutting story of some 30 feet projection, and 50 or 60 feet high. The effect to a person standing under it, though no danger were apprehended, would be terrific. Of course, this principle can seldom be applied; but the perpendicular form, which is the central one between the two extremes I have mentioned, and which is an expression of great grandeur and power in itself, is always or mostly practicable; and this may be made more powerful generally by bold and sudden projections, as cornices or balconies.

On the subject of decoration, I would, in the first place, observe that a building *is* decorated, and in no small degree when it is beautifully and truthfully designed and executed. The architectural forms are decoration in themselves, and the greater the building,—the more sublime its component features, the less it needs the ministry of the sculptor or painter: a dome, for instance, of pure form and majestic proportions, asks us for but little ornament. But there is a dignity in an architectural member, though far less pleasing in itself, when truthfully fulfilling an important and indispensable office to which it is properly fitted in obedience to the laws of constructive science, that tells upon the feelings, and becomes an artistic object, however unfavoured by the sculptor or painter. Truth is the first decoration, and the foundation for all real embellishment; and a rafter, beam, or joist, rough from the carpenter, is pleasanter to the eye of pure taste than idle features, however beautiful in themselves, or than improper or senseless ornament. And the main thing, on the application of further embellishment, is to take care that these forms be not hidden or marred, but that it (the embellishment) should further set forth and explain their nature, and be in strict harmony with it. Architectural ornament should be used like wit, which is best employed to illustrate and adorn truth. All ornament must be chosen in reference, and be made duly subordinate to the forms on which it reposes, according to the way of nature; a rule that has often been flagrantly violated, and never more so, I think, than in the dome of St. Paul's Cathedral. I well remember my surprise when I first stood under that celebrated concave, to find that in effect there is after all *no* dome. Now, the great error of this painting of Thornhill's is not the material of its ornament,—its being, for the greater part, as Ruskin would term it, man's work instead of God's work,—the great error of this performance is its existence there. No matter what its artistic merits; were its historical part the best work of Raphael, it is worse than worthless on the dome of St. Paul's. If Wren agreed to his dome being thus covered, it was the greatest mistake on his part that ever a great man made. This painting renders the whole dome a farce—virtually annihilates it. Sir C. Wren achieved a great cupola as a coronet to his collossal church worthy of the noble composition, Sir James Thornhill falls to work immediately, not to enhance its beauties by an application of the treasures of his art, not to make it a more beautiful dome, but to prevent its manifesting itself as a dome at all; (for such unquestionably is the result of the architectural device forming the frame of the paintings); to make it look like something else,—a cylindrical arcade; to *paint it out*, in short, as if the architect had made a mistake in placing it there.

Taking warning by such errors, we must proceed to consider what is the source of our ornamentation,—what it is to consist of,—what its extent; a subject which, however difficult, should be treated more independently than it generally is; as I consider a great deal of time has been lost in considerations of what the Greeks and other

ancients did. On this, as on all other subjects, we must, to succeed in our inquiries, fall back upon ourselves, and use our own judgments and feelings, enlightened and cultivated by every means at our command; and I think we are competent thus to settle it, without appeal to authority. A great deal of material, however, remains to us in the works of the past, and it is important to consider what use we should make of that which remains to us of the elements of ancient art in our sculptural decorations. We should, I think, use these elements when we thoroughly understand their nature and meaning, when we know all their relations and bearings, and thoroughly digest them mentally; just as a wise man takes the advice of another when he has made it his own opinion. Great caution is needful here: a great deal of discordancy, insipidity, or deadness arises from unenlightened or unfeeling appropriation of the elements of antiquity. There are stock ornaments, wreaths, festoons, honeysuckles, and the rest, which are by too many designers put up, not for their artistic value, not because they will express that idea they wish to express in that place, the idea that will be apposite; but just because they think something ought to be put there, and they have nothing else to put; like some fashionable phrase of the drawing-room introduced to stop the gaps in conversation. As silence in the one case would be more agreeable to a person of sense, so would blankness in the other to a man of discriminative taste and genuine feeling.

From unthinking adoption of ancient features, a great deal that is offensive and wrong in expression exists in our modern buildings. We have features both in our modern Gothic and modern Classic that should have been left to slumber in the ruins of antiquity, as they belong only to the past, as they are at variance with the present institutions and spirit of society, and have no echo in the breasts of the living generation. Such I consider, and I mention them because I think them pre-eminent in the display of bad taste and corrupted feeling, particularly when applied to church architecture, are the species of columns called Caryatides, by some looked upon as a distinct order. Human figures on the summit of a building are exalted; they are always beautiful in niches, to which in the Gothic architecture the canopy gives additional beauty and honour; but used as columns they are a degradation of humanity; and whether the account of Vitruvius as to the revengeful motive of their origin be true or false, they breathe of slavery, of Oriental subjection and abuse of the sex; and however classic their associations, however charming to the traveller in the porch of the Pandrossium, it is certainly not graceful to repeat them in England, where Christianity if not chivalry should have prevented their appearance.

Besides, there is an incongruity in their employment as columns, and the objections that have been made against them from time to time by different writers are not by any means of too matter-of-fact a character for fine-art criticism. Caryatides are ornaments, as all statues are; but for a support as a column, we want, not a symbol or an ornament, but a real thing,—a solid body capable of endurance. A thing representing a natural object cannot take a primary office in architecture, except for a small corbel or the like. Some have called them beautiful absurdities; but the phrase, applied to such features, is a contradiction; for it is not the eye alone that is to be gratified in architecture: its real ornaments, like pearls, are from the deep; for architecture appeals to the understanding, and is dependant on the reflective powers of the spectator for its effect on his mind. To profound feeling, therefore, for the beautiful we should join calm and fearless reasoning. In real architecture, reason must reign, and no absurdity can be admitted there.

In Caryatides, beauty there undoubtedly is, but it is in the statue, not in its application: beauty which the misuse of the figure only obscures and diminishes.

The objection here made to Caryatides applies with but little softening to Perses or Persians,—the employment of male figures. They are all of them absurd, and uncalled for by exigency, either æsthetic or physical, by any legitimate motive in architectural design. If no ancient authority existed for their introduction, we should not have been offended by their employment in modern Europe. He would be a bold man, I take it, who, unsupported by authority, would venture to represent a lady groaning under the weight of an entablature as a substitute for a column in the present day.

We are misled in our choice and adoption of ancient ornament by association. We naturally connect the idea of beauty with whatever is worn by a graceful person; and from the same feeling, elements in themselves very indifferent, but attached to some noble building, come to be linked in most minds with images of beauty. Our prime and safest source of ornament is nature herself, and human life and history. The poet holds the mirror up to nature and life, and so according to his powers must the architect, whose art not only can yield majestic and beautiful images of nature, refined by human fancy and feeling, but may have sympathy by its mysterious forms, its groupings and combinations, its sunlight and its gloom, with the triumphs and woes, the hopes and the conflicts of humanity. Of old the sculptor and the architect luxuriated in the mazes of the poet's fancy, and the sculptor's hand realised in stone the bright imagery of the poet's dream. The magic charms, too, of geometry, creating as it were a world from nothing, were not wanting. These sources of decoration are yet unsealed, and there are wide fields for their display, wider than is generally conceived. Some edifices may be covered with tracery, and sculpture, so long as it be kept broad and delicate, and not suffered to interfere with the main lines, as it too often does in modern works, and subvert the great divisions of the design. Richness and simplicity are not inimical to each other; minuteness of ornament need not destroy grandeur, for they are combined in many of our older structures. In the exterior of Henry the Seventh's Chapel, for instance, you may fix your eye upon any main feature of the building, buttress or what not, and contemplate its form and proportions, quite undisturbed by the delicate detail, so completely does the latter keep its place. Let any architect compare this building with its new neighbour the Palace of Westminster, where the too often obtrusive detail interferes with the simplicity and beauty of the design, and he will see at once the difference to which I would call attention, between ancient and modern works in this respect.

I have, in the preceding remarks, confined my illustration of principle chiefly to the present dominant system of Ecclesiastical Architecture. I do not, however, recognise that style as the only one meet or worthy to enshrine the religion of the day. All art and nature are open to the architect, who, like the poet, should free himself from the prejudices of his country and day, and be superior to time and place, becoming thereby a general instead of a local man; and not a British or a French, but a world-architect. I consider one of the impediments to the advancement of art generally, is the bigotry and tyranny of fashion and opinion, that would limit the resources of the artist to any one style. To the ecclesiastical architect I believe this limitation must be peculiarly prejudicial, as it shuts him out from the use of elements peculiarly fitted to the expression of solemn and religious ideas, belonging to a style capable of the highest development and the most glorious and sublime significance. In a former paper I suggested the Greek periptery as being a fit type for the sacred edifices of the day. I did so because I consider it the grandest and most solemn form,—the one most sacred in its expression that any architectural elements can assume. This I think, in the absence of prejudice, would soon be acknowledged. But alas! the architecture and the paganism of the sacred edifices of the Greeks have been spoken of as if they were not distinct and separable. Now, no true architecture can share the fate of paganism, or be bound to the destiny of any creed whatever. Art is indissolubly linked to humanity, and universal in its application; but though eminently religious, and fit to be associated with and to minister to the purest and holiest forms of religion in the world, yet its expression is too broad to permit it to be wrested in favour of any particular creed or ritual, with which it can only be connected in the minds of individuals, by an arbitrary and accidental association of ideas. The true artist must be indebted to all styles, but what he extracts will rise to him divested of all the local peculiarities, extraneous, historical, and temporary adjuncts. That the Greek elements cannot be thus separated and combined in new forms, otherwise than as in the Greek temples, and made to serve and embellish other plans consistent with the fulfilment of the conditions of original and truthful architecture, is a position too absurd, I think, to merit reply. The Greeks themselves combined them otherwise, and he who cannot do so too is no architect. If the richest products of the human mind should be laid on the altar of religion, then our sacred architecture must be commensurate with our ideal of structural art; and the genius of Greek design must also be pressed into its service and made to minister to the religious sentiment.

Let it not be supposed that I am hostile to the system so much preferred to it. I believe it is equally based on principles of our nature, and answers to emotions that are common to our race. Pursued in the spirit of its inventors and first practitioners, by men who could prove themselves their true successors, and instead of pushing it back, would carry it on, in the manner its originators would themselves have carried it on, under new circumstances, using its elements only as instruments of emotion, Gothic architecture might run a new and illustrious career. I say I am not hostile to this system of our forefathers: it would be unnatural to be so, I am only claiming for the Greek architecture what I conceive to be its rights, and which I think have never been fully urged. All that Gothic architecture is, it has been declared to be, by its able modern advocates; and it has had ample justice meted to it: while the Greek, on the contrary, has been the victim of prejudice, of half views, and of illogical conclusions. Admit the Greek architecture to a participation in the ministry of art to religion, and we may then, and not till then, be said to have requited some portion of our obligation to Greek genius. It is the seed of all that we have known of greatness in architecture, and we are architects only in proportion as we feel its beauty and fathom its source.

In choosing a style for a sacred edifice, we should consider which is best fitted *naturally*, and adopt that which, by its intrinsic qualities, is most capable of producing solemn impressions, whatever its associations may be, or however deficient in associations of a certain kind. The test of any one style in reference to this qualification is the consideration, not how it affects some particular section or class of men, through the medium of its history, its accidental and individual associations, but how it stands related to human nature by its intrinsic and essential qualities, by its universal, unchanging, and imperishable associations.

Has this been the test applied? Have not personal associations been confounded with, and allowed to have all the weight of, natural laws, to the impediment and great detriment of art?

For what are the ecclesiastical structures erecting in our day? Their types or originals were admirable as works of art; there was truth, feeling, spirit, life in them; they were built by men who were true successors of *their* predecessors; who were led to that style and mode of construction by the nature of their materials, by the dictates of their science, by their social status, their form of worship: the style of the original buildings was the natural result, the blossoming, as it were, of the structural science or constructive principles which guided their formation. But the imitations want structural consistency and other qualities of real architecture. Our religion points to

other forms than these; our materials, our science, to a very different mode of construction; our more delicate habits require a different kind of finish and fitting. The Mediævalists, whatever their style, adapted the interior distribution to their ritual; they always formed them to a plan that corresponded to their religious purposes. They made constructive and æsthetic requirements subservient to that. Their religion and their art in all things went hand in hand, and their cathedrals and abbeys were the natural and inevitable result of their religious enthusiasm, the material embodiment of their faith. Why cannot we do the same? Why are we to sacrifice all to the principle of symbolism? Symbolism has no real root or authority in art; we are not bound to symbolize either states of mind or Christian doctrines: we may have symbols, but let us have accommodation first; for symbolism is not essential to a Christian church: a true Church (the *material* church, I mean) is one built with the best means we have; by the exertion of our highest efforts, the exercise of our noblest art: a true Church is one conceived in a spirit pure and unbiassed, fully informed by its especial and sacred purpose; and built with the providential materials of the country and the day. The Gothic, or any other style in which the church has been aforetime built, I look upon, not as an essential, but an historical accident of religion,—an adventitious and extraneous circumstance. Though art as well as nature is the ally of religion; though whatever is great, and good, and true belongs to Christianity, which can open its arms wide enough to receive all that is fair and pure, and will accept of their ministry, yet it is entirely independent of such things, and is no respecter of styles and schools.

To divest the architectural mind of all prejudice and chance association, of all restriction imposed by precedent, fashion, bigotry, narrow and false criticism, and bring it to yield obedience to natural laws only, is to be the great task of the day. Freedom is in all things an essential condition of growth and power. Political freedom is not more essential to intellectual, moral, and religious prosperity and progress, than is freedom of mind from all the shackles of precedent and the bonds of ancient rule, to advancement and success in architecture, which cannot extensively flourish and reach the excellence of former times until these are brought into perfect abeyance.

There are those who talk and act as if copying the past were all we could now do; as if indeed architecture were decrepid—in her dotage, and unable to do more than recount and illustrate the adventures of her youth; or as if intellect and genius had deserted her standard. I am convinced, however, that her true votaries see no wrinkles on her brow. Nor do I believe that we are deficient in intellect: we have intellect enough applied to architecture, but like the ancient philosophical research before the time of Bacon, it wants a right direction to be given to it. I believe the exigencies of the present time demand a system that shall unite untried resources; and I believe that architecture so directed, is capable of meeting its wants, and is susceptive of endless development. Architecture, in its true essence, is to be looked upon, not as a code of rigid laws handed down from Greece or Rome; but as a system of broad principles, committed to individual genius, to be applied according to time, country, and circumstance; and I believe that the stream of architectural knowledge and resource is to swell in its course through successive ages and lands by the inspirations of genius, and the contributions of science and discovery to its volume.

At the same time we have a perfect right to avail ourselves of all past art as our elements. The true artist finds his materials in what he sees around him in the present, and in what looms from the past;—in the realm of nature and of art. He will extract from all styles for the storing of the mental hive, and seek in these for types and exponents of the mysterious revealings of his own soul. But he combines them according to new affinities; and from the art elements of other lands and times he will rear structures of beauty for every required use, new in the right sense of the word, new and yet old; new by their originality of conception; old as the universe by their sympathy with humanity:

> "New as if brought from other spheres,
> Yet welcome as if loved for years."

It is well said to be the characteristic faculty of genius, without despising rules to know when and how to break them: it breaks them often, but it "observes higher laws than it transgresses;" it is obedient to the laws of new conditions, of new forms of society, of new lights, the laws of an intellectual world that is widening on its view.

SAMUEL HUGGINS.

DWELLING-HOUSE FRONTS.

As it may be some time before iron houses become fashionable, and as the exhibition-building is not likely to be copied for domestic purposes, we shall confine our remarks to the old system here, and look for an appropriate application of our common materials in the usual mixed manner. Setting aside convenience and other points for the present, the external appearance of dwelling-houses shall have attention; previous to which, a glance at their existing condition may not be out of place. Of these a great variety exists. The present mode of designing seems worn out. The artists appear to follow in the same track, and to copy from some predecessor; satisfied in each case by adding some trifle to the detail, or making an insignificant change to avoid sameness. There are brick buildings with brick dressings of a different colour, and some dressed with stone; some with stone strings and window-sills, and others where the string forms the sill. The ground-story has, in a few instances, a rustic stone facing; and, again, we see rustic quoins with no other visible relief. Here is a house with brick panels, sunk on the surface about 2 inches, further diversified with *blank* windows; or the door and windows are recessed a half brick deep; or it has four miserable projections rising to the roof, nominally pilasters, which can be scarcely seen during sunshine. This variety is occasionally relieved by members in cement and terra-cotta, soon plainly distinguishable by their shabbiness, cracks, and tasteless execution.

The designer having no principles laid down, fancy alone inspires; and, considering the errant propensities of man, we must rejoice that buildings show so well, and rest on such good foundations. The reason why *façades*, in general, were so thoughtlessly designed, may be a want of criticism heretofore; and thus there arose a succession of errors rendered venerable by age. Designs, suggested by pedantic conceit, have not obtained greater latitude on account of the tenacity with which human nature clings to old forms. Were it not for this inert force in the minds of men, to what extremes may not a dreamer's fancy lead him—crystal palaces, iron cities, and crockeryware temples!

The Tudor and Elizabethan styles, as they are termed, have been lately introduced, with which every liberty is taken. Nothing more than the outlines are preserved, the details being anomalous, and the materials as fancifully mixed up as the most wanton taste for the ridiculous could suggest. In many, the barge boards are of cast-iron, and the fronts are either cemented or rough-cast; whilst a few scraps of stone complete the sorry patchwork. One of the secrets in perfecting this design, is to show a number of breaks and gables,—to give the whole a *busy* appearance.

Quite of an opposite description to the Elizabethan is the square, isolated mansion, generally built of brick, sometimes cased with stone on one or two fronts. It may be seen in the vicinity of towns, on a commanding site, remarkable for its hipped roof and crowning entablature. It has five large windows in the principal front, and a Doric or Ionic prostyle porch; and often there is a side entrance, ornamented with pilasters and a slightly projecting cornice. By its frequent repetition, it seems a favourite form of building, and not likely to be soon forgotten; yet, notwithstanding its general adoption, there are architects now who, when erecting a similar house, would say—"This is my design."

The quadrangular is a commodious plan, capable of good subdivisions, and affording ample room for all the principal apartments, under one roof; though it should have adjuncts in the rear, inclosed within a yard, to render it complete. Some of these fronts are exceedingly bald, or carried to the other extreme, such as presenting an embattled appearance, resembling a miniature fortalice, which shows anything but repose or a happy effect: nor is it because a man's house is his castle, that he should be persuaded to dwell in a castellated mansion. However, as battlements are not to be frequently seen, and as stone porches are also rare, the house-front may be thus described;—a plain brick wall, with five openings for windows, and one for a door, having a stone base and string, a wooden cornice and blocking, and the usual window-sills, the most forbidding feature either in cottage or mansion.

Having glanced at domestic buildings, we shall now look to the remnants of antiquity, and endeavour to learn from them some truthful style of decorated construction. We have it mythologically, or traditionally, or by conjecture, that their beautiful columns and entablatures are imitations of the wooden structures of more primitive standing. If they be not, they are so very like them, that a building erected of timber would present exactly the same frontispiece as a Doric façade, without any stretch of thought, beyond the mere efforts of craft suggested by necessity. And as there are sufficient grounds for admitting the assertion, it will help to establish as a principle, that the external ornamentation of a building should be mainly dependant on the internal construction. Following out this theory, let us imagine that the floor-framings and other bearing timbers were to be projected beyond the walls; that the rude projections were sawn off and enriched; and again, let us suppose that stone is to be substituted for wood, and we have the idea of the ancients, in their transition from the latter to the former material. Our English predecessors have done the same, with their limited means; and where stone would be too expensive or heavy, they made the framework exposed to view as tasteful as possible. There were sufficient examples already before their eyes of huge masses of masonry, were they desirous of imitating such buildings, and reducing their proportions to the scale required for domestic life; but they considered the distinction between a public edifice and a private habitation, and they made it,—with what effect I leave to those who can judge of the difference between working according to a principle and struggling without order or precedent.

One advantage to be derived from this mode of embellishment, was the division of the façade into tabulations or stories, a point at present disregarded, even to producing confusion; a structure of one internal story showing two tiers on the outside, and *vice versâ*. When guided by this principle, we see the error in carrying up columns and pilasters, unbroken, to the roof of a three-story building, instead of distinctly showing the floors or floor-levels; and, to prove that the Romans knew the necessity of this distinction, a precedent exists in the remains of the Coliseum.

To design a story-zone, or a stone band representing the floor, in place of the present unmeaning string-course, which is scarcely ever laid on its accurate level, may be rather difficult; but, I fancy, the idea could be accomplished ultimately, if attempted with an eye to reality. A wall-plate, about four inches deep, may be first imagined, showing one good moulding on the lower edge, above which the ends of the joists may appear, similar to the Doric triglyphs, but in dimensions exactly corresponding with the scantling of the floor-framing, and at the same distance asunder. The joist-ends should come flush with the upper edge of the wall-plate; and the intervening metopes, being sunk about an inch below the latter, may be tastefully ornamented. A light bed-mould may be introduced, break-

ing over the glyphs, above which would appear a bold cymatium, representing the edge of the projecting floor, but about three times thicker, and weathered on the upper surface. All described here, or something with a similar purport in view, may be cut out of one stone, of the proper depth, affording sufficient strength for the maintenance required in a lintel. This having the semblance of a Doric entablature, care must be taken that the copy does not lead to error. Nothing was supposed to rest on the Doric frieze, nor was any building intended to surmount it, on which account the triglyphs were made continuous; but in a cornice between two stories, the glyphs must not be continued between the solid piers; because it would be as unmeaning to place a pillar on such a foundation as to build a wall upon a boarded floor. The stone imitation of the floor should be confined to those places occupied by the recesses of windows and doors, and the segment between the upper and lower piers made a solid plinth, moulded in accordance with the portions it connects together.

On looking back again to the remains of former times, we find that these buildings do not present to us the appearance of mere walls, pierced with a number of openings. This will suggest another principle for the decoration of dwelling-houses, which idea has been partially carried out in a few public buildings, and occasionally in commercial structures of considerable magnitude, of late years, but never in domestic residences. Where the suggestion has been attended to, a happy improvement is effected, above the ordinary system of mere walls with windows. To pursue this theory, and render it practicable, it would be necessary to consider the entire fabric as supported by solid piers, of a breadth not proportioned to height, after the manner of our modern pilasters, but rather in accordance with taste, to be determined by the architect, who must also have an eye to the stability of these piers, and their strength to bear with ease the superincumbent pressure. This puts an end at once to the appearance of a mere wall, whilst the openings remain to be filled up with doors, windows, or panels, as may be required. The piers should terminate with each story, in the style previously described, and they may have moulded capitals and bases, both of which may be richly ornamented. If ornament were too expensive, it can be omitted; but it would still be necessary to show some finish to the tops and bottoms of the piers, for the sake of marking them as such, and to carry out the intent in view. These solid pillars should never be put up in rustic blocks; but I fancy that they may be fluted, or otherwise ornamented with sinkings.

The next step is to fill up the window openings; and therefore we shall commence with the sill, which should be a stone panel similar to the internal back of the window, and resting on the stone base or the floor-string. The reveals of stone are to be proportioned to the size intended for the frame, and the window-head must be of sufficient depth to come below the internal mouldings in plaster and wood. The reveals may be moulded up the outer edges, and have also moulded imposts or springers; and the window-head may be put together in two segments, with a deep-moulded key, to form a support for the floor-string above, or the cornice in the upper story. The segments of the arch can be finished with panels similar to the sill. The whole of the work here described may recede, at least, six inches behind the faces of the solid piers; but the general depth of such recess in a façade should be regulated by the size of the openings.

For the present we may pass over the entrance, cornice, base, and chimneys, and proceed with the main purport of the suggestion.

The third hint received from the study of ancient and Anglican architecture, is unity of material. We should, if possible, use only one material, whether that be stone or brick. But it is sometimes necessary to depart from this rule; and when compelled to do so, both materials should be so put together, that one will not disfigure the other, or render its appearance shabby. Where stone so predominates that brick becomes inferior matter, the brick should be made to assort with the stone, as much as possible; not by any artificial means, but in its original formation. Where brick is the principal substance, the stone should be used only where necessary, of the darkest shade to be obtained, and not with a view to dividing the brick surface into petty subdivisions.

It is well known that a fabric may be built entirely either of brick or stone, without any difference in the manner of execution, except that in brick buildings all openings must be necessarily surmounted by an arch. In fine, these were the only substances which, through the lapse of ages, remained unquestionable in point of construction; and we find that they were made subservient to all the improvements of successive centuries, from the time they were first used to the present day. Stonework has been wrought to the most exquisite finish, and the most elaborate design of architectural genius. Bricks have also entered into some of the most difficult portions of workmanship. Brick buildings are also the only ones into the fronts of which woodwork may be introduced, with anything like a happy effect—not painted over in imitation of stone, nor made to appear stone artificially, by coating it with vitreous granulations; but to be stained as woodwork, or decorated as wood should be decorated. A judicious timber ornamentation of brick houses has a very good effect; setting aside all inane attempts at imposing on its details the ponderous mimicry of stone. All reliefs must be compatible with timberwork, in general; light, elegant, and free. Much advantage in designing may be had, by considering its properties as timber, in its application to all external purposes; and not, as in the present day, allowing the mind to entertain a false conception of its identity, when completing such portions of work as the jambs and cornices of bay-windows, and other parts, based with stone and completed with timber, soon distinguishable by exposure to the weather and the negligent manner of execution.

Where it is necessary to use both materials, it may assist in producing a pleasing effect, to observe some particular style of applying the stone portions of the structure, such as—all unbroken horizontal lines to be well relieved above the wall-face, and all perpendicular and other mouldings, such as door and window linings, to be sunk well below the brickwork. There are many other arrangements within the scope of art which would soon present themselves to the mind's eye of a person intent on improving the present fashion of building, and doing so according to truthful principles. To this may be added, that mere fancy, which is always detailed erroneously, never even looks interesting; whilst the labours of an artist, when guided by science, though ending in simplicity and plainness, are always pleasing and satisfactory. F. Sullivan.

MONUMENT TO DAGUERRE.

The *Société libre des Beaux Arts*, Paris, have erected a monument at Bry-sur-Marne, to the late M. Daguerre, well known amongst us by his dioramas and the process of sun painting which bears his name, and on the 4th inst. they met to inaugurate it. M. Moullard du Comtat read a discourse at the tomb, in the course of which he mentioned the following occurrence, to show the degree of perfection to which Daguerre had arrived in his imitations. During the exhibition of his diorama of "The Tomb of Napoleon at St. Helena," a young student came to him with his colour-box under his arm, and asked permission to make sketches, as if he were before the real place. Daguerre smiled, and feeling the compliment under this *naïveté*, said to him, "Young man, come and see me as often as you like, but do not work here, for you would only make a copy of a copy. If you wish to study in earnest, go into the open air."

The monument is simple. A railing of iron surrounds a monumental pillar which is on a granite pedestal: the upper part of the pillar carries a medallion portrait of Daguerre by M. Husson. M. Rohault de Fleury was the architect.

NOTES IN THE PROVINCES.

Bury St. Edmunds.—The restoration of the Norman tower having been completed, a resumé of the state of the structure previous to the commencement of the work, and of the various repairs and restorations effected, has been presented to the churchwardens of St James's parish, as a record to be placed in the parish books, along with a list of contributors and abstract of expenditure. The cost has amounted to about 3,400*l.* of which the parish contributed 800*l.*

Harlton.—A new school-room and residence for the schoolmaster has just been completed in this village, mainly at the expense of the Rev. James Fendall, rector of the parish. The school is adapted to contain about eighty children. The buildings are in the Tudor domestic style, and their site is in the immediate vicinity of the church and rectory-house. The opening of the school-room took place on Tuesday in last week.

Shellingford (Berks).—The little village church at Shellingford, Berks, was lately struck by lightning. Tenders were given in for repairs, and, by some unaccountable misunderstanding, the highest was 1,640*l.* and the lowest 240*l.* The latter was accepted, and the contractor is now at work. He says he could rebuild the entire church for 1,200*l.*

Abingdon.—The contracts for the repairs of the county hall have been taken, and the work will be commenced in due course. The cost of the alteration will amount to 1,000*l.* and further subscriptions will be required.

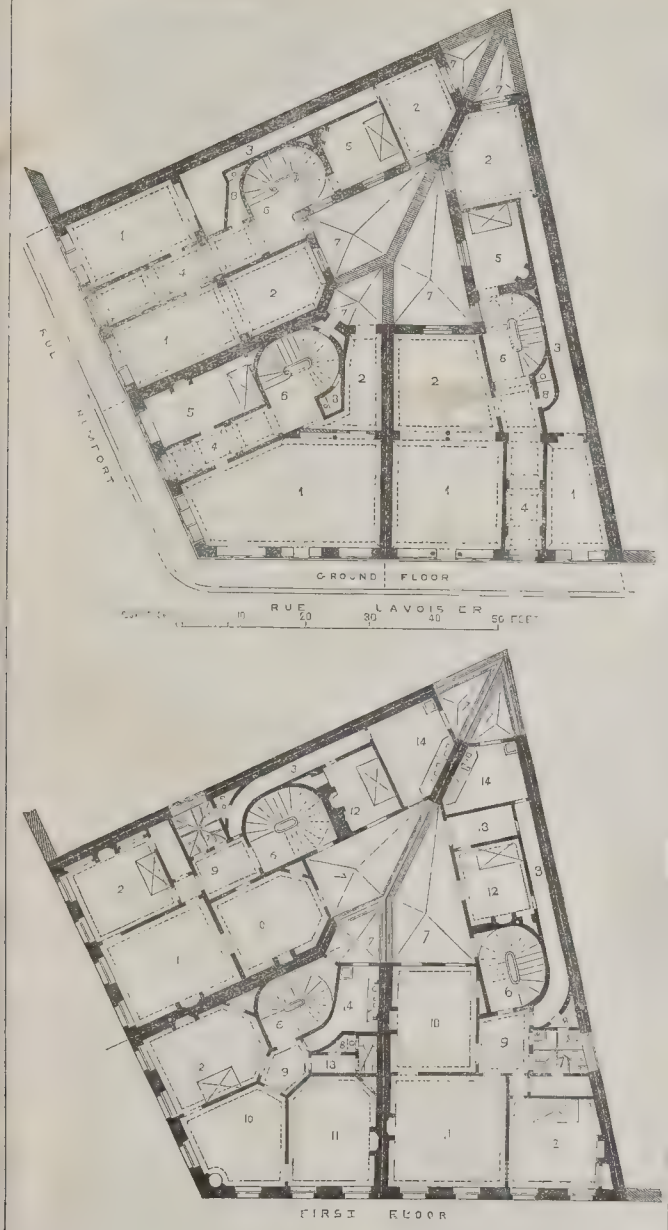
Longbridge Deverill (Warminster).—One of the first acts of the Marquis of Bath, after arriving at majority was to order the restoration of the nave of the church of Longbridge Deverill, where his ancestors are buried, and which is usually regarded as his parish church. The chancel also has been rebuilt at the expense of the marchioness, and the work of restoration is now completed. Mr. Harrison, of London, is the architect, and Mr. Hale, of Warminster, the builder.

Holyhead.—A dispute appears to have occurred here between the contractors for the harbour works and their workmen as to the appointment of a surgeon. The contractors had appointed one themselves in the outset and retained a small tax on the wages for which the men had the benefit of surgical or medical attendance in case of accident. The men seem to have thought that since they contributed for the surgical attendance they ought themselves to have the appointment of the surgeon, and they were dissatisfied with the professional man appointed by the contractors and that for what really seems to us a very fair reason, namely, that he could not speak their language. The men accordingly desired to give the appointment to a Mr. Jones—a Welshman, we presume, who would be able to converse with them as to their ailments, and to prescribe accordingly. A strike was the result of the refusal of the contractors to agree to the terms of the men,—the former having appointed the surgeon in charge for the whole continuance of the works. According to the *North Wales Chronicle*, however some sort of compromise has been effected and the men are, after a certain time, to employ their own surgeon, in favour of whom, by the way, they had voted some time previously by a majority of 500 to 300, on being polled, in order to ascertain their general feeling on the subject.

Llanwonno (Cardiff).—The young Marquess of Bute has, through his trustees, subscribed the sum of one hundred guineas towards the erection of the new church and schools in the Rhoudda Valley, in the parish of Llanwonno. This building is now progressing under the superintendence of Mr. C. E. Bernard, of Cardiff, architect.

Cardiff.—An important point has been achieved towards the welfare of this, at present, unhealthy town, by a "drainage" mayor having been elected for the ensuing year

SPECIMENS OF PLANNING: PARIS.



although against a strong opposition,—gaining a majority by one only. There is now, therefore, it is thought, some chance of speedy operation in this most unfortunate affair of life and death. The Board is endeavouring to arrange with the trustees of the late Marquis of Bute for the leasing of land required for the drainage, but they are not met, we are told, with liberality by the latter. The question now hinges upon this point.

Aberdare.—The church in Mill-street, Aberdare, which hereafter is to be called "St. Fagan's in Aberdare," is rapidly growing towards completion. Although in this forward state, we understand the opening will be deferred until the spring. The edifice has been built at the sole expense of the Hon. R. H. Clive. The style is Early English, with nave 66 feet by 22 feet, north and south aisles 66 feet by 12 feet, and children's chapel on the south side 28 feet by 13 feet, with a south porch, open-timber roof of Memel stained and varnished, covered with Delabole slates, and open seats of Memel, stained and varnished, and will accommodate about 680 persons. The height from ground to eaves of roofs is 23 feet 3 inches, and to ridge 41 feet. The chancel is paved with Haywood's black and red tiles. The cost of the building is estimated at about 2,000*l.* The site is well chosen, being on a slight eminence, and displays Mr. Talbot Bury's design to great advantage. The builders are Messrs. James and Price, of Cardiff.

Broughton (*Manchester*).—It has been resolved to erect new town offices for the Broughton township. A site is to be purchased in Duke-street, with a frontage of 15 yards, 7 yards back from the street. The ground plan of the building includes entrance hall, 12 feet wide; a committee-room 13 feet 9 inches by 20 feet; overseers' office, 13 feet 9 inches by 10 feet 3 inches; ante-room to committee-room, 8 feet by 11 feet 6 inches; surveyors' office, 8 feet 6 inches by 11 feet 6 inches; grand staircase, 15 feet 6 inches in width; also a sitting-room, kitchen, and bedroom for a porter. The committee-room and the overseers' offices are in the front, and the surveyor's office and the porter's room at the back. On the first floor to the front there is a large public room the entire width of the front, and 20 feet in depth, for holding meetings of ratepayers in, and there are two anterooms behind, 11 feet 6 inches by 15 feet 6 inches, having communication with the large room. The rooms on the basement are 13 feet, and those up-stairs 15 feet in height. The erection is to be two stories high, built of brick, with stone facings. The windows are to have stone architraves and sills resting on a neat moulded base, and the windows for lighting the building will be of a Venetian character. The architects are Messrs. Pennington and Jervis, St. James's-square, and the estimated cost of carrying out the plans, as sent in by Messrs. Farrell and Griffiths, builders, Broughton, is 1,090*l.* 15s.

Doncaster.—The great western window of the parish church has now been filled, as proposed, with stained glass, as a memorial of Sir William Bryan Cooke, of Wheatley. The subject is the Tree of Jesse, or the genealogy of Jesus. Wailes, of Newcastle, was the artist.

Strathdon.—The new church of this parish, according to the *Elgin Courant*, was opened on Sabbath week for divine service. The church is of the rigid Gothic order. Architects, Messrs. M'Kenzie and Matthews.

EXAMPLES OF PLANNING.

THE value of ground in the thoroughfares of Paris, as in London, is such that every inch is made use of, and ingenuity is often taxed to obtain apartments of a regular figure. Consideration of these difficulties is useful, and annexed we give, from the *Revue Générale de l'Architecture*, the ground-floor and first floor plans of a house in the *Rue Lavoisier*. The following will show the appropriation of the rooms:—

Ground Floor.

1. Shop.
2. Back Shop.
3. Passage.
4. Entrance.
5. Porter.
6. Staircase.
7. Court.
8. Closets.

First Floor.

9. Antechamber.
10. Dining-room.
11. Saloon.
12. Chamber.
13. Study.
14. Kitchen.
3. Passage.
6. Staircase.
7. Court.
8. Closets.

CHAPEL FOR ROYAL NAVAL SCHOOL, NEW CROSS, KENT.—The council of this school are appealing to all whose patriotic feelings may prompt them to encourage and support the naval service to aid them in erecting a suitable chapel attached to the institution. Feeling assured of support, they have accepted a tender for the erection of a chapel capable of accommodating 400 pupils (the number for which the building was originally designed), and the requisite number of officers and servants of the establishment. The design of the chapel is in keeping with the character of the main building, and is of the plainest kind, being of red brick with stone dressings. The whole cost of the building will be about 3,000*l.* A handsome subscription has been made already, including a munificent donation from the president, Vice-Admiral Bowles. The vulgar coloured lithograph circulated by the council will not aid their purpose.

A BRIEF ACCOUNT OF THE PROGRESS OF DOMESTIC BELL-HANGING.*

In the old baronial halls not a vestige of bell-hanging has been discovered. The horn was hung outside the gate to be used as a signal for entry:

> "And loudly blew the horn that hangs
> Before Sir Hornbook's gate."

In houses of the reign of Queen Elizabeth, I believe, no trace of domestic bell-hanging has been found, but the horn continued to be used for the purpose above stated. In the reign of Queen Anne domestic bell-hanging was not introduced. Neither at Blenheim nor at Marlborough-house did I find any provision made for bell-hanging; nor at Warwick-house, Claremont, or at Hagley-hall, the seat of Lord Lyttleton. At the Earl of Brownlow's patrimonial estate, Belton-hall, near Grantham, Lincolnshire, his lordship, about forty years ago, went over the hall with me, and pointed out two large bells: one was fixed over the landing of the stairs at the north end of the hall, and at the south end, and his lordship stated "that these two bells were the only means his predecessors had of commanding the services of the servants." He said, "As it was getting into fashion to have bells from all the rooms, he must have them."

This was an early essay upon a large scale of secret bell-hanging, which had then begun to receive some attention by the sanction partially given to the plan by the principal architects in succession from that period. But the bell-hangers had to contend with many obstacles in establishing it. Orders for bell-hanging were often not given until the works had proceeded so far, that, to do secret-work, skirting-boards, &c. had to be removed, and plastering cut away, to fix tubes for secreting the wires, and I had frequent occasion to appeal to the architect. Nevertheless, the system gradually superseded the old plan; yet many mansions continued to have the bells pulled with ropes or ribbands; but the mechanical contrivances for bell-hanging were greatly improved: as the cranks were exposed in the principal rooms where ropes were used, they introduced the internal and external mortise crank, the reverse purchase, pillar, and leader crank, and cranks were made to screw up instead of being driven into the walls. The bell carriage, pendulums, and label plates were now being introduced. About this period Mr. Angel, an ingenious mechanic, obtained his patent for the wheel and chain, which for some years was in use; but if more than six or seven pulleys and chains were required, the unpleasant grating caused by the friction of the multiplicity of chains, and the little purchase to be obtained, made the pulling of the bells hard, and although they had a neat appearance, their use was gradually dispensed with. For confined space, the wheel-and-chain is indispensable, moving as it does parallel to its axis; also for working around curved and oblique places, and for such purposes, no mechanical contrivance is better suited. I believe that domestic bell-hanging was not in use more than from seventy to eighty years, and what may have been done at that period must have been done with a pulley and line, and the bell rung a short distance from the room. Iron wire, with a bar-crank, not thicker than pasteboard, succeeded the line and pulley. Copper wire within my recollection was considered too expensive, and for many years was only used in the first mansions.

Although the secret system is now fully established, even so as to be introduced into the smallest villa or cottage, yet in some noble mansions I have found very culpable neglect in the bell-hanger not having provided means to get at the work, which, like all other mechanical movements, must necessarily require to be oiled, &c.

It has often been done carelessly, and this has produced objectors. At Lord Willoughby de Eresby's, several of the bell-pulls were put out of use through this neglect.

Only brass or galvanised iron tubing should be allowed to be used in family mansions and other substantial buildings. Zinc tubing is not to be depended on: in some places it will moulder away and stop the movement of the wires: in other cases it opens, if not soldered, with heat under the flooring, and thereby causes the wires to work into the joinings of the tube and stop the movement of the wires. The proper time to commence is when the lathing is to be done, or when the roughcast plastering has commenced it should no longer be delayed: the bell-hanger will then have an opportunity of seeing his way much better, and prevent much cutting away of plastering, &c.; and it is highly necessary he should receive proper orders as to the number of pulls required, from whence, and where they are to ring, as, should any extra bell be required afterwards, it produces a difficulty.

T. B. W. D.

* The following is written by a practical bell-hanger.

THE EDINBURGH LATH-SPLITTERS.*

Lath-splitting cannot boast of great antiquity in its history. It was only introduced here about the year 1790 by a London plasterer. Previous to that period the laths of a house were as regularly and systematically sawn as the joisting or the flooring, or as tile lath is still cut at the present day. But the method of splitting the laths was soon found to be possessed of great advantages. It accordingly superseded the old method in a very short time. St. Andrew's Church was the first public building in Edinburgh where split lath was adopted. The wages of the workmen at the time of its introduction to Edinburgh were as high as 25s. and 30s. per week.

At the beginning of the present century it became separated from the plasterers, and resolved itself into two distinct branches, viz. splitting and driving. The trade continued to increase under these principles until it became established in Edinburgh, when the standard of wages stood at 18s. per week. Then came its connection with the building mania. Like every other trade connected with building at the period it had its share of the spoil. The wages rose from 18s. to 24s. per week. Skilled workmen, such as bakers, or shoemakers, or even butchers—at least, many of the most dissipated of these tradesmen actually became lath-splitters in their old age. The trade then experienced its share in the disaster. Previous to the year 1825 the wages were 18s.: in 1827 they had already fallen to 12s. and 13s. per week. Previous to that year the system of piece-work and tasking was never introduced; but now it flourished with surprising vigour. One man contracted for the lathwork of seven or eight houses: he employed a number of men, without respect to character or skill; and he paid what wages he seemed to think proper and just. Before the building mania the workmen bore a good character; but now, and for many years afterwards, they became a by-word among their brethren, and a reproach to themselves. In the years of low wages that succeeded, the trade was deserted by most of the half-bred hands it received in 1826. Its character improved accordingly; and now, upon the whole, the lath-splitters may be considered as a sober and industrious class of men.

With the exception of sawyers, there is not another trade connected with building that offers scope so favourable for the system of working by the piece as that of lathsplitters. But how stands the fact? With the exception of one shop in Edinburgh, the system is not pursued. The men work a regular day's work and are paid a regular day's wages. An intelligent master lath-splitter says, "I have tried the men on piece-work and on day-work. I prefer the last system, and for a variety of reasons. In the first place, when they did work by the piece they were irregular in their hours, uncivil in their deportment, and dissipated in their habits. With day-wages they are in every respect the reverse. I have noticed it repeatedly, that the men who are the most punctual to their hours are, generally speaking, the most sober and industrious. I never yet saw a man punctual to his hours who worked by the piece. Again, I can always command men who are ready and willing to turn out to a different job without the risk of having grumbling refusals given me, as I infallibly would if they were piece-workers; and, last of all, I run no risk of getting my materials destroyed with the careless haste of the men; and I can, moreover, depend at all times on the production of good work." The workmen themselves prefer the regular wages to the system of working by the piece, although the average rate of the one is considerably lower than that of the other.

At present there are—including apprentices, whose numbers cannot exceed a dozen—upwards of sixty lath-splitters in Edinburgh. The wages of journeymen range from 15s. to 20s. a week, and they are the same in the winter season. The term of apprenticeship is five years, and the wages begin with 3s. per week. The men are intelligent, but generally extreme in their political opinions. The trade is a healthy one, as most trades connected with timber are.

The wood employed for lath-splitting is imported from the Baltic—chiefly from Cronstadt, Riga, and Memel. The easiest worked and most profitable lath-wood is that from Cronstadt. There is some imported from America, but it is of inferior quality, and less profitable to split.

* Abridged from the *Edinburgh News*.

IRISH BUILDING AND OTHER DOINGS.

The necessary surveys for the intended branch line of railway from Queenstown to the junction at Youghal are in progress by Messrs. Lefann and Bell, C.E.

The town of Nenagh has been lighted with gas—a desirable step.

At the Mendicity Institution, Dublin (a portion of which has been devoted to accommodation for public baths and washhouses), additional baths are being constructed. The baths are on the principal story, in a wing of the institution, and although of a limited number, are provided with every requisite consistent with their respective classes. The washhouses, which contain forty tubs (supplied with hot and cold water pipes, and steam chamber), wringing-machine, mangle, drying-closet heated by two saddle boilers, with drawout room, &c. &c. are in the basement. We find that the poor, with whom the locality abounds, avail themselves but to a trifling extent of the advantages afforded by this institution. The baths are but poorly attended, which is in some measure accounted for by the building with which they are in contact. We do not find the Dublin corporation maturing the idea long since projected of establishing public baths and washhouses on a proper and extensive scale, although plans for such are in their possession.

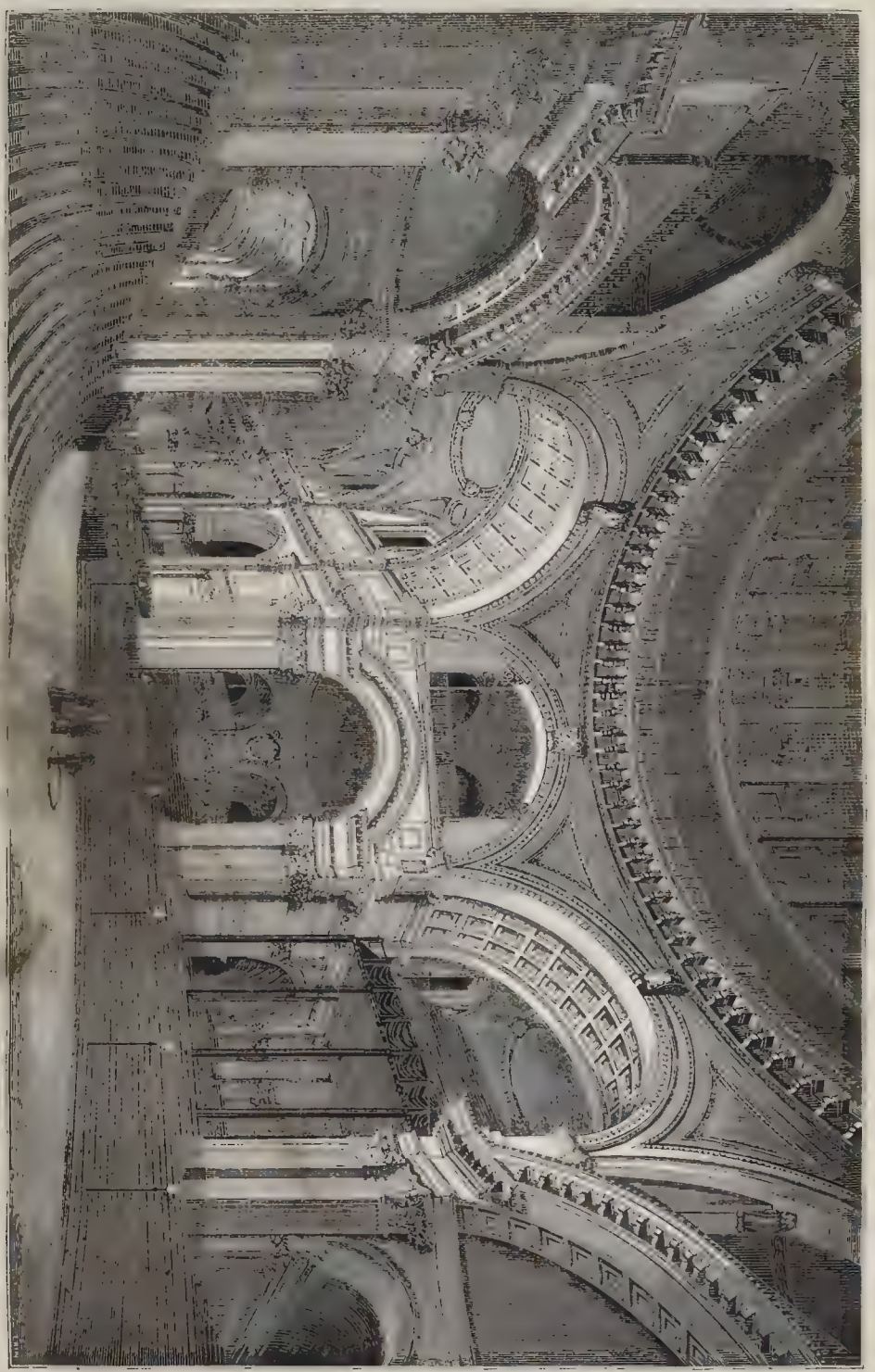
The Roman Catholic Church of Adam and Eve, at Dublin, is to have an Ionic portico of, we believe, chiselled granite stone. Mr. P. Byrne, architect, furnished the drawings, and Mr. T. Murphy is declared the contractor.

The principal front of the Ballinrobe Convent and schools will be proceeded with early in spring.

The local journals of Galway speak of municipal and public improvements at every side, some of which we have noticed previously. House-building is brisk there. Lighthouses are being erected at the entrance to the harbour by the Ballast Board; Messrs. Crowe, of Dublin, contractors. There is a good demand for workmen with remunerative wages. This speaks well for the future, and contrasts strongly with the past.

A new building containing library, reading-room, principal staircase, &c. is being erected in connection with the Clonmel Mechanics' Institute. The front will have the principal story rusticated with semicircular-headed windows at intervals. In centre building is a *pseudo portico* (with cornice on Cantilever brackets), and spacious landing to same. Mr. J. J. Lyons, architect.

The Londonderry and Enniskillen line to Omagh is progressing, and we have heard on credible authority that it is likely to be opened about the 1st April, 1853.



THE INTERIOR OF ST. PAUL'S CATHEDRAL, PREPARED FOR THE FUNERAL OF THE DUKE OF WELLINGTON.

See page 744.

THE SITE OF THE NATIONAL GALLERY.

At the opening meeting of the Royal Institute of Architects, on Monday evening, the 15th inst. a paper on the National Gallery was read, as we announced would be the case, wherein the writer advocated its retention in the present site, and the erection of additional buildings in the place of the workhouse at the back. The wisdom or otherwise of this rested on the question of the injury caused to the pictures by the smoke of London, and on that point a discussion was raised. The artist speakers were of opinion that greater injury was not done by town air than country air. It was resolved that the discussion should be resumed on the 29th, when we hope that other artists will attend and give the Institute the benefit of their opinion. We shall return to the subject.

OXFORD ARCHITECTURAL SOCIETY.

The first meeting of this society, during the present term, took place Nov. 3. The Principal of Brasenose in the chair. A letter was read from Mr. G. Mackarness on the subject of the restoration of the church of Nicholas Ferrar, and some ecclesiological extracts were made from a communication received from Australia.

Mr. Plenderleath, B.A. then read a paper "On some Architectural Principles derivable from Anatomy." The position of Architecture, he said, among the arts and sciences, was that of a bond between them all, seeing that it made each of them to subserve its interests. But to anatomy the obligation was not so often acknowledged, though in the cylindrical form of the long bones he thought that we might see the principle of the tubular bridge; in the voussoir shaped bones of the foot, that of the arch; and in the human cranium, that of the dome! Mr. Plenderleath exhibited two skulls, one of which was dissected, by means of which he pointed out the analogy between the mode of girding or cramping the stones of a dome, and the strengthening of the cranium by means of the spheroid bones, which acted as a tie-beam to keep the whole together.

Mr. Plenderleath proceeded to the analogy between the construction of the arch and that of the tarsus of the foot, and he then passed on to discuss at some length the question as to what was the best form of roof for sound as illustrated by the organisation of the mouth.

GAS.

Swindon.—The Gas and Coke Company here appear to have now manifested a willingness to be influenced, at least to some extent, by the local Gas Consumers' Association, inasmuch as they have reduced the price of their gas from 8s. 4d. to 7s. (a very trifling and inadequate reduction certainly), and have issued an address to the Association, in which they state that, considering the perishable nature of their property, the expense of efficient working, and the probability of science superseding it altogether, they do not think even 10 per cent. an unfair profit, whereas they have only averaged 6½ per cent. which, they submit, for such a precarious property, cannot be considered too high. Now, we quite agree with the company that 6½ per cent. is *not* too high; but what are we to infer from this? That if the price be further reduced, so will the dividend? Assuredly not; but in all probability precisely the contrary, as we have again and again proved, in the columns of The Builder, from the Parliamentary statistical returns of the gas companies themselves. By further reducing their price, not to a great extent suddenly, but to a great extent gradually,—beginning, however, with something considerably more than 1s. 4d.—they will, to a certainty, immensely increase their consumption, and ultimately raise their profits beyond 6½ per cent. which they are not likely to diminish even in the outset. It is a false inference, therefore, altogether, that because they have only 6½ per cent. at 8s. 4d. they would have less at 4s. 8d. Arguments such as these ought to be urged, and, in fact, could easily be demonstrated to the company, who have further manifested a disposition to accede to reasonable terms by allowing consumers to purchase their fittings from whom they please. We agree, however, with the chairman of the Consumers' Association, Mr. Wheeler, that 7s. cannot be expected to satisfy the public, even for the present; but we believe the company are sincere in *their* belief or fear that it would be inconsistent with their pecuniary interests to make any greater reduction, in which fear they are completely mistaken. A subscription, headed by the vicar, has been set on foot to forward the determination of the consumers, who now mean to advertise for proposals from gas contractors.

Birmingham.—The reduction in price by the Birmingham and Staffordshire Company has been advertised. The terms are,—3s. 10d. per 1,000 feet, to all consumers under 25,000 per quarter; 3s. 4d. to all above 25,000 and under 100,000; 2s. 10½d. to all consumers of 100,000 and upwards, per quarter, commencing from 1st October, 1852, for cash payment. Where the parties do not pay promptly, the terms will be 4s. 3s. 6d. and 3s. respectively.

New Brompton and Gillingham.—The first stone of a gas-work has been laid for the supply of these places with gas light. The works are being erected by the Provincial and Continental Gas Company, and are being constructed under the superintendence of Mr. S. J. Rickon, of Chatham, agreeably to plans designed by Mr. Culyer, gas engineer. The gas, it is said, will be manufactured by a new process, whereby its cost price is considerably reduced, and a larger quantity of gas of greater illuminating power is obtained. It is intended to supply the gas at 5d. per hundred, or 4s. 2d. per thousand cubic feet.

THE SOCIETY OF ANTIQUARIES.

The first meeting of this Society, fixed for the 18th, is postponed until the 25th, in consequence of the funeral of the Duke of Wellington, and on that night the proposal of Mr. Lott, to rescind the resolution passed last year, reducing the subscription from four guineas to two, will be brought under consideration. During the recess Sir Fortunatus Dwarris has published a letter to the Fellows, urging moderation, and suggesting, as a compromise, that the subscription should be three guineas. Mr. Pettigrew has issued a second edition of his letter with a new preface, and Mr. John Bruce has published a second pamphlet in support of the reduction. For argument, however, the matter stands exactly where it did before the law was passed, and we sincerely hope that the motion for repealing will not be carried, and that a fair trial will be given to it. As our readers know, the reduction seems to us desirable, but even apart from this, it surely cannot be convenient or right that a law passed after full consideration and discussion, even although by not a large majority, should be immediately afterwards repealed without trial.

THEATRES AND MUSIC.

Drury-lane — Jullien's Concerts. — Large audiences have rewarded M. Jullien's exertions to provide cheap good music for the metropolitans. The body of the theatre has been renovated, and the stage-part fitted up under Mr. Gye's direction, with one of those tasteful decorations which he has made his own. The glass curtain shines with undiminished lustre, and chandeliers to accord with it have been put up without stint. Madame Anna Zerr, a clever clarionet player (M. Wuille), and two perfect violinists (the brothers Mollinhauer), are amongst the additions to the ordinary *ensemble*. The band never went better. Those who want evidence of the loyalty of an English audience should go to Jullien's: though a little uproarious, with an undercurrent of fun, the exhibition of it is exciting in the highest degree.

The North Shields Theatre has been rebuilt, Mr. G. A. Middlemiss, architect. Mr. W. Beverley, of the Lyceum, designed the decorations. Mr. Percival Simms executed them. According to our informant, the style adopted is of the Renaissance; the proscenium arch, box, and gallery tier, are supported by Corinthian capitals, pictured with white and gold. The front of the boxes and gallery is divided into panels, enriched with fret-work and mouldings. The pit is continued underneath the boxes, entrance to which is by the east front, where there are large outlet doors at the side, and these are so constructed, that pressure from the inside will not prevent them from being easily opened at any time. The boxes, which are reached by an easy staircase, are all cushioned, and have French polished backs, the whole being divided into stalls, with doors to each. The exterior of the theatre has vermiculated rustic dressings, string courses, massive doorways, with pillars and entablatures, surmounted by the royal arms.

Diorama of Hindostan.—This very interesting Diorama, which, when first open, we placed high in the numerous list of works of a similar kind, is now again open to the public, and should be visited by all who have not yet seen it. Mr. Philip Philipps, Mr. Louis Haghe, and Mr. Knell co-operated in its production from sketches on the spot, and the result is a series of pictures as interesting for their artistic merit as for the spots they represent.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

The first evening meeting of this society took place on Wednesday, the 10th of November, when a large attendance of members, a table covered with books and objects of antiquity presented to the society, and a long list of new associates, comprising the names of the Earl of Scarborough, Lord Edwin Hill, Mr. G. H. Vernon, M.P.; Mr. Manners Sutton, M.P.; Mr. Barron, M.P. &c. &c. afforded most gratifying evidence of the progress of the association. Amongst the exhibitions were a most interesting example of the vizard bascinet of the early part of the reign of Edward III. and a remarkably large and peculiarly formed tilting-helmet of the close of the fifteenth century, both by Mr. S. Pratt. The former head-piece presented the unique feature of having the camail or neck-piece of chain-mail still appending.

Mr. Syer Cuming exhibited a habergeon of similar chain, and read a paper on that species of defensive armour. Several Roman vases and pateræ discovered near Dover were exhibited and presented to the society by Mr. Orton, through Mr. T. J. Briggs, and some fine specimens of Samian ware, lately dug up at Rochester, were also presented by the Rev. Thomas Hugo, of St. Botolph's, Bishopsgate; drawings of various antiquities, by Mr. Bridger, Mr. Newton, Mr. Baigent, &c. The meeting concluded with the reading by Mr. Lynch of three original and inedited letters, illustrative of the abdication of James II.;—the first being from Pope Innocent XI. to Louis XIV.; the second, the answer of Louis to the Pope; and the third, a most graphic account of the flight of the Queen Mary Beatrix with the infant Prince of Wales from London, by the Countess Monticucisli, an Italian lady in her Majesty's household.

Flooding in the Thames and Destruction of Property.—Another of those tides which every now and then rise above all the usual barriers on both sides of the river within metropolitan bounds, but especially on the Surrey side, has just occurred, with an immense destruction of property, in Bermondsey, and Rotherhithe, and particularly in Lambeth, Vauxhall, and as far as Putney, on that side of the river, and in Hungerford Market, Temple Gardens, Great Scotland-yard, and the Adelphi on the northern side of the river. The very same thing will doubtless occur in a few years at furthest, and again and again, as it has already done, unless some supervision of the river walls and other barriers be instituted. The cost of such supervision would be as nothing compared with this periodical destruction of property, even were the risk of human life unworthy of consideration, and the prevention of accident not *always* possible.

RAILWAY MATTERS.

A SLIP of great extent took place on the Taff Vale Railway on Sunday before last, between the Troeyrhiew station and Incline Top, but happily without loss of life.——A bridge on the Trent Valley Railway, between Tamworth and Lichfield, was lately destroyed by a flood, and the traffic on the line temporarily suspended. The bridge must have been a small one, as the engineers expected to effect a crossing by means of a temporary erection in a day or two.——On the Birmingham and Gloucester line, on Thursday in last week, a considerable quantity of earth and rock in the deep cutting at the north end of the King's Norton tunnel slipped from the banks and entirely blocked up the line.——The reduction in the fares, and alteration in the trains, on the Great Western line, commenced, we understand, on 1st instant. A journey to London, from Swindon, first class, will now cost 13s. being a difference of only one shilling more than the late charge, second class. The consequence must, we have no doubt, be a great gain to the company in first-class passengers. The second-class fares have also been reduced, though we believe not in the same ratio.——The first of the new class of passenger-engines, constructed on the patent of Mr. M'Connell, the locomotive superintendent of the London and North-Western Railway, has made an experimental trip from Wolverton to the Euston-square terminus. The engine is one which, it is stated, would take an average express train from London to Birmingham (112 miles) in two hours. It is a six-wheeled one, with 7 feet driving-wheels. The fire-box has been projected 4 feet 9 inches into the barrel of the boiler, forming a combustion chamber. This has enabled the inventor to obtain no fewer than 260 superficial feet of heating surface in the fire-box. For the purpose of producing as near as possible perfect combustion, a number of the stays connecting the combustion chamber with the shell of the boiler are tubular, and the air being drawn through them impinges on the flame. This produces a perfect mixture of the gases, and the largest amount of serviceable caloric is evolved. The tubes, 303 in number, are 7 feet in length, and 1¾ inch in diameter. The whole of the heating surface is, therefore, about 1,240 superficial feet. The engine in forty-five minutes got up sufficient steam to move her. The steam-pipe presents a broad, flat surface to the heated air as it passes from the tubes into the smoke-box, so that the steam is in a manner dried as it passes into the cylinder. The stays to this form of steam-pipe are tubular, and the heat from the boiler tubes passes through these stays, and assists in "drying" the steam before its effective force is given to the pistons. Two of this class of engines have been delivered to the London and North-Western Company, one built by Messrs. Fairbairn, of Manchester, and the other by Messrs. J. B. Wilson, of Leeds.

METROPOLIS BUILDING ACT.

THE dictum of the referees as to additions, has spread consternation among the builders of suburban houses: perhaps these buildings are multiplying faster than the population, and therefore a check may be wholesome, although annoying. However, it is a fitting time to take up some questions bearing on the point, and to discuss them freely. The small area permitted under the Act for third and fourth rate houses, is the real secret of the mischief—the necessity of the addition. It is a monstrous thing that an extra fee to the district surveyor shall be paid for the little kitchen and bed-room over, erected behind the hundreds of fourth-rate houses that have been built since the Metropolitan Buildings Act: the kitchen and bed-room over are to all intents and purposes part of the house, and yet an artificial line is drawn, and the back buildings have been styled "the addition:" for what purpose this rear building is separated, except to give an extra fee to the surveyor, is a great mystery.

Strong convictions on this subject led me some time since to sift the Parliamentary paper, No. 83, issued last year, and as some of the results illustrate the grievance I complain of, I subjoin the following figures:—

FEES RECEIVED BY DISTRICT SURVEYORS.

	1847.		1848.		1849.	
	New Bldgs.	Additions.	New Bldgs.	Additions	New Bldgs.	Additions.
	£	£	£	£	£	£
First-rate bldgs	94	627	106	529	144	575
Second do. ..	609	938	305	822	414	845
Third do. .	1,084	1,536	913	1,325	1,085	1,552
Fourth do. .	4,005	1,254	3,301	1,091	3,790	1,151

The columns headed additions, I believe embrace alterations, and it is to be regretted that these items were not separated: there can be no doubt, I apprehend, that four-fifths at least of the amount would be for additions to new buildings; and on this basis I argue: reducing the figures in the above table to a per centage and average of the three years, the figures stand thus:—

First-rate buildings and additions	.....	7·3 per cent.	
Second-rate	ditto	ditto	..... 14· ,,
Third-rate	ditto	ditto	..... 26·8 ,,
Fourth-rate	ditto	ditto	..... 52·1 ,,

Taking the buildings only, a still higher per centage is shown for fourth-rate buildings, viz. 70·2 per cent. It is obvious that the builders of fourth-rate houses are by far the best customers to the district surveyor: as a question of per centage, on the cost, it will be easy to show that the builders of fourth-rate houses pay a much higher rate than any other. Take the cost of a second-rate house at 1,000*l.*; third-rate house, 600*l.*; or, with additions, 750*l.*; fourth-rate house, 170*l.*; or, with additions, 220*l.*: the following table illustrates this question:—

	Value	District Surveyor's Fee.	Fee per cent. in Value.
Second-rate	£1,000	... 63s.	0 3
Third-rate	600	... 60s.	0 4
Ditto, with additions	750	... 75s.	0 5
Fourth-rate.....	170	... 30s.	0 9
Ditto, with additions	220	... 40s.	0 9

I think these figures incontestibly prove that a monstrous tax has been laid upon the dwellings of the humbler classes, and I hope that this evil may be set right in the next effort at building legislation for the metropolis. W.

LAW OF FIXTURES.

IN the case of Wood, a bankrupt, Mr. Commissioner Fonblanque delivered a judgment of some importance as respects the law of fixtures. Divers articles were found in the bankrupt's possession at the time of the bankruptcy. He was a brewer, and these articles were what were called "brewers' plant and brewers' fixtures." He observed that much of the confusion of the cases had arisen from the popular use of the word "fixture," without discriminating between the degrees of annexation, varying from the solidity of a stone foundation to the tacking of a carpet or the hanging of a picture. The true question was, were they goods and chattels? for to goods and chattels only did the statute of James and the subsequent statute derived from it apply in its enactment as to order and disposition. Nor was this statute singular in this limitation: only goods and chattels could be taken in execution: only goods and chattels could be distrained; and under both forms such articles as the greater part of those now in question had been taken; with this exception, that under a distress, while the law required that the goods should be removed from the premises, only such could be taken as could be returned on replevy in the same state. In questions between heir and executor such articles also had been held to pass to the executor, as personalty, and not to the heir as realty. For each of these purposes, therefore, the articles were held to be goods and chattels. Why, then, were they not to be so held as between the mortgagee and assignee of a bankrupt's estate? He (the Commissioner) confessed that he was unable to discover the reason in law or equity; while, on the policy of the law of bankruptcy, he saw every reason to prefer the doctrine, that what was in the bankrupt's open possession, by the apparent ownership of which he obtained credit of the trading world, should pass to the benefit of all his creditors, rather than to one only, who by means of a private or secret conveyance had obtained a preference over them. As to what was strictly realty, this was unavoidable, since the right to the realty must follow the title, and not the possession; but there was no reason for extending this right of the realty beyond this necessity, and in all doubtful cases, he believed, the courts would lean (as Lord Kenyon said they had leant) in favour of creditors, and for the interest of trade. He (the Commissioner) came to the conclusion,—firstly, that such articles as merely rested upon the soil by their own weight, however heavy, were goods and chattels; secondly, that if they were slightly connected one with another, and ultimately with the freehold, yet might be severed without material injury to the freehold, they followed the same rule; thirdly, that articles, though themselves fixed to the freehold by bolts and screws, or nails or pegs, or other similar contrivances, were also goods and chattels; fourthly, that articles mainly sunk in the soil, or built on it, were of the realty, and did not pass to the assignees.

PREVENTION OF RAILWAY COLLISIONS.

A FENDER invented by Mr. A. T. Forder, with this important object in view, has been tried at Leamington, and, according to a local correspondent, with considerable success. The improved fender consists of two parts, one called the striker, and the other the receiver. The striker is formed of a plate of metal, into which a number of strong bars of steel of different lengths are fastened. The receiver is a similar plate with apertures, over which are placed pieces of spring-steel, the centres of which correspond with those of the bars in the striker. The two bars are fixed together, so that the latter may slide towards the receiver, and each bar of the striker be exactly opposite the centre of its antagonistic steel plate. One fender is intended to be fastened to each end of every carriage. As the striking bars are of different lengths, and project accordingly from the plate, it is manifest that upon the centre part of the plate being struck the bars will successively bend and break its opposing spring plate; and if there are a sufficient number of them, the fender, it is said, will absorb the whole of the impelling force, and, in case of a rail collision, stop the train without injury to passengers or carriages, inasmuch as the whole of the blow will have been expended in breaking the plates. The force of the collision conveyed to the carriages will be equal to a succession of slight blows, each of itself insufficient to injure the train. The working model exhibited consisted of a railway 5 feet high at one end, and 3 inches at the other, being 30 feet in length, and forming an inclined plane or fall of one in six. Upon the highest position of the rails were placed two carriages fitted up with glass windows, and in all respects similar to first and second-class railway conveyances: at the end of each was appended a model fender of the above description; and upon a given signal, the train, each carriage of which weighed about sixty pounds, ran down the rails against a block placed at the bottom. The result of the collision, according to our informant, was that the plates in the fender were nearly all broken, whilst the carriages remained perfectly uninjured. There was no visible recoil, and the train was brought to a dead stand in an instant. It seems worth further investigation.

NEW PRINCIPLE IN ROPEMAKING.—The application of a new principle to large and heavy ropes is thus described in the *Wolverhampton Chronicle*:—"It is a four-strand flat rope, 350 yards long, and weighs nearly four tons, and is nine inches wide at the top, and gradually tapers to six inches at the bottom. By this gradual diminution of the rope, which is the new principle adopted, and which Messrs. Griffin and Morris are now engaged in registering, there is a saving of a ton in the weight of the rope, while its strength when in use is undiminished."

LANDLORD AND TENANT.

DOUBLE RENT.

Higgs v. *Markie*.—This was an action brought in the Clerkenwell County Court, to recover the sum of 1*l*. 4s. for three weeks' double rent of workshop, &c. situate in Red Lion-yard, Warner-street, Clerkenwell.

The plaintiff's agent proved the service of a written notice upon the defendant to quit the premises, and which notice set forth that in the event of his failing to deliver up possession at the expiration of the time therein specified, viz. one week, the rent would in future be 16s. a week, being double the rent he was then paying.

Mr. Wakeling having elicited, that, notwithstanding the notice, the agent had continued to receive the original rent of 8s. a week down to the present time, submitted, upon the authority of Chiney *v.* Batten (Woodfall, 499, and Cowp. 243), that the acceptance of single rent accruing subsequent to the notice was a waiver of the landlord's right to double rent. In fact, it was extremely doubtful whether there was any foundation in law for this mode of enforcing the possession of a weekly tenement. There was a remedy secured to all landlords by the 122nd section of the 9 & 10 Vict. c. 95, and which empowered the judge of a County Court, when the rent payable does not exceed 50*l*. by the year, to issue a warrant requiring the tenant, within a period to be therein named (not less than seven or more than ten days from the date of such warrant), to give possession of the premises; and such warrant was a sufficient authority to the bailiff to enter upon the premises and to give possession accordingly. The right to sue for double value was created by the 4th Geo. II. cap. 28, and on referring to the 1st section, his Honour would find the words to be, "in case any tenant or tenants for any term of life, lives, or years." These words clearly applied to yearly tenants, and not to a weekly tenancy. The 11th Geo. II. cap. 19, gave the landlord the power to sue for double rent (not double value). But although this Act was not confined to tenants for lives or years, as the previous Act, it referred to cases where the notice to quit has been given by the tenant to the landlord, and not, as in the case now before the Court, by the landlord to the tenant. He (Mr. Wakeling) submitted with great confidence that the landlord in the present case had no power to charge double rent; and that if such power really existed he had waived his right to double rent by the acceptance of the single rent after the determination of the tenancy.

His Honour concurred with this view of the law. The landlord's course was clear under the 9th and 10th Vict. cap. 95, and would prevent much wasteful and expensive litigation.

Judgment for the defendant, with costs for his loss of time and attendance of witnesses.

KILLARNEY RAILWAY HOTEL COMPETITION.

IN your last number, you state that certain designs have been selected by the directors for final decision. Allow me to remark, that having furnished a laborious set of plans for this building, in reply to the advertisement, the secretary personally called at my offices to know if I would guarantee the erection of my designs for a sum within the stipulated amount (6,000*l*.) which I accordingly did, and as a further proof of my veracity, procured for him, at considerable trouble to myself, estimates from respectable parties as to the exact expenditure, which came within the mark. Up to the date of your publication, I fully calculated (at least) on the chance of success, it having been represented to me on good authority that "my" plans, together with another set furnished by a Dublin architect, had been selected out of the lot furnished for final consideration. I heard it whispered *then*, that one of the rejected sets had been placed again on the list, but that still my chance was "good," until I discovered that, notwithstanding the additional information required from me, the result is as you have stated. I was informed by the Secretary that the Railway Company had nothing to do with this "Railway" Hotel.

May I ask, is it right that a secretary should thus take up the time of, and give extra trouble to, a professional man, by noticing his designs in a complimentary manner, finding out additional information respecting them, thereby elating the author with hopes of success, and perhaps preventing him from attending to his other professional duties, not to speak of time lost in making inquiries at the terminus as to the result of the decision? The guarantee that was required has been given threefold, and yet my plans are rejected. Is interest the bane of all competition at work? Professional advice was called in on *two* sets of designs: if mine were so highly estimated as stated, why had I not an equal chance? A COMPETITOR.

Notices of Books.

Wonderful Things (1 to 8, weekly parts). *The Biographical Magazine. Uncle Tom's Companions.* J. Passmore Edwards, Ludgate-hill.

THE last of these works, some of the cheap and creditable little books issued by Mr. P. Edwards, consists of the lives of various fugitive slaves who have walked the streets of London, and rehearses horrors and atrocities as acted facts which would have been pronounced scandalous exaggerations had they appeared in the pages of Mrs. Stowe's extraordinary volume. The popularity which has attended "Uncle Tom's Cabin," is unexampled and well deserved. The Paris *Charivari* gives an amusing version of the excitement it has caused in England and America, describing, amongst other occurrences, how a decent Quaker, after waiting all night at the tail of a crowd leading to the publisher's shop, having at length placed his dearly-bought volume under his arm, and is trudging contentedly home, is stopped by two respectably dressed men, who, each clapping a pistol to his head, shout, "Your 'Uncle Tom's Cabin' or your life!"

The Art of Miniature Painting. By C. W. DAY. Winsor and Newton, Rathbone-place, London.

THIS is one of a series of small books, published by Winsor and Newton, on various branches of the painter's art. Although of course it will not make a miniature painter, it contains much useful information calculated to shorten the work and improve the result.

Proceedings of the Liverpool Architectural and Archæological Society. Liverpool: Deighton; London: Weale.

THE first volume of transactions published by the Liverpool Architectural Society includes the sessions 1848-9 and 1849-50, and forms a goodly quarto volume of 243 pages, nicely printed and got up. Some of the papers have considerable literary excellence, and are most honourable to the architectural body in Liverpool. We must also mention with commendation, a series of illustrations of Bebbington Church, cleverly drawn on stone by Mr. J. Murray. As we have chronicled the doings of the society from its formation in 1848 to the present time, all the papers here printed have been mentioned in our pages. We invite for the society the consideration and co-operation of their townsmen, and cordially wish them a continuation of success.

A New Gazetteer, or Topographical Dictionary. By MR. JAS. A. SHARP. Longman and Co.

THIS very excellent *Gazetteer*, concerning which we have already spoken favourably, has now reached the tenth part in its monthly form, and is brought up to the letter K.

The Travellers' Library, Nos. 29 *to* 33. Longman and Co. 1852.

WE have here an interesting treatise on a very interesting subject, namely, the Australian Colonies, by Mr. William Hughes, F.R.G.S. late Professor of Geography in the College for Civil Engineers,—in two of the shilling parts; the Rev. G. R. Gleig's "Battle of Leipsic,"—also in two parts; and another appropriate subject for this Wellington week of national mourning, namely, the able memoir of the Duke that appeared in the *Times*, on the announcement of his death, and which we are glad to see in this more permanently accessible form,—a little volume.

THE ARCHITECTURAL ASSOCIATION.—At a meeting, on the 29th October, a paper was read by Mr. P. Lee, jun. "On the Present Condition and Future Prospects of Architecture;" too difficult a theme for a young writer. At the close, he urged the want of an establishment with library, museum, and the domestic advantages of a home.

Miscellanea.

RATING PREMISES IN THE GOVERNMENT DOCKYARDS PARTLY OCCUPIED BY CONTRACTORS.—At the Portsmouth Sessions, lately, an appeal was heard against a poor-rate, made by the parish officers of Portsea on Mr. Dotterill, in respect of his occupation of an office, store, and shops, situate in the bricklayers' and masons' yard, within her Majesty's dockyard; and the ground of appeal was that such premises were not in the occupation of the appellant, but were occupied by her Majesty. The recorder, on hearing both parties, and their witnesses, said that the title of the occupiers might be very slight, as a tenant at will might be rated. The rights of the Crown were intact, and the Government might re-enter at any time. He considered that the appellant became the occupier when the premises were handed over to him by Absolam, and if the Government had ever exercised their rights to re-enter it would have been different; but they had not done so and the appellant continued in occupation. For the purposes of supervision, a clerk of the works must, as a matter of course be employed, and Mr. Dotterill, as a matter of right, should accommodate the clerk. The stores and materials belonging to the Government might be considered as an easement: the keys were deposited (with the other keys under Government charge), at the benefit of both parties: the Government officers would have a right to enter the premises to see the contract performed. On the whole, he did not consider that there was such an occupation on the part of the Government as was incompatible with an exclusive beneficial occupation on the part of the appellant, and therefore he confirmed the rate. Costs to the amount of 10*l*. were given to the respondents. Application was made on the part of Mr. Dotterill, for a case for the decision of the Court above, which was granted by the recorder, but on the ground that he should state the case himself.

OPENING OF DIOCESAN TRAINING INSTITUTION AT HOCKERILL.—The inauguration of this institution took place on Wednesday in last week. It is a Tudor building of the period of Decorative architecture of the seventeenth century, with lofty pinnacles, bell-towers, and round chimney-shafts. The object of Mr. Clarke, the diocesan architect, has been to combine modern use with the picturesque outline and detail of that period. The material is red brick, chequered in front, and with Bath-stone dressings to the doors, windows, &c. The interior is arranged to accommodate sixty female pupils, with a residence for the lady superintendent, and rooms for the necessary governesses. The form being quadrangular, there is an open court in the centre, laid out, and about to be planted as a pleasure-garden, with a covered ambulatory all round it, communicating with the several departments of the institution, while the pillars that support it next the court are to be covered with climbing plants. The original plan included a chapel, but for the present this has been dispensed with, the committee having contributed 100*l*. towards the erection of All Saints' Church, close to the threshold of the institution, and thus provided for the accommodation of the pupils there till such time as it shall be found necessary to erect a separate chapel, which can at any time be added, in accordance with the present arrangements of the building. The total cost, which, including fittings and furniture, is 10,500*l*. has been covered by subscriptions, and a further sum of 2,400*l*. has been raised to establish and maintain the institution for four years.

CAMBRIDGE ARCHITECTURAL SOCIETY.—The second meeting for the October term was held on Wednesday. Two papers were read,—one by Mr. Norris Deck, on the "Antiquities of Exning and Landwade, Suffolk;" the other by Mr. J. H. Cooper, of Trinity College, on "The Cathedral of St. Asaph." Mr. Luard, of Trinity College, then described a recent visit to the Grande Chartreuse, an object of interest and curiosity, though seldom visited by travellers.

THE NEW MUSEUM IN BERLIN.—A correspondent of the *Athenæum* makes some not very complimentary remarks on Herr Stüler's museum. He says,—"Outwardly the building is solid, cubical, and heavy. Taste is at a loss to imagine on what pretext the architect of such a discreet mass of stone could sanction the introduction of the tiny statues which lean against the divisions of the upper windows, except to draw attention to the almost clumsy baldness of the general building. Within, singularities no less singular give cause for wonder. Convenience may have dictated the arrangement of the museum, which consists of a huge staircase and several small rooms; but in these last the eye is rather teased than pleased by the resolute determination of getting rid of the ordinary form of ceiling, no matter at what price of oddity. The most inharmonious and grotesque arrangements of pillar, truss, and tracery filling up long and shallow semi-oval spaces, are employed, which recall unpleasantly those 'regions of sorrow,' the cabins of steamers, where the decorations, lavished to tempt passengers can blind only a child of Gotham to the real conditions of lodgement, need of strong support, want of space, and want of air. It would have been less novel, but wiser, to have introduced, as the Sansovinos and Palladios were content to do, the familiar coved and coffered ceiling, which lends itself so kindly to ornament whatever be its style. Then, the staircase is too grand in its scale to abide the admixture of puerilities, were they even in the style of Parthenon or Choragic monument, or of any other known Grecian example. Since no attempt at intricacy marks the whole ordinance of this staircase, the intrusion of the covered porch or tribune at the conjunction of the two flights of steps, can be considered only like the window-sculptures just mentioned—as an episode—which is an impertinence rather than a variety—a foppery, not a feature."

FALL OF HOUSE, BARNSLEY.—COOLNESS.—Last week the whole of the gable end of the Hare and Hounds Inn, fell down, fortunately without injuring any of the inmates. According to a local paper, a lodger sleeping in the room adjoining the wall, was not awoke by the noise, and on the landlord going to him and telling him to get up, as the house was falling, he made answer by saying, "It may fall then: I've paid for my bed, and I'll take good care that I have my sleep out." "Thus the lodger laid his wonted time, exposed to the weather and the gaze of a large number of persons that had been drawn there by the accident." This story reminds us of the man who being shaken up, and told that the house was on fire, turned round again to sleep, and said, "Well, you must speak to my wife; I don't meddle with household affairs." And of the other member of the same cool family who, when told in bed that his wife had expired, nestled under the clothes, and murmured, "Dear me! how sorry I shall be in the morning." There is really something grand in coolness of this description!

THE IRON TRADE.—Foreign orders, it is said, are accumulating, and together with speculative home demands, are producing more and more stir in the trade. A salutary check on over-production in the meantime seems to be felt in the want of coal, which, however, may tend still further to force up prices shortly. Colliers refuse to work even at advanced prices. Offered an increase from 3s. 9d. to 4s. a day, they demand 4s. 6d., and even where they work at an advance, like the slaves in Jamaica they take it easy, and will not work "so continuously" as they used to do, now that 3d. a day makes them more independent than heretofore. "The prosperity so largely shared by Staffordshire," says the *Birmingham Journal*, "seems to be general. In Wales and Scotland the utmost activity prevails; and in France we learn that the iron-works of Maubeuge and Aulnoye les Berlaimont are now fully employed. Upwards of four hundred men are engaged in extracting mineral near Avesnes. The foundry of M. Leclerc, near the former place, has received a large command for rails for the railways in the west of France; and that of M. René Hamoir has now on hand sufficient business to occupy the men for eighteen months." The *New York Tribune*, on the contrary, still complains of "the general depression of the iron manufacture in the States, and the severe losses encountered by those who have embarked in it," as if this were not altogether a past state of affairs. The same paper states that thousands of tons of native iron, so pure in the mine, as almost to be equal to pig-iron, will probably be shortly poured into the market from that wonderful copper region, Lake Superior.——A Glasgow shipowner, Mr. M'Gavin, is said to have discovered and patented a method of preparing iron plates for ship building, so as to prevent the adhesion of barnacles and other growths obstructive to the sailing power of iron ships.

IMPROVED SOLID BRASS TUBES.—A patent has been taken out by Mr. G. F. Muntz, jun. of Birmingham, for a method of manufacturing solid brass tubes, without joint or solder, for flues of locomotive, &c. The composition preferred by the patentee is sixty parts of best refined copper and thirty-eight parts of good zinc; and the first process is the casting of a tube shorter than required, in a peculiarly-formed mould. This tube is then brought to a temperature at least equal to boiling water, and its interior rinsed with a mixture of lime in water, with common salt. It is then at a red heat, passed through a pair of flat rolls, similar to those used for rolling flat bar-iron, which produces a bar of brass with rounded edges, but with a flat orifice throughout—the lime mixture preventing the adhesion of the top and bottom surfaces; and in this rolling the casting attains a considerable increase in length. One end of this is then sufficiently opened by the workman with a suitable tool to a distance in length of about 6 inches; and, being again brought to a red heat, is passed through grooved rollers over a proper-shaped mandrill. A tube, oval in section, is the result. Having again been passed heated through cylindrically grooved rollers over a circular mandrill, a finished tube is produced.

NEW SUBMARINE TELEGRAPH ROPES.—A new mode of protecting the conductors, according to the *Mechanics' Magazine*, has been invented by Mr. T. Allen, of Edinburgh. It consists simply in placing the protecting wires longitudinally, instead of spirally, as in the Dover and Calais rope. This is done with the view of enabling the whole to withstand a longitudinal strain, and prevent the core from snapping. In this there is some feasibility, but it is perhaps questionable whether wires so placed will "protect" the conductors otherwise so well; and, besides, the spiral arrangement in the Dover rope, if we recollect rightly, was very slight, and the allegation that the length of wire from this spiral is double what a straight wire will be, seems to us preposterous.

THE GRAVEYARD OF ST. MARY'S, NEWINGTON.—At a public meeting, held on the 9th inst. in the school-room of St. Mary's, it was unanimously resolved, with the concurrence of the rector and senior churchwarden, that the graveyard should be closed forthwith, and the provisions of the new Act adopted. A burial board was then nominated, for the purpose of carrying out the provisions of the Act.

MEMORIAL TO "THE DUKE" AT BRIGHTON.—It was resolved at a public meeting held at Brighton on 20th September last, "that the restoration and enlargement of the parish church, wherein his grace the Duke of Wellington at an early period of his life was wont to worship, would be an appropriate and enduring monument of gratitude and veneration for his memory;" and since that date a numerous and weighty list of subscriptions has been collected, which seems to leave no doubt of the complete accomplishment of the object in view. The Rev. H. M. Wagner subscribed 1,000*l.* at the meeting, and various sums of 100*l.* have since been added, together with numerous lesser subscriptions of from 50*l.* to 10*l.* and a large sum in smaller contributions. Subscriptions are still received at the London and County Bank, and elsewhere.

GODSON'S SMOKE-CONSUMING FURNACE.—For some time back an economical form of patent furnace has been at work in various parts of the metropolis, of which it may be worth while to give a few particulars. Instead of consuming the smoke after it has escaped from the burning coal, in this case the coal is put into the furnace through a basket, with sliding top, below, which can be raised by lever power, and thrust the coal upwards into the heart of the fire below, so that, as it heats, the smoke enters the strongest part of the fire, and is immediately consumed. At Messrs. Sowerby and Co.'s distillery, in Aldersgate-street, it is said, an experiment was tried which proved an economy of 19½ per cent. in favour of this furnace, as against one of the ordinary construction. In both furnaces 9 cwt. 12 lb. of coal were consumed during two consecutive days, and while Godson's furnace vaporised 546½ gallons of water at a pressure of 3 lb. on the square inch, the other vaporised only 457 at the same pressure, being an excess of 89½ gallons.

THE LATE MR. GEORGE HAWKINS.—We have heard with great regret of the death of this gentleman, which took place on the 6th inst. quite unexpectedly. Mr. Hawkins was an excellent architectural draughtsman, for a long period chiefly engaged by Messrs. Day and Son, in lithographing the principal works of this character that have issued from their establishment. His pencil was peculiarly correct and delicate. One of his most important works is a series, still incomplete, of the ancient abbeys of Yorkshire, from sketches by Mr. W. Richardson. The architectural room of the Royal Academy frequently exhibited his skill in water-colour painting, as he was often employed by architects in colouring their designs. We lose him with sorrow.

ROAD MAKERS' DIFFERENCES.—Tenders for making roads at Peckham Rye:—

Yeoman	£2,762
Green	2,155
Rogers and Radley	1,696
King	1,550
Coker and Brixton	1,445
Raden	1,440
Cole	1,320

I BEG to hand you the particulars of tenders sent in for making roads and executing earthwork on the estate of the second Tower Hamlets Freehold Land Society, at Old Ford, Bow, Middlesex:—

Hewes	£1,200
Lake	1,040
Pound and Hudson	986
Toole	765
Green	698
Brown	625
Coker	607
Drummond	599
Wright and Broom	485
King and Haliwell	475
Baum (accepted)	390

A. B.

REPAIR OF ST. MARY'S, NEWINGTON.—Pray insert the tenders delivered for painters' and other works at the church of St. Mary, Newington. Mr. Edmonds, surveyor. P,

Thorpe	£560	0	0
Ambler	369	0	0
Carpenter	340	0	0
Thomas	330	0	0
Murphy	298	10	0
Suter	298	0	0
Fisher	297	0	0
Humphreys	284	10	0
Clare	280	0	0
Gregory	269	0	0
Crawford	260	0	0
Wells	256	0	0
Morris	248	16	0
Thornhill	240	10	0
Barnes	215	0	0

TENDERS

For chapel, vestry, and school, Islington. Mr. J. M'Landsborough, architect. Quantities supplied:—

Lucas	£2,843	0	0
Jay	2,797	0	0
Reading	2,600	0	0
Battenbury	2,492	0	0
Elston	2,483	0	0
Rowland and Evens	2,246	0	0
B. Huges	2,213	0	0
W. H. Cooper	2,136	0	0
Smith	2,123	0	0
Piper	2,099	0	0
Hopkins and Roberts	1,980	0	0

A HAND-BOOK OF ARCHITECTURE FOR THE UNLEARNED.

Now ready, price 4s. 6d. neatly bound,

HISTORY IN RUINS;

A SERIES OF

LETTERS TO A LADY,

Embodying a Popular Sketch of the History of Architecture, and the Characteristics of its various Styles, from the Earliest Times to the Present Day. With Illustrations.

BY GEORGE GODWIN, F.R.S. &c.

Editor of "The Builder;" Hon. Sec. of Art-Union of London.

No. 1, York-street, Covent-garden.

CHAPMAN and HALL, Piccadilly; M'GLASHAN, Dublin.

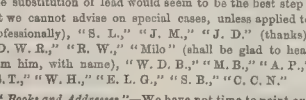
TO CORRESPONDENTS.

"G. H.," "Mr. N." (reached us too late), "G. W.," "F. A. S.," "J. P." (with walls 2 feet thick, we should suspect want of *absorption in internal face* of walls rather than penetration from without. We cannot pretend to advise without inspection), "F. S.," "F. W. O.," "Dun Edin," "J. B.," Lancashire (we uniformly decline), "P. P." (ditto), "Constant Reader" (ditto), "T. A. M." (the substitution of lead would seem to be the best step; but we cannot advise on special cases, unless applied to professionally), "S. L.," "J. M.," "J. D." (thanks), "D. W. R.," "R. W.," "Milo" (shall be glad to hear from him, with name), "W. D. B.," "M. B.," "A. P.," "S. T.," "W. H.," "E. L. G.," "S. B.," "C. C. N."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

ADVERTISEMENTS.



NOISELESS RINGS.

GUTTA PERCHA CURTAIN and CORNICE RINGS.—These Rings have been much approved by the Faculty, particularly for nervous and aged patients. Owing to the peculiar properties of Gutta Percha, these rings do not make a noise when drawn along the pole or rod. The following sizes may be had, either with or without loops:—Stout 1 inch diameter, 1½ inch ditto, 2 inch ditto, 2½ inch ditto, 3 inch ditto, 3½ inch ditto.

TUBING, LINING FOR TANKS, ORNAMENTAL MOULDINGS, &c. manufactured by the

GUTTA PERCHA COMPANY

(Patentees), 18, Wharf-road, City-road, London.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite confident that it will not, in the present age, be condemned because it is new, and that it judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (for the present) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly-discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all doubt. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be particularly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

LONDON	Messrs. Blundell, Spence, and Co. 9, Upper Thames-st.
LIVERPOOL	Messrs. Johnson and McGowan.
MANCHESTER	Mr. James Douglas.
LEEDS	Messrs. T. and H. G. Jepson.
SUNDERLAND	Mr. John Young.
DEVONSHIRE AND CORNWALL	Mr. Richd. Penrose, Tavistock and Plymouth
EDINBURGH AND COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Stimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. Wilson Stevenson, jun. and Co.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.
ADVANTAGES OFFERED.

EXTENSION OF LIMITS OF RESIDENCE.—The assured may reside in most parts of the world, without extra charge, and in all parts by payment of a small extra premium.

MUTUAL SYSTEM WITHOUT THE RISK OF PARTNERSHIP.

The small share of Profit divisible in future among the Shareholders being now provided for, without interfering on the amount made by the regular business, the Assured will hereafter derive all the benefits obtainable from a Mutual Office, with at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital: this combining in the same office all the advantages of both systems.

The Assurance Fund already invested amounts to £850,000, and the Income exceeds £130,000 per annum.

CREDIT SYSTEM.—On Policies for the whole of Life, one half of the Annual Premiums paid during the first five years may remain on credit, and may either continue as a debt on the Policy, or may be paid off at any time.

LOANS.—Loans are advanced on Policies which have been in existence one years and upwards, to the extent of nine-tenths of their value.

BONUSES.—Five Bonuses have been declared; at the last in January 1859, the sum of 131,125*l.* was added to the Policies, producing a Bonus varying with the different ages from 34*s* to 55 per cent. on the Premiums paid during the five years.

PARTICIPATION IN PROFITS.—Policies participate in the Profits in proportion to the number and amount of the Premiums paid between every division, so that if only one year's Premium be received prior to the books being closed for any division, the Policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1864, therefore those who effect Policies before the 30th June next, will be entitled to one year's additional share of Profits over later assurers.

APPLICATION OF BONUSES.—Bonuses and future Bonuses may be either received in cash, or applied at the option of the assured in any other way.

NON-PARTICIPATING.—Assurances may be effected for a Fixed Sum at considerably reduced rates, and the Premiums for Term Policies are lower than in most other Offices.

PROMPT SETTLEMENT OF CLAIMS.—Claims paid *thirty* days after proof of death, and all Policies are *Indisputable* except in cases of fraud.

INVALID LIVES may be assured at rates proportioned to the increased risk.

POLICIES are granted on the lives of persons in any station, and for any amount from one hundred pounds to £5,000.

PREMIUMS may be paid yearly, half-yearly, or quarterly; but if a payment be omitted from any cause, the Policy can be revived within *fourteen* months.

The Accounts and Balance Sheets are at all times open to the inspection of the Assured, or of *persons desirous to assure.*

A copy of the last Report, with a Prospectus and Forms of Proposal, can be obtained of any of the Society's Agents, or will be forwarded free by addressing a line to

GEORGE H. PINCHARD, Resident Secretary.

99, Great Russell-street, Bloomsbury, London

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY.

TRUSTEES.

Jeffery Smith, esq. David Fergusson, esq.
Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY

Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

NON-FORFEITURE OF POLICIES.

Assurers who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.

Loans granted on personal and other securities, in connection with life assurance.

BONUS

The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:

No of prems. pd.	Age when assured.	Annual premium	Sum assured.	Bonus added.	Amount now assured.
		£ s. d.	£	£ s. d.	£ s. d.
5	55	45 19 2	1,000	94 13 0	1,094 13 0
4	40	19 19 2	1,000	63 0 0	1,063 0 0
3	35	34 11 0	1,000	43 15 0	1,043 14 5

GEORGE THOMSON, Manager.
5, Chatham-pl. Blackfriars. THOS. MUSGRAVE, Secretary.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY. Incorporated by Special Act of Parliament, 1st Vict. c. 35. Head Office, 28, ST. ANDREW-SQUARE, EDINBURGH.

The Report by the Directors to the TWENTY-FIRST ANNUAL MEETING, held on 4th May, showed the following to be the position of this Society:—

The Sums Assured amounted to	£3,737,760
The Annual Revenue.....	136,960
And the Accumulated Fund.....	686,531

Large Additions have been made to Policies. For example, a Policy for 1,000*l.* dated 1st March, 1839, becoming a claim after payment of the premium in the present year, would receive 1,251*l.*; and policies of later date in proportion.

The next Triennial Allocation takes place on 1st March, 1853, when additional Bonuses will be declared.

POLICIES RENDERED INDISPUTABLE. The Directors have arranged that Policies may, under certain conditions, be declared indisputable on any ground whatever, after being of five years' endurance, and the Assured be entitled to travel or reside beyond the limits of Europe, without payment of extra premium for such travelling or residence.

ROBERT CHRISTIE, Manager.

*** Medical Referees paid by the Society.

Forms of Proposal, and all other information, may be had (free) on application at the Society's Office, 126, Bishopsgate-street, (corner of Cornhill), London. WILLIAM COOK, Agent.

THE YORKSHIRE FIRE and LIFE INSURANCE COMPANY. Established at York, 1824, and empowered by Act of Parliament, Capital, 500,000*l.*

TRUSTEES.

Ralph Creyke, esq. Rawcliffe Hall.
John Swann, esq. Askham.
Leonard Thompson, esq. Sheriff Hutton Park.

BANKERS.—Messrs. Swann, Thompson, and Co. York.

ACTUARY and SECRETARY.—Mr. W. L. Newman, York.

The attention of the public is particularly called to the terms of this Company for LIFE ASSURANCES, and to the distinction which is made between male and female lives.

Extract from the Table of Premiums for insuring 100*l.*

Age next birthday.	A MALE.	A FEMALE.	Age next birthday.	A MALE.	A FEMALE.
	Whole Life Premiums			Whole Life Premiums.	
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 5 4	58	3 11 6	3 3 2
13	1 9 3	1 7 0	60	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
20	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 0 0	5 12 6
26	2 0 3	1 16 2	63	7 4 0	6 9 6
*30	2 5 0	1 19 0	66	8 4 0	7 10 8
33	2 8 6	2 2 10	70	10 5 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 9	2 12 0	76		13 1 9
43	3 5 3	2 17 2	80		15 13 10

* EXAMPLE. A gentleman whose age does not exceed 30, may insure 1,000*l.* payable at his decease, for an annual payment of 25*l.* 10*s.*; and a lady of the same age can secure the same sum for an annual payment of 19*l.* 17*s.* 6*d.*

Prospectuses, with the rates of premium for the intermediate ages, and every information, may be had at the Head Office in York, or of any of the Agents.

FIRE INSURANCES

are also effected by this Company, on the most moderate terms.

Agent for London, Mr. THOMAS S. NOBLE, Solicitor, 5, St. John-street, Bedford-row.

Agents are wanted in those towns where no appointments have been made. Application to be made to

Mr. W. L. NEWMAN, Actuary and Secretary, York.

NATIONAL ASSURANCE and INVESTMENT ASSOCIATION

7, ST. MARTIN'S-PLACE, TRAFALGAR SQUARE, LONDON.

Established May, 1844

INVESTMENT OF CAPITAL AND SAVINGS.

The object of the Investment Department of this Institution, is to open equally secure and profitable channels of investment for the surplus capital of the affluent, and the provident savings of the industrial classes of the community. To persons desirous of placing their money out at interest, but unused to seekings securities, and inexperienced in estimating their value, this Institution offers immediate facilities, and an opportunity of realising the highest rate of interest yielded by first-class securities, in which alone the money deposited with the Association is employed.

Interest payable in January and July.

CAPITAL STOCK, £100,000.

The Capital Stock is altogether distinct and separate from the Depositors' Stock in the Investment Department of this Institution. It constitutes, with the Premium Fund, a guarantee for the engagements of the Association, and has been provided in order to render the security of the Assured complete.

FOR SECURING LOANS OR DEBTS

Amongst the many and extensive Tables of this Institution will be found one peculiarly adapted to arrangements where Policies are required for securing loans or debts. The rate of Premium by this Table will protect the Interest of the Policy-holder from all contingencies, and allow the Life assured to proceed to, and reside in, any part of the world.

MUTUAL ASSURANCE

Assurances may be effected from 50*l.* to 10,000*l.* on a Single Life.
Entire profits belong to the Assured, and are added annually.
Credit for half the amount of the first five annual Premiums.
Medical men remunerated for their Reports.
Liberty to Travel, and Foreign residence greatly extended.

COLLEGE EDUCATION.

A Novel Table has been constructed expressly for the use of this Institution, whereby a Parent, by the payment of a very small annual premium, may, in the event of death, secure to a Child, either an Annuity, payable from the age of 17 to 24, or an equivalent amount in money.

Other new and important Tables for Educational purposes, and Endowments for Children, are in course of construction, and will shortly be published.

The Tables for Reversionary and Deferred Annuities, are particularly deserving of attention, whether regarded as a means of providing for a particular individual, or as a resource against the casualties of age, involving, as they do, the contingencies of health and fortune.

Full information and prospectuses may be obtained, on application at the Head Offices of the Association, or to the respective Agents, throughout the United Kingdom.

PETER MORRISON, Managing Director.

Applications for Agencies may be made to the Managing Director.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by fish-pointing the rails, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway, to the half-yearly meeting of shareholders held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more steadily, decreases the wear and tear of both the railway and rolling stock, and adds greatly to the comfort and security of the passengers. The Patent Fish-joints have been largely adopted by the Engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Monmouthire,
North and South-Western Junction,
Waterford and Limerick,
Great Northern (Ireland),
York, Newcastle, and Berwick.

And are also in course of adoption on many other railways. For lines not yet finished with the ordinary system, the attention of W. H. Barlow's patent rail, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Newport and Abergavenny,
South Wales,
West Cornwall, and
Hereford, Ross, and Gloucester.

The Patent Cast-iron Sleepers of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

East-Indian,
Midland,
East Lancashire,
London, Derry and Enniskillen,

and several other lines.

The Permanent Way Company confines itself entirely to the granting licences to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E. 3, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 36, Great George-street.

Extract from the report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders held on the 25th of August:—

"The system of 'fish-jointing' has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Extract from the report presented to the half-yearly meeting of the West Cornwall Railway held on the 29th August.

"The result of the three months' working of the new rails between Penzance and Camborne has fully borne out the expectations which had been formed as to the durability of that description of rail which, under Mr. Brunel's advice, has been employed in the construction of that part of the line; and the attention of the Directors has been directed to the bad state of the permanent way on the old line, and the economy and efficiency of the working which would arise from relaying that portion with Barlow's rails, they have given orders for this to be done, and it is now nearly completed."

Extract from the Directors' report to the last Half-yearly Meeting of the London and North-Western Railway:—

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the cast-iron road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

DURRANT'S "BONDED and SUFFERANCE WAREHOUSES" TIMBER-PRESERVING WORKS, ROTHERHITHE.—BETHELL'S process consists in impregnating timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piers, Docks, Harbours, &c.; and the Outside Planking of Ships and Barges. And as for use in the colonies, as being perfectly impervious to the attacks of all land or marine insects. PAYNE'S, SIR W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive against a Ship Building Fire. They are also extensively used in House, Farm, and general Building.

Extensive and most complete Machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and from possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade.

Scale of charges and every particular of P. ST QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 9, Charlotte-row, Mansion-house, City.

THE FARNLEY IRON COMPANY, WORTLEY, NEAR LEEDS,

MANUFACTURERS OF

FIRE-BRICKS, PATENT GLAZED STONEWARE DRAIN PIPES, CLOSET PANS, ORNAMENTAL TRUSSES, BRACKETS, MODILLIONS, PEDESTALS, VASES, &c.;

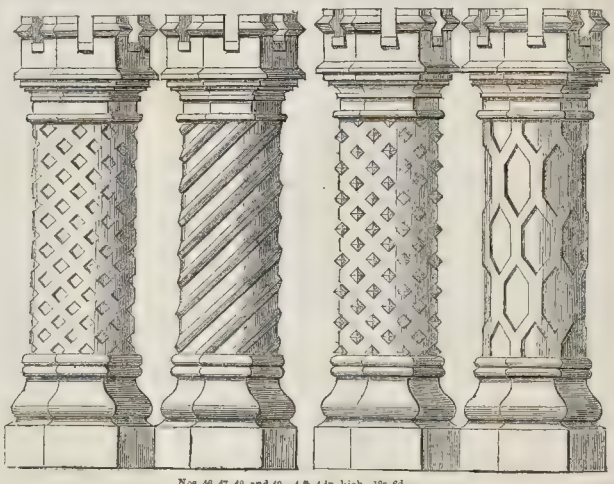
ALSO OF

TERRA COTTA CHIMNEY-TOPS,

In upwards of One Hundred Patterns, of various dimensions and of first-rate design, a few of which are given below,—scale half an inch to a foot.



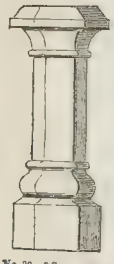
No. 67.—Wind-guard. 2 ft. 6 in.—10s.



Nos. 46, 47, 48, and 49.—4 ft. 4 in. high—18s 6d.
" " 6 ft. 0 in. " 25s 0d.
" " 9 ft. 0 in. " 60s 0d.



No. 65.—6 ft. 6 in.—7s. 6d.



No. 38.—3 ft. 4 in. — 8s. 0d.
4 ft. in.—10s. 6d.



No. 18.—Oblong or Square.
2 ft. 3 in. 3s 3d.
2 ft. 6 in. 3s. 6d.
2 ft. 9 in.—4s. 0d.



No. 24.—Wind-guard. 3 ft. 6 in.—3s.



No. 3.—2 ft. 0 in.—1s. 6d.
2 ft. 6 in.—2s. 0d.



No. 14.—2 ft. 6 in.—2s. 6d.
2 ft. 10 in.—3s. 0d.
3 ft. 8 in.—3s. 0d.



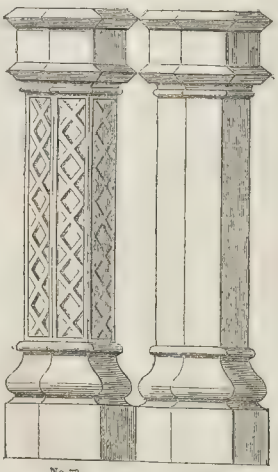
No. 13.—3 ft. 1 in. 4s. 0d.



No. 66.—Plain or Wind-guard.
3 ft. 10 in.—10s. 6d.
4 ft. 2 in. —12s. 6d.
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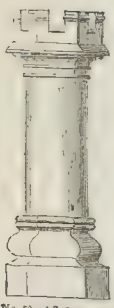


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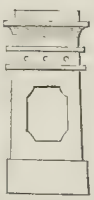




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The Builder.

SATURDAY, NOVEMBER 27, 1852.

IS it necessary to remove the National Gallery out of London? That is the question. And for the purpose of bringing the matter prominently forward, and preparing the way for the discussion which is to take place at the Institute of Architects on Monday next, we will give the pith of Mr. C. H. Smith's paper on the subject, read at the last meeting there. Mr. Smith will therefore be considered as speaking, until we interrupt his discourse. His object was to show that the present gallery might be altered and enlarged to meet all the requirements.

Much has been said about the pernicious and destructive influence of the London atmosphere on pictures, and much more might be asserted, without proving the truth of such statements. In all cases, colours that are mixed with any kind of oil must necessarily become darker and darker by time, in consequence of the natural tendency which that vehicle has to absorb oxygen from the atmosphere: some varieties of oil, it is true, absorb it much more rapidly than others, but, sooner or later, all fatty substances employed as menstrua in painting will certainly change to a dark brown colour. In this respect, so far as the atmosphere is concerned, precisely the same change would take place, whether the pictures were exposed to the air of Lombard-street, of Trafalgar-square, or of places far remote from the busy world's unceasing sound. Castle Howard, Blenheim, and Belvoir Castle, are baronial mansions placed in the midst of beautiful woodland scenery, at distances of eight or ten miles from any large town: they all contain numerous pictures by celebrated masters, which, to the best of his recollection, are in no better state of preservation than those in the galleries at Bridgewater House, of the Marquis of Westminster, in Grosvenor-street, or the many excellent pictures that have been kept for ages in the halls of some of the companies situated in the midst of the city of London. But the best evidence that he could mention, to show that there is nothing in the situation or atmosphere of London likely to destroy or injure the beauty of pictures, is that the nine pictures painted on canvas by Rubens, which form the main portion of the ceiling of the chapel at Whitehall, have been exposed to the atmosphere in the very neighbourhood of the present National Gallery, during a period of between two and three centuries, without the advantage of any particular care or attention, and that they are even now in as good a state of preservation as if they had been painted within the last twenty years.

We must all admit that a vast difference in the amount of our laundress's bills depends on whether we reside in town or in the country: similar remarks apply to the furniture of our houses, and to our habitations generally. To appear decent, a London house should be cleaned, or fresh painted, much oftener than one in the country, but this difference arises merely from dust or soot slightly adhering to the surface, which, in the case of pictures, may be easily washed off, once in a few years, without risk of their receiving the slightest injury.

For all useful purposes, London is the only proper situation for the Picture Gallery of the British people (it is Mr. Smith who speaks): were it erected a mile or two out of the metropolis, the number of students and visitors would decrease surprisingly, in inverse proportion to the increase of distance. If there be any appreciable objection to the air of London, it must be useless to think of removing the pictures anywhere within eight or ten miles of so pestiferous a place. But convinced, after much consideration, that it will be difficult to find a better locality, or a more commanding situation for a grand public building than the north side of Trafalgar-square, he proposed to proceed at once to the question, whether the present building, forming the National Gallery and the Royal Academy of Fine Arts, can be enlarged sufficiently to meet the present as well as the prospective demand for space; whether the principal elevation facing the south can be improved without great expense; whether the entire alteration and enlargement, when completed, are likely to answer the intended purpose; whether it will be worth the money it is likely to cost; or, whether it will be a waste of outlay, merely to produce a mean and unsatisfactory result.

Mr. Wilkins, the architect of the National Gallery, in his evidence before the Committee of the House of Commons, in 1836, suggested that a very considerable extension of the galleries might be obtained by the purchase of the dilapidated buildings which now occupy the site westward, at the back of the new houses in Pall-mall East. This addition alone would more than double the present space in the National Gallery. The site, however, that the speaker proposed to add was that on which now stand the workhouse buildings of St. Martin's parish, situated between Hemming's-row and Castle-street, at least an acre of ground, contained in a compact quadrangular, though not rectangular figure, immediately behind the portion allotted to the Royal Academy.

By an arrangement exhibited, six rooms or galleries, each averaging above 100 feet long by 40 wide; two, 55 by 40; three, 40 feet square, and a hexagonal room, say 45 feet diameter—or in other words, about eight times the space of the present National Gallery would be provided. The whole of these rooms would be on the first floor, that is to say, they would be nearly on a level with the present exhibition rooms, consequently there would remain the entire range of rooms on the ground floor of the proposed new building available for other purposes. He showed various improvements that might be made in the present building with its gloomy halls and staircases, but upon this we need not enter; the less so, as let what may be the opinion as to retaining the site, we are not very much disposed in favour of tinkering up the old building.

The public footway from Castle-street, through Duke's-court, to St. Martin's-lane, would remain in Mr. Smith's plan; but in order to connect the old with the new galleries, it would be necessary to build communications over Duke's-court, formed over the public way in two distinct places, at an elevation of probably 16 or 18 feet above the foot-pavement of the court.

It must be evident, he thought, that the accommodation thus proposed would be sufficient for a vast accumulation of pictures: is it, therefore, advisable to build galleries so very extensive, that they may probably remain empty for the next 100 years? But suppose all the rooms suggested to be erected on the site of the workhouse should become filled to excess with fine works of art within thirty or forty years, is it not highly probable, that during such interval an opportunity might offer to purchase the old buildings alluded to by Mr. Wilkins; or that the barracks, and the large piece of ground adjoining, which already belong to the Crown, might be vacated, for some spot more convenient for military purposes?

In reply to the second question, "Can the principal elevation be improved for a moderate outlay?" He was disposed to think that much might be done with the present materials, if differently arranged; in which case, the chief expense would be incurred for removing and refixing them. This, he thought, would probably not exceed the sum of 3,000*l.* or 4,000*l.*; but should it be considered impossible to amend the present elevation, and therefore desirable to pull it entirely down, to sell off the old stone, and to erect a new façade, with about the same amount of labour and materials, we should still retain possession of this fine situation, and the whole cost would not even then exceed some 15,000*l.* He had good authority for naming this sum, because he had made a detailed estimate of the masonry for Mr. Wilkins, and the contract for the external stone-work was taken for a trifle under that amount.

No galleries, which are decidedly erected for the display of paintings, should be architecturally decorated internally: plain, straight walls are most fit for the object in view. If ornament be admitted at all, it should be confined exclusively to the ceiling or covering; and in this respect many valuable hints might be taken from some of the recently constructed iron and glass roofs at the railway stations and termini. With regard to the exterior of the proposed additional buildings, the public thoroughfares of Duke's-court, Castle-street, and Hemming's-row, are not of sufficient importance to warrant any expenditure for the display of architectural design, not even to the extent of stone facing; therefore, perfectly plain brickwork, without break or recess of any kind, would suffice.

No part of the architectural profession, continued the speaker, appears to give so little satisfaction to the great body of artists and amateurs as that by which the architect arranges the mode of admitting daylight into picture galleries. Some of our most eminent professors have failed in this respect, and it was difficult to bring to mind any large room where the light is so admitted as to give general satisfaction to the artists who send their works for exhibition: he would ask, therefore, if this part of the subject is so difficult to determine, why not try experiments upon a large scale, at full size, and in the actual building during its progress? As soon as the general plan of the edifice is settled, the walls of one of the principal rooms might be built up to the full height, with as little delay as was consistent with sound construction. Upon these walls place a temporary roof or covering, with a superabundance of glazed

lights. Let the entire roof, and, as far as practicable, every part of it, be made to admit of a variety of adjustments or alterations: if there be too much light, it will be easy to modify it with sun-blinds where requisite. When these arrangements are ready, hang up a few large pictures to try the effect, and submit the experiment to a committee of artists, or other persons competent to form a correct judgment in such matters. If the first attempt should prove unsuccessful, try various other modes of lighting the apartment: it will be much better to spend a few hundreds, or even a thousand pounds, in experiments to ascertain the best mode of giving light to the pictures, than to finish the galleries at an immense expense, and, when they are completed, to find that the greater number of artists consider the pictures improperly lighted, and, consequently, that the building does not properly answer the purpose for which it has been especially erected. More useful information is likely to be derived from such experimental modes of procedure than from examining and comparing plans, sections, measurements, and descriptions procured of all the picture galleries in the civilised world.

With brick, tile, stone, slate, iron, glass, and various cements, the entire edifice may be constructed and finished, ready for the pictures, without an atom of what is usually termed inflammable matter in its composition.* Even the furniture and fittings might, to a very considerable extent, be manufactured with incombustible materials.

At the close of the paper the chairman, Mr. Mocatta, after expressing his opinion of the importance of the subject treated by Mr. Smith, especially with respect to the supposed injury occasioned to pictures by the London atmosphere, invited the artists present to favour the meeting with their sentiments on this point, in connection with the proposed change in the site of the National Gallery. If this were determined, it would not be difficult to provide for the reception of many more pictures than might be added for years to come to the national collection, and certainly there was plenty of available space for enlarging the existing building. The magnificence of the present site, and its central situation, would render it highly desirable to retain it if possible.

Mr. G. Foggo regretted to say that the last Parliamentary committee had rejected all the conclusions arrived at by previous committees, and recommended a change of site, without hearing any opinions to the contrary. The importance of having a National Gallery in the centre of the metropolis could not be overrated. He (Mr. Foggo) was a member of a deputation which had waited on Lord John Russell to solicit the removal of the cartoons from Hampton Court to the National Gallery. Until about twenty-two years ago, the keeper or deputy-keeper at Hampton Court was allowed a stove and coals to keep the cartoon gallery dry; and the fire, with the spray from the fountain in the court-yard, had produced more injury to these valuable works than they could possibly have sustained in London. He had strongly urged upon Lord John Russell the immense importance, in an educational point of view, of rendering the cartoons more accessible to the population of the metropolis, and his lordship rather warmly expressed a similar opinion. In fact, some of the cartoons had been brought to London for study at the Royal Academy and the British Institution, without especial injury. Mr. Smith, he believed, was perfectly right in stating, that the matter which settled on a properly varnished oil painting might easily be cleaned off without injury to the picture. It was well known to picture dealers, that when the re-paints and varnishes were taken from an old picture, it was often found "as hard as marble;" and pictures imported from the fine climate of Italy were never supposed to sustain injury from remaining ten years or more in the shops of the neighbourhood of the National Gallery. Indeed, if there were any truth in the idea, every nobleman and gentleman in London possessing fine pictures would at once send them away. The Duke of Northumberland's gallery was even in a worse situation than the national collection; and whilst the former was not supposed to have been at all injured, a picture by Hilton in the latter had suffered materially. Indeed, an entirely new picture, with the *magilp* which was now so freely used, would suffer more in the three months' exhibition of the Royal Academy than would a Raffaelle in a hundred years. All pictures, indeed, changed more in the first three months than in three years; and more in the first three years than in fifty years after. A faithful copy of an old picture, in like manner, would in a very few years be very much darker than the original; and if any part of a picture requiring it were repaired, the repaired portion soon became a dark spot. Some had said that the dust raised by the visitors to the gallery injured the pictures, but if that were so, they should not be exhibited at all; but in truth the grand object was that these great works should be seen and criticised by all classes of men, women, and children. Pictures were subject to atmospheric influences abroad, as in England, and the situation of the Louvre, especially in November or February, was much worse than that of our own National Gallery. The pictures there were very liable to be injured by the fog, which, though whiter than our own, often prevented the building being seen from the opposite quay; and there was more irregularity there in warming and ventilating than in London. The coal fires which darken the London fog maintain a greater degree of warmth and ventilation. In the dingy atmosphere of Holland the finest pictures of Van Eyck and others were preserved, even with the most beautiful glazings ever seen. More benefit would be done by offering premiums for good oils and varnishes than in building a new National Gallery. Admitting the darkening influence of the London atmosphere, Mr. Foggo contended that it was not confined to the centre of the metropolis. The sheep in Kensington Gardens and at Shepherd's Bush were as dark as in the heart of London.

Mr. Papworth, Fellow, adverted to the evidence of Mr. Faraday, to the effect that the national pictures were mainly damaged by the ammonia deposited upon them by the perspiration of the immense multitude of persons who visited them. Either Mr. Faraday was wrong in that conclusion, or another question arose; namely, whether such works were to be preserved unchanged as monuments of departed artists; or to be kept for the education and benefit of the people at large. In the latter case they should be allowed to do their work and perish, when they might be supplied by others.

Mr. E. T. Parris observed, that the supposed injury to pictures from the London atmosphere was rather to be ascribed to the mode in which they were originally painted. Besides the picture by Hilton to which Mr. Foggo had referred he (Mr. Parris) had observed that the painting by the same artist presented to the church at Newark, had cracked throughout in precisely the same way. Another picture by Hilton had actually run away,—having been described to him as actually "melting;" and the meeting would no doubt remember the painting of "Sabrina," by the same artist, in which the eye of the principal figure had fallen down upon the cheek, so that it was necessary to turn the picture upside down, in order that it might run back again. Reynolds, and other artists of his time, prepared their colours according to their own notions of chemistry; and, adopting the views of Vasari and others, they used boiled oil extensively, and with the worst effect. He (Mr. Parris) had recently restored some pictures at Norbury Park, Surrey, which, from being painted in the manner referred to, with a mixture of bitumen [pitch], had become perfectly black. The oil and bitumen being differently affected by heat and moisture, they could never coalesce. He was decidedly of opinion that the London atmosphere was not at all injurious to pictures.

Mr. Twining referred to the varying condition of the works of the old masters in this and other countries, as a proof that they were not deteriorated by atmospheric influences, but by some cause dependent on the manner in which they were painted. Even if the London atmosphere were injurious, no removal to a less distance than twenty miles could prevent the evil.

Mr. James Bell, M.P. Fellow, said that if the site of a New Gallery at Kensington had been actually secured, as had been stated, it would require the utmost vigilance on the part of the Institute to prevent the completion of the scheme. If, indeed, that plan were carried out, the cartoons at Hampton Court would be more accessible than the National Gallery. He would not call the proceeding referred to a job, though he could hardly describe it in other terms; and if Mr. Foggo had accurately characterized the proceedings of the last committee, the Institute would know what they might expect.

So far the proceedings of the Institute: and we will now glance through the evidence on the subject given to the Parliamentary Committee appointed in June 1850, to consider the present accommodation afforded by the National Gallery, and the best mode of preserving and exhibiting to the public the works of art belonging to the nation.

Mr. Uwins attributes the deterioration of the pictures to the dust and dirt of London, and advises the removal of the collection to Hyde-park, or some other place in the vicinity of London. "The smoke of London," he said, "certainly obscures and produces more dirt upon the pictures than is found in other cities: pictures do not preserve so well as they do on the continent, on account of the coal-smoke." According to Mr. Uwins's statement, the pictures are sponged and rubbed with a silk handkerchief every vacation.

Sir Charles Eastlake thinks the situation a bad one, and it is now much worse than formerly, because of the smoke from the engine which works the fountains, and from the Baths and Washhouses adjoining. He is not of opinion, however, that such dirt does really injure the pictures. Sir Charles also thinks that sufficient space might be found on the present site.——Dr. Waagen considers it is not possible to make such arrangements as to preserve the pictures properly in the atmosphere.

Mr. Faraday, the well-known chemist, thinks the atmosphere of London bad:—"The sulphurous vapours are in abundance in the atmosphere of London: they are everywhere present; and I have no doubt that even in this room they could be proved to be present by

* The pictures might be hung by means of a contrivance something like the mason's lewis; a number of cast-iron dove-tailed sockets, to receive the lewises, being inserted during the progress of the building, into various parts of the walls, where the pictures should be suspended, from which iron rods or bars would pass through the rings from one lewis to another, and from these rods small chains might be attached to the picture frames wherever requisite. If the lewises, or iron rods, should be occasionally in the way, and interfere with the arrangement of the pictures, the lewis might be taken out of the socket, leaving the wall free from any projecting object, and it might be re-inserted, at a moment's notice, whenever required by changes made in the arrangement of the pictures.

proper tests: there are also miasmata, or matters which arise in perspiration, &c. which, when they are decomposed by heat or otherwise, at all events give ammonia and sulphurous productions, and which, therefore, must exist in some form of sulphuretted vapour in their transit or in their ordinary state: we know not always, perhaps, what the actual condition of the organic miasma which arises is. The sulphurous acid which is directly in the atmosphere proceeds, to a very large extent, from the coal burnt in London."

He further says, "There is a substance which we call ammonia, which gains access into the London atmosphere in many ways, arising considerably from some manufactures, which would help very much either the sulphurous vapour or the miasma from the body, to injure the pictures, being one of those things which would increase the chemical action of the impure air upon them."

"I think," says the witness, "that to the extent to which you can remove them from the condition of the atmosphere at Charing-cross into a purer condition of atmosphere, so far you will save the pictures, and as far as you can, if that be an object, *diminish the number of persons who enter the Gallery* and look at the pictures: so far that will also tend to save the pictures."

Here arises the question whether it is better they should do their work with the masses and perish, or should be carefully preserved,—out of reach. A question which further suggests that there are two classes of pictures, and that it might be expedient to deal with them differently.

Continuing our reference to the opinions that have been given,—Mr. W. Coningham would be sorry to see the pictures removed from their present position, and considers that the present site is the finest in the world for the erection of a gallery.

Mr. Farrer thinks that the present is the worst situation which could be chosen, viewing the preservation of the pictures; but with regard to public convenience, that there could not be a better. "The whole of the smoke that comes from the Thames when the easterly winds prevail, is carried into the Gallery, and so extensively does that operate, that the statue which is erected to the late Sir David Wilkie is covered with soot, and so black that it seems quite ridiculous: the nose is as black as if soot had been rubbed upon it, instead of falling by accident. Another circumstance I may mention, which is, that I went into the room from which the pictures had been taken and removed to Marlborough House: I found at the back of the pictures a large quantity of dust: it is not the common dust from the road, which is easily got rid of, but it is positive soot, about a quarter of an inch in height, hanging at the back on those walls. Even the front of the building itself is covered with black: it is visible to any person."

The prevailing wind being from the west, the building should be placed farther west, to escape the smoke now blown into it.

Mr. Mulready is of opinion that the pictures are suffering greatly from being in the midst of smoke and bad atmosphere, and accessible to a larger number of persons at one time than are likely to be instructed by them.

Mr. Hurlstone, the president of the Society of British Artists, denies strenuously that any injurious effects result from the atmosphere of Trafalgar-square, and maintains that the central situation of a National Gallery is of vital importance, as without this condition it does not fulfil the object for which it was established.

We shall hear what is said on Monday.

CARBONIC ACID GAS IN VENTILATION.

It is as easy for some gifted souls as sliding down a declivity, to assume an antagonist's ignorance, and then to dash off into an elegant disquisition by way of clearing up the inky obscurity; but in these days of temporal calculation and economy, it is a pity to dilute good matter and to waste precious time by illuminating the ordinary daylight of the nineteenth century even with an electric flash, or to do what is destined incontinently to be undone. In the useless attempt to operate with a glittering array of saws and cutting instruments upon the sound extremities of a subject which, in its vitals, may or may not (as yet remains to be seen) be hopelessly unsound, your correspondent "E. L. G." will find, I fear, that he has only mangled the members of his own subject. I do not think that he is right in fearing that he "rides his hobby" too far or too fast, but I do think that, in showing out its paces, he might have been content to ride it without overriding and upsetting the plain sense and meaning of the few brief and condensed remarks in which my hint or suggestion was conveyed, and so going rather too far ahead, even in his own course, besides riding backwards right over it, as I shall show you he does. Nevertheless, although much of the matter contained in "E. L. G.'s" article* is based on an erroneous and somewhat hypercritical interpretation of my well-meant suggestion, and displays an anxiety to throw light upon what was not dark, still I think that the readers of The Builder are indebted to me for calling forth much of what, over and above all this, remains of useful remark and information.

Where did "E. L. G." discover that I either "miscalled" "foul air" "pure 'carbonic acid,'" or believed it to be so? "E. L. G." himself admits that it is the carbonic acid contained in foul air which "renders it poisonous." Foul air, then, so far as it is positively "poisonous"—so far, in short, as it mainly concerns us in ventilation, or whatever "E. L. G." may choose to call the present subject of discussion, *is*, essentially, "carbonic acid," however much *diluted*, though not, as "E. L. G." has it, "pure 'carbonic acid.'" When even chemists prepare a poisonous acid such as the hydrocyanic, or prussic acid, which, by the way, also contains carbon, they call it still prussic acid, however much diluted, or of whatever "strength" it may be, and no one but a hypercritic would ever object to this as either *miscalling* the compound or speaking *loosely* of it. Even in doing so, however, one would at least expect that all the looseness and all the miscalling was on the side of the alleged misnomer, and that his learned critic would at least take care that he did not "live in a glass house" while he was "throwing stones." In the present instance, however, the assailant has overlooked this necessity, while bent on aiming at his antagonist through his own unseen but transparent silicate. In doing so he loosely, no less than erroneously, states that I have miscalled "respired breath" carbonic acid. It is clear enough that he means what every one else, as he will find, more correctly calls "*ex*pired breath;" but he is rather "loose" here in his own meaning, while in one and the same "breath" criticising, erroneously and unfairly, an alleged loose expression of mine. Respiration is a twofold operation, consisting of the two distinctive acts of *in*spiration and *ex*piration. Carbonic acid, or foul air, is *ex*pired but not *in*spired, and hence, properly speaking, not *re*spired, unless, indeed, "E. L. G." adopts the idea for which he ridicules Dr. Arnott, namely, that "dilution of foul air with fresh" is a proper *pabulum vitæ* in *re*spiration, or rather that a draught of foul air "without" is fit and proper for this purpose.

* See page 717, *ante*.

Moreover, in enlightening "D.'s" ignorance as to the true constituents of foul air, "E. L. G." speaks of the portion of unaltered oxygen it contains, and also, if I mistake not, of the air-proper, or nitrogen; but he omits the aqueous vapour which, in greater or less degree, is also a constant ingredient of foul air. But it was needless to do so in the circumstances, he will doubtless think; and so it was,—precisely as it was unnecessary for me to be hypercritically exact on the same subject, and in the same circumstances. There is one mistake of "E. L. G.'s," however, not yet alluded to, which it is by no means unnecessary here to point out, inasmuch as it is one of some importance, and may lead him farther into error unless corrected. He will find, on a little farther research, that it is not the case that "fires and lights" yield "almost undiluted carbonic acid;" otherwise we should hear less of "smoke consumption." When means are taken to "consume the smoke" of fires, or even of lights, but especially of fires, they do yield "almost undiluted carbonic acid," but this is a most material qualification of "E. L. G.'s" unqualified assertion. On the whole, too, after all, it is somewhat amusing to find "E. L. G." allowing *himself* the privilege of regarding "foul air" *as* carbonic acid, while at the very same moment denying that privilege to "D." When he says that "No mechanical power—and no available chemical one but *the green forests*—can *separate* fresh and *foul air* once allowed to mix," what does he infer but that this "foul air," to be so "separated" by "the green forests," *is* carbonic acid, which is essentially what the green forests do so "separate."* From the pen of one who has handled carbonic acid in the solid state, as I have done, and poured it, in the gaseous state, like water, out of one vessel into another, even while still warm from combustion, and who never for an instant overlooks *it as the* positive and palpable poison, beyond all else, to be dreaded and be guarded against in foul air from the human lungs, perhaps the use of the term *may* come sometimes, for brevity's sake, a little too freely to be palatable to fastidious critics such as "E. L. G.;" but in the present instance he will find, upon referring to what I really did say, that although I spoke of "the management of carbonic acid gas as generated from human lungs," he is wrong in stating that I miscalled "foul air," even "carbonic acid," far less "pure 'carbonic acid,'" as he distinctly asserts.

Can it be possible, from his minute details as to the comparatively small quantity of carbonic acid diluted by the remanent oxygen, vapour, &c. in foul air, and—in his evident anxiety to make it "small by degrees and beautifully less"—even the still smaller quantity of *simple* carbon—innocent carbon, should I call it—in carbonic acid itself,—can it be possible, I say, that "E. L. G." is fully aware that "the continued respiration, for several hours, of air containing *not more than one or two per cent. of carbonic acid* has been found to produce alarming effects?" This being the case, what purpose can be served by enlarging in such a line of remark, unless it be to pooh pooh the subject of ventilation altogether; for such is the ostensible conclusion to which those who do ignorantly underrate its importance will but too readily jump, from elaborate and anxious deprecations and details so really and essentially irrelevant, as to either the absolutely or the relatively small quantities of carbon in carbonic acid, or of carbonic acid in the expired breath of a human being; and as to the necessity or non-necessity of "downward drainage," with which it is mixed up,

* Even here "E. L. G." may not be so positively correct as he imagines, if Dr. Graham be right in saying that "In an intimate mixture of two gases the most diffusive gas separates from the other, and leaves the receiver in the greatest proportion. Hence, *a sort of mechanical separation of gases may be effected.*" It is well known, too, that by capillary attraction, gases, *especially* liquifiable gases, of which carbonic acid is one, will pass through a sheet or bag of caoutchouc, and on the above law might thus be separated from common air. Moreover, there *are* available chemical powers, by which foul air *may* be separated from fresh; *e.g.* the power of hydrate of lime, which is actually recommended by Liebig for use in close places, as "E. L. G." might have seen in The Builder itself, for 12th July, 1851; and also by other chemists, even as a respirator over the mouth, of an inch in thickness.

and of which I have more to say anon, there is at least as much to drain downwards as there was to drain upwards in the first place; and still the question remains for discussion, whether the poisonous carbonic acid and its diluents expelled from the lungs in a walled and ceiled or roofed apartment, of whatever form, or under whatever possible arrangement for mere facilitation of exit, at least without the aid of additional heat, be not liable immediately to re-enter that apartment, together with the surrounding or adjoining fresher air, even after it has been poured into it.

It is all very well to enlarge upon the "exquisite adjustments" of nature in carrying off carbonic acid direct and buoyant from human lungs, and through the circumambient air, "away to the green woods," and "out of our way;" but "E. L. G." forgets that we are not here engaged in considering the exquisite adjustments of nature at all, but his own adjustments, which, however superior, *so far as they go*, to ordinary human adjustments, are not quite so exquisite as nature's.

I admit that such means as those suggested by me for completely preventing the "cooling" carbonic acid, as I have called it, or the "cooled" foul air, as I shall show that "E. L. G." has himself called it, from issuing out of the reservoir above the ceiling, where he admits it "rests," and is already "cooled," and into the open air, contaminating, or, as I have said, *polluting*, that air—of course by mixing or diffusing itself so far even then with it as it is about to enter the building or apartment whence the foulness had just issued, —constitute what "E. L. G." even in speaking of his own outlets, calls a "refinement,"—a theoretical refinement I would even call it; and in truth, when "E. L. G.'s" proposed internal adjustment for upward drainage shall have been practically and generally brought into use, we may have *comparatively* little to complain of in the way of want of ventilation; but assuredly it is not only allowable but desirable to look to even the theoretical perfection of such a system of ventilation (if I may still safely so call it) as that suggested by "E. L. G.;" and it still, I maintain, remains at least a question, even on his own admitted principles, as I shall now endeavour to show, whether or not the foul air got rid of so far by his upward drainage and outward vents, be not *then peculiarly* apt immediately to re-enter the apartment whence it was just expelled, unless it be entirely and finally got rid of by subsequent downward drainage, or by fire or heat, in chimnies, as, in other cases, he himself intends.

But, first of all, allow me to observe that "E. L. G." has a much more implicit faith in the certainly truthful, but still immature doctrine of the mutual diffusion of the gases, in this case, than I have. His assumption, by the way, of my ignorance of the existence of this law is not only totally groundless in anything I have said, but erroneous in fact. Indeed, had I really been ignorant of its existence down to so recent a date as 25th September last, when an article on "Smoke Consumption" appeared in your columns, I had then and there an opportunity of being warned of what, however, was really *my own previous opinion*, that implicit confidence or reliance ought not to be placed in the unregulated operation of this law, under circumstances analagous to those now under discussion.

Of the law itself "E. L. G." speaks as if it were a recent discovery by Faraday; but, still under investigation as it is, this is quite a mistake, as it also is to attribute to him the particular experiment referred to, which was, originally at least, one of Dalton's, and in which the carbonic acid and the hydrogen, instead of becoming mutually diffused in so magical a manner as "E. L. G." would have us believe, are said to have taken "a few hours" to do so; so that even though Faraday found these gases under such circumstances to mix with greater rapidity, we have here a discrepancy which only justifies us the more in hesitating to place implicit confidence in the general announcement of this law, under circumstances such as those now under consideration. But even though two such gases as *hydrogen* and carbonic acid be capable of mutual diffusion in "a few seconds," it does not follow that common air and carbonic acid are so. Professor Graham has found that "*the lighter the gas the more rapidly does it diffuse itself.** Thus hydrogen diffuses itself with five times the rapidity of carbonic acid." Why, then, pretend to give the ignorant "D." the *advantage* of *such* an instance, above all others, of the rapidity of diffusion? Why not have adduced the rate of diffusion between carbonic acid and common air itself? It would have been much more to the purpose to have done so, but would not have enforced "E. L. G.'s" own position so well: that is the fact.

The gases, according to the competent authority here named, just diffuse themselves according to the very same law by which we see vapours and volatile bodies diffuse themselves in the air—the lighter all the more rapidly, the heavier all the more slowly. Here we have a much more apt and appreciable visible illustration of this law than in "E. L. G.'s" rather far-fetched illustrations in oil. Carbonic acid, except *at* the moment it issues from the mouth, will diffuse itself much more like a heavy vapour than a light gas, whatever it may do under the free, unobstructed, and exquisite balancements and arrangements of nature, which "E. L. G." admits that even his own upward drainage has already overthrown, as I shall now proceed to show.

The attention and anxiety of "E. L. G." appear, in fact, to have been exclusively confined, in the development of his view of the ventilation of foul air, to "a ceiling so formed as to let it through without hindrance, and yet prevent its *return*, when cooled," by the vents through which it had just been let; so that "this part of every building (ought) to be contrived according to whatever our latest science may prove necessary to the free passage of light fluid through it from below, and its retention above when once through." So far from stating in his view that the foul air continues to possess the warmth requisite to enable it still, when it shall have reached the outward air, to rise by its own l vity, and so mix freely with the air "out of our way," "E. L. G." warns us that the ceiling vents should not be too large, so "that the foul air spread out in the space above the ceiling, *and* COOLED *so as to fall back and* REST *on the ceiling*, may have as little as possible of its base unsupported and ready to fall back through the vents should an interruption of their flow allow it;" for, moreover, as he tells us, "the foul air *loses all its upward tendency before many seconds*, so that it must not be played with;" and "farther," that "there is even an advantage in the foul air cooling and sinking a little after flowing out of the ceiling vents, as this ensures its not re-entering *them*."

To what purpose, then, but to lead both himself and others into error, does "E. L. G." now attempt to disprove the advantage or necessity of "downward drainage" from the "cooled" deposits above his ceilings, by inconsistent talk about "mixture with the surrounding air, which must, *before it has cooled*, have irrecoverably diffused it?"

So "cooled" does "E. L. G." conceive the foul air resting above the ceiling, as in a reservoir, to be, that he impressively points out that it must *be driven out*, as it were, *from behind*, by the *active* or still warm air as *it rises* through the ceiling vents. How, then, can this "cooled," or, as I less "loosely" called it, "cooling" air have still *all* that buoyancy which it has as it issues from the mouth, but which is "*only just* adequate" even then, as "E. L. G." himself reminds us, to enable it to rise directly and immediately in the air and diffuse itself out of our way? Will it not, on the contrary (and all the more quietly to leeward), "pollute," as I said, the fresh air adjoining, and just about to enter, the building or apartment whence it has just been *expelled* by force applied "behind?"† Moreover, how could it "pollute" that air, and not mix or diffuse itself in it? It seems to me that it required no such *recherché* knowledge of "the law of the mutual diffusion of gases" as "E. L. G." brings to bear upon this simple circumstance, to enable any one to know very well that the cooling carbonic acid and its diluents, pushed out into the air adjoining a house and polluting it as it is about to enter that house, must necessarily "diffuse" itself throughout that air, and have the air "mutually" diffused in it. How, then, did he come to assume my ignorance even of the fact of such mutual diffusion, at the very moment I was speaking of the fresh air being so polluted?

I had more of "E. L. G.'s" errors, both of commission and of omission, to deal with, but I fear that I have already exceeded the space you will allot me. I cannot conclude, however, without drawing particular attention to Ericson's alleged discovery of the extraordinary rapidity with which gases or vapours may be either deprived of heat or loaded with it. The law of the mutual diffusion of gases itself cannot be correctly and finally investigated and established without the closest consideration of this discovery, if it really be one; and it is reported that Ericson has not only had an enormous engine and ship constructed on the faith of it, but that he has already had such an engine successfully at work by means of it for many months past. Moreover, the alleged discovery is of marked importance in the consideration of the very subject under notice, namely, the final disposal of the foul air expired from the lungs. J. E. D.

* And note—this diffusion is not merely upwards, but *in every direction*, downwards inclusive, as "E. L. G." himself indeed admits.

† If "the whole power by which self-ventilation is kept going must be derived from the current through the ceiling vents," and it be "at the ceiling alone that any air is pressing to pass through from one space into another," so that "this current must precede and cause all the others, must be the sole motive power, both *to draw in* behind it *fresh* air through the inlets near the floor, and to drive out before it the foul air that has already got above the ceiling," as "E. L. G." so forcibly describes it, what does he mean by "the supply of fresh air coming necessarily from windward?" If it be drawn in by a power in the interior, it will come from leeward just as much as from windward.

EDUCATION IN ART.

On the 24th inst. Mr. Henry Cole, as General Superintendent of the Department of Practical Art, delivered an introductory lecture at Marlborough House "On the Facilities afforded by the Department to all Classes of the Community in obtaining Education in Art."

The School of Design, out of which this department has grown, said Mr. Cole (after some introductory observations), was founded in 1837. During an existence of fourteen years, some twenty branch schools in many of the most important seats of manufacturing industry have been established. The School of Design had been founded expressly with the commercial object of improving the patterns of manufactures. It sought to do this by affording education in art, especially to artizans, and to artizans only. From time to time attempts had been made, in various ways, to limit the education to that class of the community; but these attempts thus to circumscribe the action of the schools, arising upon a mistaken and imperfect view of the work to be done, did not succeed. Private classes, or classes consisting of students probably not artizans or designers, were noticed by Mr. Poynter, the late Inspector of the Schools of Design, in his last reports, as existing at Leeds;—at Manchester, where the admission of artists was stated to be "calculated to extend the influence of the school, and to identify it with the arts in general in the public estimation;"—at Newcastle;—at Norwich, "the Grammar-school Class;"—at Nottingham;—at Sheffield, "private classes beneficial to the school by increasing the number of its supporters;"—at Glasgow, "a life class, principally attended by artists," which "tended to raise the importance of the schools;"—at Dublin, "where there was a considerable attendance of female students qualifying themselves as governesses with the purpose of going to America;"—at Belfast;—and at Cork, where there was a small private male class, three students being from Queen's College. These facts proved a desire on the part of the community generally to participate in the advantages of the schools, and that the limitation was wrong and ineffective.

The proposed object was the improvement of the artistic qualities of our manufactures; and the schools taught the artizan, so far as he could be induced to come to them after a weary day's labours. Many points needed solution before designs for manufactures could be improved by wearied artizans, fagging at elementary drawing on winter evenings. It might be asked, What part does the artizan act in the production of manufactures? and answered, Simply to perform, almost as a machine, what his employer directs him. Does his employer—the manufacturer—want the artizan's greater education in art? Are the manufacturer's commercial transactions hindered for want of the better art? Is he sensible of the want? Is he a competent judge of the better art if it were placed before him? As better art involves labour of a higher grade, and therefore increased cost, is he willing to embark increased capital in its production? Before we answer even these questions, others still seem to claim precedence. Why are manufactures produced? Why are more cotton fabrics woven than silk ones? Why are woollens manufactured at one season and cottons at another? Why does the manufacturer decorate fabrics for the South American market in one way, and the metropolis in another, making a difference even here between the west and east ends? Why does he sell a calico of one quality to Messrs. Hardings, or Swan and Edgar, and one of different quality to the retailer at Whitechapel? The one answer to all such questions is, simply because it is the will of the consumer. The manufacturer, if he would, has really no option about serving this consumer. He simply obeys his demand: if it be for gaudy trash, he supplies it; if for subdued refinement, he will supply it too. The public, according to its ignorance or wit, indicate their wants, the manufacturer supplies them, and the artizan only does what the manufacturer bids him. The improvement of manufactures is therefore altogether dependent upon the public sense of the necessity of it, and the public ability to judge between what is good and bad in art. Years ago, as I have said already, it was determined that an improvement in the artistic features of manufactures was necessary, and was a proper national work to be undertaken by the Government; and, since the Exhibition of 1851, this view appears to have become strengthened. To give increased effect to this conviction, this department has been established. Our first and strongest point of faith is, that in order to improve manufactures, the earliest work is to *elevate the Art-Education of the whole people*, and not merely to teach artizans, who are the servants of manufacturers, who themselves are the servants of the public. Our first object, therefore, has been to devise means by which the department may promote all the several interests involved in the improvement of public taste,—the interest of the public, as consumer and judge,—the interest of the manufacturer, as the capitalist and producer,—and the interest of the artizan, as the actual workman.

In an age of transition like the present—especially in this kingdom, where every one is free to hold his own opinions on all subjects,—politics, religion, taste, and everything else,—traditions are not respected unless they are upheld by the convictions of instinct and reason. And it is a national conviction, that the surest road to the formation of right opinions is through good education. General education, as the best means of making us religious and right-minded in morals and politics, is now fully admitted, although the system for affording it may be carried out imperfectly. Thinking men seem to be convinced, that an elevated public taste, like sound morals, is only to be obtained through education. At last we are beginning to be sceptical of the soundness of the old proverb, "Every one to his own taste," as though this taste was a property, where each, whether wise or foolish, whether actually blind or having only eyes that cannot see, was free to settle the boundaries. We have still committees of taste consisting of men who cannot even draw straight lines, and are therefore unable to prove that they even see them, and they dictate to men who may have spent years in studying the principles and practice of art. The artist may be a very imperfect one, but surely he knows more than the man who never used a pencil. Still public intelligence is beginning slowly to admit that there is no royal road to a knowledge of art, and that, like language, or mathematics, or chemistry, art must be learnt, and indeed can only be learnt, by slow degrees. The Government has now arrived at that conclusion, and has broadly affirmed the principle that elementary knowledge of form and colour shall be part of the national education; and this department is charged to carry this important principle into effect.

We are devising gradually a course of proceedings, by which we hope to enable all schools in the United Kingdom, even the most humble, to acquire this elementary knowledge; but it will be a long time before a system approaching to completeness can be matured. In the meantime, however, some little in a right direction can be done everywhere, as well in the school of a distant country village as in one in the metropolis.

Preserving the principle of a partnership and mutual action with the public, the Board of Trade has determined that every public school of an eleemosynary character shall be able to obtain a stock of drawing copies and models at half their cost price. We are collecting the best examples from all parts of the continent. We are examining all systems, and, without prejudice for any, endeavouring to form a catholic judgment upon what may be most deserving of recommendation. We have already prepared a list of objects which we do not hesitate to recommend. Gradually we shall be able to improve this list, but in the meantime there is something to act upon. Every one, therefore, interested in the management of a public school, may obtain the whole or any part of the objects in this list at half prime cost. For a single sovereign's-worth of these objects, we have already sent examples to poor village schools, managed by self-sacrificing clergymen, who act as the patriarchs of their parish on stipends of 100*l.* a year! We are preparing a manual to show how these models and examples may be used by teachers who have not learnt drawing. We are organising a body of teachers who shall visit schools possessing these objects, and demonstrate to the masters how to use them. Our proceedings can only keep pace with the supply of qualified teachers; upon whom, it is obvious, that all effectual measures must depend. But we are not insensible to this want, and are endeavouring to provide for it, and we hope, from the several training schools, to obtain a corps of masters who may be able to acquire the power of imparting elementary instruction in the principles of art, as they do in other branches of education, and yet may not themselves be pre-eminent artists. A perception of the metaphysics of teaching is more important than the mere skilful practice of the thing to be taught. An expositor may be clear, although a clumsy manipulator. To teach children how to see straight and curved lines, to know a sphere from an oval, and to prove that they know it by drawing it; to show them how to perceive that most objects appear with light and shade, and that there are colours in the world which may be artificially brought together well or ill, according to certain laws, requires only ordinary intelligence. It is not imperative that every one should be an incipient Raffaelle to teach these things.

Where a locality has a sufficient number of schools to justify the appointment of a master to visit each school in rotation, and is willing to pay at the rate of 5*l.* a year for each school for a lesson to be given once a week, there we shall appoint a competent master as soon as we have trained him; and we have already commenced this system at the National Society's School, in the Sanctuary, Westminster, and at a large school for adults and children near the Charterhouse, conducted by the Rev. W. Rogers, and numbering several hundred students.

The speaker then treated of Distinct Schools for Elementary Art; advanced Schools for Technical Art Education; and the Special Classes at Marlborough House. Under the second of these heads, he properly urged that the manufacturer must be led to support them, not for charity's sake and an affectation of promoting the arts, but because they are indispensable to his own progress. When a calico printer feels that his son, a future partner in his firm, is disgraced at being far below in knowledge of art the artizan whom he assumes to direct, then he will send his son to the school of art, and pay adequately for his instruction; but so long as the school is organised chiefly for the artizan class, and the rich manufacturer supports it as a charity, and with that pride that apes humility, he will not send his children there. Gradually, however, the eleemosynary system is changing for a self-supporting one, and it has been and will continue to be the effort of the department to convince the local committees of the necessity of this change. Unless they are content that their rich localities shall remain state pensioners for art education, and falsify all their professions of local independence, they will rouse themselves to make it.

WANT OF MEANS FOR THE IMPROVEMENT OF ARCHITECTURE.

It cannot but be considered as a defect in the system of education in England, that the study of the arts (architecture, of course, included) does not form a part of the intellectual training of all classes of the community. In fact, in the majority of our schools, public as well as private, the study of the arts, as a necessary branch of liberal education, is almost entirely neglected, or so imperfectly imparted as to be worse than useless. As far as architecture is concerned, it is true that we have a few public schools, such as the London University or King's College, to which architectural professorships are attached, but the advantages offered by these institutions are of too professional a nature to render them of much benefit to the public generally, except to those who are studying architecture with a view to ultimately following it as their calling in life. To those the opportunities of acquiring knowledge afforded by these institutions are invaluable; but as a means of advancing architecture as a popular study, the range of subject treated upon is far *too* professional to meet the exigency referred to. It cannot be doubted that great good would be the result, if the study of the arts, and especially architecture, were to be made a part of the education given in our schools. The success which has attended the various artizan and other schools, established for the express purpose of affording such instruction to the working classes, is a convincing proof that they are by no means backward in availing themselves of those opportunites for instruction which are placed within their reach.

On another ground, and an important one too, the advantage of architecture forming a branch of ordinary education may be urged. It would early determine whether or not those who propose to follow it as a profession in after life are qualified by natural inclination and talent for the successful practice of it. Perhaps there is no evil connected with our profession which requires so great a reform as the system by which young men are, nominally at least, made architects, and drafted into architects' offices as articled pupils for five or seven years, regardless alike of either talent or inclination, and whose only claim to be devoted to the profession thus blindly chosen for them is, frequently, that their parents are able to afford a few hundred pounds to article them, from an erroneous idea on their part, that by so doing they are at least providing them a respectable position in society, forgetting that they are perhaps storing up nothing but disappointment for them in after life, by the very means which they intended for their ultimate welfare. This is a serious evil to the public as well as to the profession, and one that is not likely to be remedied until the public are

convinced that an architect means something more than a mere mechanical draughtsman, and moreover, until architects themselves set their faces against the system of receiving pupils into their offices, for the sake of a tempting premium, without first having some reason to believe that those they take upon themselves the responsibility of teaching are in some degree, at least, fitted to receive their instructions.

It is of the greatest importance that architecture should be made an especial branch of university education, not only because a knowledge of it would then necessarily be imparted to those influential classes of society who receive their education there, but more particularly that the clergy, as a body, would have opportunities afforded them of acquiring a more extended knowledge of the subject than they at present possess, so that by affording them a liberal course of architectural tuition, many prevailing prejudices which now exist in their minds might be removed.

At the same time that we deplore the few opportunities which are offered to the public for acquiring a taste for architecture, it cannot but occur to us as a great evil that such facilities as we do possess, and which might be made the means of cultivating that taste, are almost entirely lost to them, from the numerous obstacles which are placed in the way of their profiting by them. I more particularly refer to the all but inaccessibility of the majority of the public buildings of this metropolis. I would advert, too, to the jealous care with which students, and others who are interested in the subject, are excluded from buildings while in progress, which, from peculiarities of construction, or otherwise, might afford advantageous opportunities of acquiring practical knowledge: undoubtedly, more is to be learned of the practical part of architecture by studying buildings while in progress than by almost any other means which a student possesses of obtaining such knowledge.

What is needed to place architecture on a proper footing in the public estimation, is an institution of a more national character than has previously existed, and one which the public generally will respect,—an institution exclusively devoted to architecture,—an institution in which, by the advantages it should afford, architecture as a fine art might become a more popular study than it is at present. It is of the greatest importance that such collections of architectural works as we already possess, in the various museums and elsewhere, should be made more available than at present for the purposes of instruction and reference. For instance, there is the Soane Museum, it is impossible to believe that it was ever intended by the munificent founder of that valuable collection of architectural antiquities that it should be only accessible to the public two or three months in the year, and that too only on certain days. C. Gray.

NOTES IN THE PROVINCES.

Bury St. Edmunds.—A scheme for the amalgamation of the Mechanics', Young Men's, and Archæological Institutes and Museum of Bury, on an enlarged basis, has been revived, or rather suggested, by the Rev. Lord Arthur Hervey, in a letter to the different institutions.

Bishop-Stortford.—The first stone of an infant school-room was laid at New-town, Bishop-Stortford, on Saturday last, by Miss Rush, of Elsenham Hall, Essex. The building, which is to be 45 feet in length, and 20 feet in width, is to be erected by Mr. W. H. Young, of Bishop-Stortford.

Sheerness.—Great fear for this town was felt during a recent unusually high tide, which came over the sea-wall, near Banks-town, in an alarming manner, and required bags of sand to be placed on the wall, which is the property of the Board of Ordnance, and requires to be heightened and rendered more secure, as we have before noted.

Bristol.—It is pretty well understood, says the *Globe*, that Bristol will be the port of arrival and departure of the immense ocean steamers which a recently-formed and wealthy metropolitan company are about to construct for the purpose of plying between this country, Australia, and, it is believed, the United States of America. The survey which has been made of the entrance of the Bristol river, at which it is proposed to construct very capacious docks, is one of the most minute that could be made. The official report of the surveying engineers has not yet been made, but it has transpired that they have selected a site below the lighthouse on the Gloucestershire side of the river, as presenting physical and engineering advantages over the opposite or Portishead shore.

Cardiff.—The local carpenters and house joiners have taken preliminary steps for the formation of a mutual benefit society in cases of sickness and of want of work.

Swansea.—Another spacious dry dock has been commenced here, near the old pottery. It is to be named the "Villiers Dock." Its length will be about 280 feet, and it will be capable of admitting a ship of 40 feet beam. The contractor is Mr. John Kirkhouse, and it is expected it will be completed about April. The Phœnix Dry Dock is rapidly approaching completion. This dock measures 191 feet 8 inches inside the gates, and commands a breadth of 38 feet. It was built by Mr. David Griffiths.

Llanbrynmair.—The foundation-stone of St. David's New Church, Dylife, parish of Darowen, was laid on the 4th inst. by Mrs. Pughe, of Craig-y-don, Aberdovey, "assisted by her sister, Miss Williams." The building is to be erected at a cost of 750*l.* and, when completed, will contain 200 seats in the area. The plan of the church consists of a nave, a chancel, a vestry-room, and south porch, in the Norman style.

Macclesfield.—On Thursday evening week, the first of a proposed series of concerts in behalf of public parks, and a free library for Macclesfield was held. The committee announced a subscription of 100*l.* from Mr. J. Brocklehurst for this purpose, and another of 25*l.* from Lady Egerton.

Runcorn.—Halton Church, Runcorn, was consecrated by the Bishop of Chester, on 12th inst.

Liverpool.—Mr. J. Grantham, consulting engineer, of this town, according to the local *Chronicle*, has suggested a plan for the better conveyance of goods to and from the docks, and the discharging and loading of vessels, by means of a high-level railway, with branches to the railways, timber-yards, coal-yards, warehouses, and all other places where they may be required. The main line is to be elevated about fourteen feet from the ground, upon cast-iron columns and wrought-iron girders, planked over like the deck of a ship. There are to be two main lines for the passage of the trucks, up and down; and at all the sheds and timber depôts sidings for the trucks to stand while loading and discharging. To draw the carriages, Mr. Grantham proposes, in the first instance, to employ horses to work at a speed of two and a-half miles per hour, as a general rule. Experience would be the best guide as to how far a greater speed and a substitute for horses might hereafter be found desirable; and how far such a conveyance could be adapted to passengers time alone would show. The sheds would be worked by hydraulic cranes. The cost of the scheme, exclusive of ground, he estimates to require an outlay of about 350,000*l.* He calculates on the removal of 4,000 tons per day, on different parts of the railway, which, at an average profit of sixpence per ton, would pay nearly ten per cent. on the investment. As the matter now stands, such a project could only be carried into effect by the dock trustees.

Birmingham.—The chief stone of a new chapel, in Bishop-street, for the use of the expelled members of the Methodist body, was laid on Monday in week before last. The chapel (which is from the designs of Mr. Yeoville, of Birmingham) will be a plain edifice, in the Italian style, and built chiefly of red brick, having moulded cornices, sills, arches, &c. composed of blue brick. The interior will present a plain appearance, and will accommodate from five to six hundred persons, all the seats being open. Mr. Josh. Baxter is the builder.

Wolverhampton.—The town council of Wolverhampton have under consideration an offer made by the Coalbrookdale company to sell to the corporation for 150*l.* one of the fountains which they had exhibited in Hyde Park, and which the Markets' Committee have decided would be not only ornamental but useful in the centre of the Market Hall, now in the course of erection.

Leeds.—The property of the Leeds Waterworks Company has been transferred to the corporation. The total amount due to the company up to 18th inst. was 165,206*l.* odd, and the corporation are having loans negotiated for the purchase-money.

Newport (Isle of Wight).—Efforts are being made to raise funds for the rebuilding of St. Thomas's Church here.

Blyth.—The *Shields Gazette* states that this place has been lighted with gas, the Blyth Joint-Stock Gas Works having been opened on Friday week.

Blaydon.—The inhabitants of the thriving villages of Blaydon and Stella, according to the *Gateshead Observer*, have resolved to erect a gas manufactory, and are considering the practicability of supplying the villages with pure water and improved streets and footpaths.

Hawick.—An extensive enlargement of the gas work here is in progress, and meanwhile the town is for a week or more deprived altogether of gas-light. The supply hereafter, it is believed, will meet a very large increase of demand for many years to come.

Dundee.—The Hunter-street Free Church was opened on Thursday week. The building is situated in Hunter-street, Hawkhill, and is Perpendicular in style, the gable being toward the street. It contains 520 sittings, with provision for extension, and costs something under 600*l.* The architect is Mr. James M'Laren, of Dundee.

Forres.—Contracts have been entered into for the erection of new premises here for the Caledonian Bank. The site is in High-street, near the centre of the town, where the Royal Hotel formerly stood. The building is designed in the Italian or Paladian style of architecture. It is three stories in height. The bank entrance in the centre of the front on the ground floor, is enriched with Roman Doric pillars, there being two windows on each side finished with corresponding pilasters, which project sufficiently to form a balcony for the windows above, with stone balustrade and piers. The other two floors have five windows in each, ornamented in the composite order, with square pillars and fancy capitals, and half-circular pediments. The whole is to be of white polished freestone from Spynie or Nairn quarries. The cost of the erection and site will be between two and three thousand pounds. The plan was furnished by Messrs. M'Kenzie and Mathews, of Elgin, architects. The successful competitors for the contract were, Messrs. John Hendrie, builder, Inverness, and John Mackenzie, carpenter, Elgin, jointly for the whole. The buildings are to be finished previously to Whitsunday, 1854.

Elgin.—A Free Church, the second in Elgin, is to be erected in Guildry-street, in harmony, or at least connection, with the street improvements in that part of the town.

Postage of Newspapers.—We have frequent complaints by subscribers, and requests for explanation of the circumstance, that while their copies of The Builder are sent to them any number of miles beyond three from London free, a charge is made so soon as they come within three miles of the General Post-office. The chief reason for this anomalous charge we presume is, that metropolitan purchasers of newspapers may thus be obliged to send to the publishing offices for their papers, or at least that they be prevented from deluging the General Post-office with the whole of the metropolitan newspaper circulation. The reason, however, is at best but an inconsistent one.

DEPLORABLE STATE OF ST. PAUL'S CATHEDRAL.

THE frankness with which you permit suggestions to appear in the columns of your journal, emboldens me to solicit your permission to direct the attention of the public to the state of the *exterior* of St. Paul's Cathedral, in the hope that something will be done to check the gradual decay of the finely-proportioned entablatures, pediments, and other portions, which decay is being daily augmented through want of a proper precaution against the destructive action of the atmosphere. In the present instance I am not so much urging a restoration of the many obliterated ornamental mouldings, vases, &c. as that of preventing the rain penetrating the innumerable *open joints* of the *masonry*. No person can walk round the cathedral without observing the absence of cementing matter between the stones: for example, the western pediment, the north and south porticoes, the south front next Paul's chain, the west front of the south transept, and the balustrades, have all open joints and many open settlements, which are *daily admitting the rain and moisture*. I beg to recommend that these joints be neatly stopped, and pointed with a Portland or other cement, to accord with the colour of the stone, but on no account with compo, or Roman cement, which has formerly been too freely applied. If a charge of sixpence were made for each ticket to view the interior (now it is illuminated), the cost would be soon met.

W. P. GRIFFITH.

THE SPECTRE OF TRAFALGAR-SQUARE.

IN the mist of Thursday morning, long before a gleam of sunlight paled the lamps, the Spirit of Britons was astir in the village of Charing,—turbid masses were crowding every access, and even the house-tops showed a moving sea of mortal life—the column stood majestic, half revealed, its head still shrouded in the mournful night.

Contemplating the scene from Martin's porch, a voice unearthly seemed to emanate from the stone effigy that crowns the pile: unlike the tones of life, each sentence fell in petrifying periods on the ear—heard, perhaps, but by few.

"Ho! Hardy, whence this row? See! all my pensioners are on the move: troops—blue-jackets — and Horse-guards, all astir! What of the Admiralty? The telegraph is still! No indication there of victory—nor action!

My glass.

What do I see—a Roman triumph? No; a bier—a warrior, high panoplied in state, with blazonry and pomp—laurels and flags; but chiefly the device '*Virtutis fortuna comes.*'

'Tis well. A nation's gratitude is best evinced by pageants such as these: they honour most themselves by a just tribute to a hero's worth. The legend is significant: what if 'twere mine? It were more fitting than the one I chose—'*Ille palmam qui meruit ferat.*'

Had Fortune linked my life and last exploit—then England, grateful, would have honoured me! Her fame I only sought, and not the crown. To wear a diadem a man must live; but Fortune left me in the arms of death—a victor.

Hold! let me not complain. Yes, here is a memento done in stone, a monumental column high upraised; three of my battles, too, in perennial brass! How of the blank—the vacant tablet? The lions on the base—not chiselled yet! Still there's *Trafalgar* Square. No, no, I'm not forgotten,—they never can forget my talisman,—the signal of the fight which fast secured supremacy to Britain on seas,—'*England expects that every man will do his duty.*'

Yet there was one bequest I left my *country* in the hour of death; for after *her* but one affection rooted in my heart,—it was my child, Horatia!

Her plaints have swelled to heaven, for she pines in indigence, the church to her no sanctuary."

Three shades from Hades joined the hero now,—the noble Pellew, gallant Collingwood,—but all were silent, when devoted Byng, with finger to his lips, admonished them in pithy adage—"Comrades, ne'er expect *rewards to lions dead.*"

A fourth wound up the scene,—'twas Glascock, who had lately joined the *martyred navy*: with arms crossed and lowered front, having pulled off his glory, the veteran in solemn accents said,—"Brave Admirals! your victories will ever live in fame: death shuts the gates of recompense on earth, but there's a higher aim;—for this I toiled and wrote—I said, when cautioned of my labour lost, 'Don't mind, 'twill tell *aloft!*'"

At half-past eight o'clock the procession summarily dispelled my vision or reverie. The Rifles most appropriately led the line in solemn step, and the "*mise en scène*" was admirably *conserved*,—but where were the companions in arms, many of whom, although decorated with many orders, are now out of the army? Several there are who served throughout the Peninsular campaign, and lastly at Waterloo, whose presence in their old uniforms would have added dignity and solemnity to the ceremonial: these veterans, worn and wounded (by more than bullets), marching in file, according to seniority, must have produced an effect which no pomp could supply. Some are retired to farms, cottages, and country quarters, who preserve only the rank—that is indelible. One I know, who, having been in Egypt, throughout the Peninsular, and at Waterloo (where he was wounded), is now an inmate of Mr. Huggins's Charity, near Gravesend! Such a homage by such a squadron would have touched the heart!

The last observation is as to the *unseasonable* hour chosen for the outset. It was cruel, and inhuman as it was unnecessary, to summon two millions of people from their beds before break of day,—and for what purpose? that the whole should be over before noon which was begun before day. In this there was a want of judgment in the authorities, as well as a gross absence of respect to the public; and many hundreds will have to deplore, in suffering and anguish, that day's endurances!

To be effective, a procession should be on foot; therefore more of an ovation, and less of a triumph, would have been more suitable.

BEN MIZEN.

STONE FOR CARRIAGE-WAYS.

I HAVE frequently remarked the slipperiness of the granite pavement in London under horses, and have been surprised that the use of such stone is continued. When iron heels for boots were in fashion, I found it very necessary to use caution in walking on the granite-flagged footways of Dublin, and sometimes, notwithstanding, made dangerous stumbles. I was soon aware of the cause. The hard smooth lumps of quartz imbedded in the softer felspar are soon made to project by the wearing away of the latter and present little round smooth surfaces, against which iron has very little friction. Hence it is no wonder that horses frequently fall on such pavements. These animals in London seem unable to take any hold of the ground. Their difficulty in drawing loads up an acclivity seems to arise more from the slipping of their feet than the resistance of the weight; hence I think arises the necessity for the great amount of animal power applied in London to the moving of moderate loads, which has often astonished me, and also for the putting on the drag on slight declivities. In Dublin, though there is abundance of granite of all degrees of hardness in the neighbourhood, it is never used for paving the carriage-ways of the streets. A black argillaceous limestone, of no good quality, in my opinion, is preferred, a stone of so little durability in buildings that I have sometimes pushed my umbrella several inches into it in the old walls leading to the Pigeon House, though if well selected it answers pretty well for architectural purposes. However, in the pavement it has none of the slipperiness of granite. Indeed, if we observe the good polish which granite exhibits in both Egyptian and modern sculptures, we must see at once how unfit it is for contact of horse-shoes.

In Cork, the stone used for pavements is a variety of the old red sandstone, of which different stratifications differ both in quality and colour. They are generally either of a purplish or brownish red, or of a lighter colour, varying from grey to green. They also differ greatly in hardness and durability; but these qualities can be known at once from their appearance. The stone which breaks in solid masses with in general a right-angled fracture is very hard and durable. I never saw, in the oldest building, a stone of this kind which seemed to have yielded in the smallest degree to the action of the elements. In texture, also, it differs from the softer kinds: its surface is rough and gritty—qualities which, together with its hardness, peculiarly fit it for pavements. The other sort seems to have been originally formed of a finer material. It breaks with much more acute angles, and in flatter masses, sometimes in great flags, which are used as foundation stones, covering a large breadth of ground, and thereby preventing the wall raised upon them from sinking. This kind of stone, however, is much softer and less durable than the other, and also much smoother in its texture. Hence, it is much less fit for furnishing paving-stones. Some of it lasts very well in walls, some of it very badly, and, strange to say, not much better by being laid with its stratification in a flat position. As both kinds often occur in the same quarry, they are often used together in the same wall. I believe this is the case in the round tower of Cloyne, which is at least 700 years old and perhaps much more, yet the stones show no symptoms of decay. I should mention that both kinds—that is, the rough, solid, or hard, and the smooth, slaty, or soft kinds—may be of any of the colours before mentioned.

As stone is generally harder the deeper its situation in the quarry, so in making a tunnel at Cork for the Great Southern and Western Railway, under a hill of this rock, which is near 400 feet high, it seems that the stone is found of unusual hardness. At least it has been pronounced by one of the engineers to be the hardest stone he ever saw. I have been examining a great block of it blown out by gunpowder, half of it of the rough kind, and half of the smooth kind, adhering to each other, as one stone. To shape this kind of stone with the chisel is too difficult and expensive for this country, and therefore the paving stones are usually obtained on the sea coast, where they have been rolled into some sort of shape, as well as proved in their quality by having resisted, to a certain extent, the grinding operation of the sea. These are also harder than stones taken from the quarry, as is usual with all stones exposed for some time to the atmosphere. The interstices of the pavement are filled with earth, and the whole is covered with gravel of the same kind of stone, which the traffic forces into the interstices, and the surface soon becomes hard and never slippery. It must be confessed, indeed, that much of its safety may arise from the very imperfection of its construction. Such pavement, however, would soon be destroyed in the great thoroughfares of London. Its cost is only one shilling per square yard, that is, about one-fifteenth of the cost of the London pavement.

It seemed to me a strange sight when Blackfriars-bridge was altered, to make its roadway more level. In Cork or Dublin its former inclination would have produced no difficulty, no slipping of horses' hoofs going either up or down, and this must arise in a great degree, though not entirely, from the roughness of the stone. I should think there must be plenty of the old red sandstone in Devonshire and Scotland of the same quality as that which I have described, and which might be brought by railway to London, where boundless wealth would enable it to be hewn into rectangular blocks, as is now done in the case of the slippery granite. An alteration of this kind would render unnecessary the proposed viaduct at Holborn-hill, in London.

T.

THE EGLINTON LUNATIC ASYLUM, CORK.

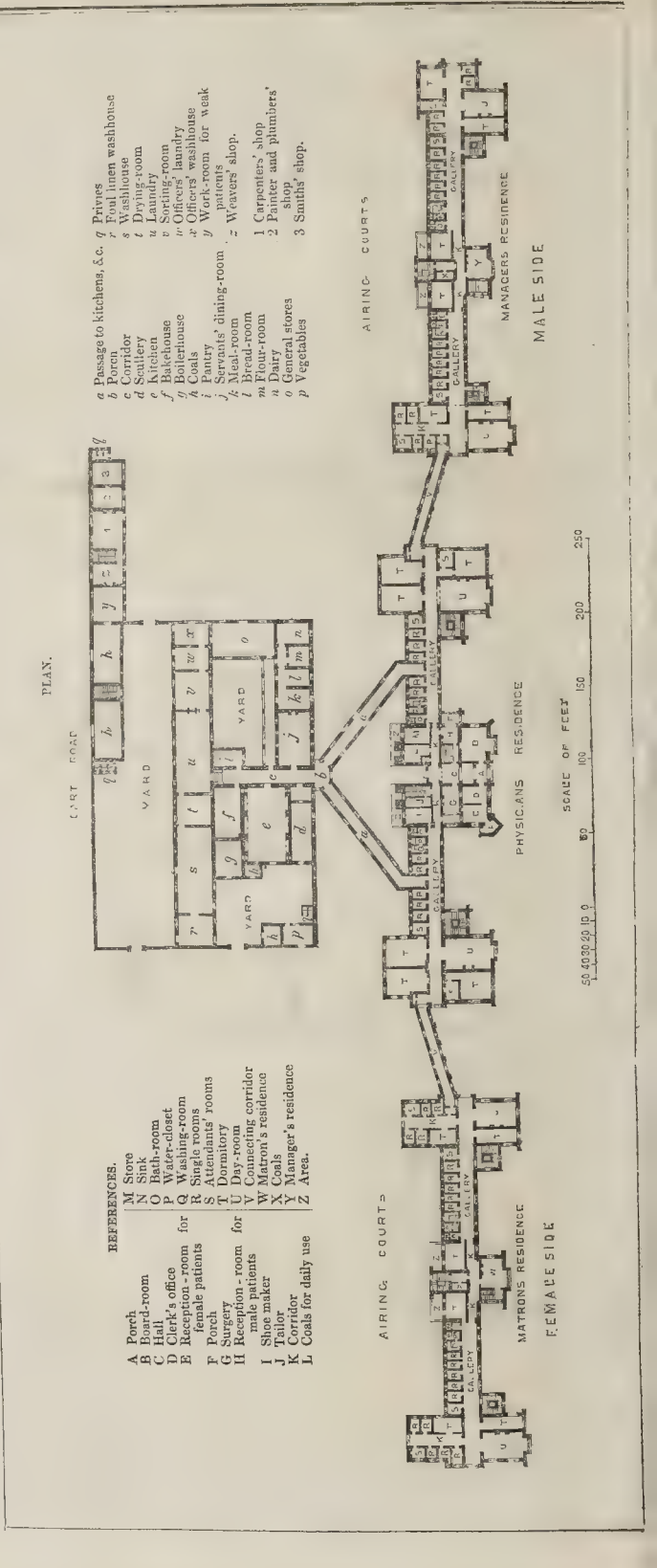
This building is erected from the designs of Mr. W. Atkins, of Cork, under the supervision of the Irish Board of Public Works,—to accommodate 500 patients. The cost will be nearly 70,000*l*.

The building is divided into four distinct blocks connected on the ground-floor by low corridors. Three of the blocks, ranged along a steep brow, compose the front, nearly 1,000 feet in length, and contain the apartments of the patients on three floors, with the residence of the medical superintendent in the centre. The fourth block, comprising the kitchen and offices, all on the ground floor, is placed in the rear of the centre. The walls are faced outside with a reddish sandstone rubble, procured near the site, with dressings of gray limestone, from quarries in the hills on the opposite side of the river Lee, which have also supplied a marble of considerable beauty for some of the internal fittings. The roofs are covered with slate, the spires with galvanized zinc.

The arrangement of the patients on three floors, as here adopted, differs from that preferred by the English authorities. By them it is considered most desirable to restrict the patients to two floors, as giving greater facility for escape or rescue in case of fire, and diminishing the mass subject to conflagration at any one point. The detachment into masses of the Cork asylum, is intended in some degree to provide for this emergency, and the additional floor gives a saving of one-third in the roofing. The kitchen and domestic offices are conveniently arranged and well fitted. The heat for all purposes is by steam, generated in a furnace-house, and conveyed by pipes to the kitchen, laundry, and drying-house, the boilers being jacketed with felt for its retention. The water supply is good, from a natural source on the grounds of the Institution, considerably above the highest point of the buildings. An adjacent mansion is being converted into an infirmary; and a church for the use of the establishment has been erected within the grounds.

The design, as shown in the engraving, is in many respects of unusual character, some would say fantastic, and, as was remarked in our pages, when noticing the building on a previous occasion, a mixed style has been adopted for the three lofty turrets, and, though confined to them, from their prominent position the marked style of the main building is much interfered with. The use, too, of these features is not sufficiently obvious. Smoke flues they are, though where chimney stacks seem likewise to abound, such a use would hardly be expected. Their application to a partial system of ventilation would seem to have been an afterthought, and the success of it problematical. Artificial ventilation is not stipulated for by the Irish authorities.

The site of the building is a commanding one, on the steep ascent north of the river Lee. Whatever its defects, it is unquestionably a fine building, its varied outline assorting well with the natural features of the scene, and as a contribution to the architecture of Cork, where nature has done so much, and art, until recently, so little, should be duly valued.



Metropolitan Connection of Railways and other Improvements.—The comprehensive plan published by Mr. John Martin, the artist, in 1846, is again being brought under consideration. Since its first suggestion, indeed, a considerable portion of the ring of railway connection round the metropolis which the plan of Mr. Martin comprises has been realised by the North-Western Company. Mr. Martin's scheme for the improvement of the Thames, with double trunk line of railway, floating piers, &c. forms a connected portion of the same general scheme, but is brought forward separately by Mr. Martin. It is to be hoped that if either the whole or any further portion of this gentleman's plan be carried out, he will at least get the credit of it. The plan for surrounding Paris with a railway ring would appear to have been based on the same idea.



THE EGLINTON LUNATIC ASYLUM, CORK.—Mr. W. Atkins, Architect.

NOTES IN MUNSTER.

AT Limerick, the Mount St. Vincent Convent has been given up by the contractors, Messrs. Duggan and M'Clean, and is now occupied. A chapel and school-house we heard are to be added, and that the delay at present arises from a deficiency of funds. The grounds are in an unfinished state. Mr. Neville, county surveyor, of Louth, is (we believe) the architect. The cathedral is undergoing trifling improvements and repairs. The eastern window is a peculiar specimen of perpendicular Gothic. Although the architecture of the building is not very striking, yet the aspect is venerable. In the massive tower and castellated embrasures there is a quaintness of appearance. The nave and transept are set apart for the congregation. The former contains at its eastern side a monument of black marble to the memory of Donagh O'Brien, Earl of Thomond, restored in 1678. Lord Glentworth's tomb is situated in a recess about 20 feet by 15 feet, approached by a spacious arch of four bays, with decorated tracery of Caen stone and pillars of grey marble. The roof is of panelled wood tracery, with gilt stars inlaid on a dark ground. We noticed the following peculiar inscription on a slab about 2 feet by 18 inches :—

"'*Memento mory.*' Here Lieth Littele Samuell Barinton, that great Undertaker of famious cities clock and chime maker, he made his one time goe early and latter, but now he is returned to God is Cretor. The J9 of November then he scest, And for his memory this here is pleast by his son Ben, J693."

The Christian Brothers have built a large addition to their premises. Russell's large factory (in progress), and the new docks (nearly finished), are worthy of an inspection. A new mechanics' institute is badly wanted.

At Adare, we were told that the foundations of the church are sinking : it is evidently built on a swamp. A school-house is being built in connection with the Roman Catholic church, which has been greatly increased of late. The village contains remarkably comfortable and clean cottages for the peasantry and labouring classes. Many interesting ruins of the strongholds of the Desmond family are to be seen in all directions between Croagh and Rathkeale, also at Glenquin. The new church at Croagh is a neat structure, and an evidence of what may be produced by a skilful hand for a small outlay. At Rathkeale there are symptoms of improvement. In the locality of Abbeyfeale the Encumbered Estates Act is likely to be beneficial: the proprietor of the village (Mr. Ellis) is building a mansion-house from the designs of Mr. Lyons; Messrs. Meagher and Son, contractors. A bridge over the river Feale, and other works, are talked of. A new infant school is to be built at Listowel, and a new market-house at Tralee. Mr. Patterson, builder, has finished Glin workhouse. At Killarney the railway is giving employment to large numbers, and the contemplated hotel, together with the villas to be erected here by English capitalists, will serve the labouring classes materially.

Messrs. Burgess and Sons have been erecting the new workhouses at Mitchelstown, Kildysert, and Portumna, at an average expenditure of about 5,000*l.* each. The carpentry work has been executed by machinery, and the workshops at Limerick deserve a visit.

A school-house, 60 feet by 30, and six model cottages for poor widows, are being erected by Mrs. Low, of Spring House, Tipperary.

A monument to O'Connell is projected at Limerick. The mayor is stated to be in treaty with Hogan, the sculptor, on the subject.

The interior of the church at Nanterman has been remodelled.

The projected line from Limerick to Foynes is assuming a serious aspect. Nearly all the shares are purchased, and the Bill for its construction will be before Parliament immediately.

The tunnel at Cork, 1,350 yards long, is in progress. 1,100 yards remain to be executed, and 300 men are engaged on the work respectively between night and day. It will be opened in about eighteen months. A floating-dock is talked of. The Roman Catholic Church at Sunday's Well is progressing. We have noticed in a previous number the building-works at Queenstown. Harbour improvements are projected.

The Killarney Junction Railway Company have awarded to Messrs. Atkins and Johnson, and Mr. Brash, of Cork, already mentioned, a premium of 50*l.* for plans for Killarney Hotel.

SIGHTS AND SCENERY.

The Haymarket Theatre. — "Masks and Faces, or Before and Behind the Curtain," is one of the most complete and effective dramas of its class that has been produced for some time; well mounted and admirably acted, especially by Mr. Webster, Mrs. Stirling, and Miss Rosa Bennett. The drama deals with the time when Peg Woffington, Kitty Clive, Colley Cibber, and Quin flourished; they all appear in it. If we are not mistaken it will long keep its place on the English stage. The authors are Messrs. Tom Taylor and Reade. Webster's *Triplet* is a charming personation.

The Lyceum Theatre.—"Uncle Tom," having been placed literally on the stage of half-a-dozen theatres, even set a horseback at Astley's, is now made the reason for a piece at the Lyceum, the sentiment of which, so to speak, is shown by its title, "Those Dear Blacks." Mr. Suter, as a nigger who has come in for a fortune, shows more cleverness than usual; and Mr. Charles Mathews, as a very fast young man reduced to his last penny, and who by the force of impudence, makes his master his servant, and bullies Dame Fortune ultimately into good humour with him, has a part well suited to him. The first scene represents the end of the chain-pier at Brighton; well contrived.

Burford's Panorama of Waterloo.—The turn of the public mind at this moment has led Mr. Burford to re-exhibit his well-known panorama of the Battle of Waterloo. The wickedness and absurdity of artificial war strike the mind forcibly when contemplating this "counterfeit presentment" of a terrific carnage.

SELF-SUPPORT OF PAUPERS

A CONFERENCE of deputations from boards of guardians in different parts of the country, and of other gentlemen interested in the question of the productive employment of paupers, has been held in the Town-hall, Manchester, for the purpose of giving and receiving information on matters connected with that question, and of determining on the course to be pursued in order to attain the objects they have in view.

The chair was occupied by a member of Parliament, Viscount Goderich; and there were several other M.P.'s present, and communications from many more, interested in and favourable to the reproductive employment of paupers, were read, as well as from various boards of guardians who have tried the system, and who uniformly recommend its general adoption. In fact, the recent experimental trial of it in Ireland and in this country appears to have resulted in the realization of all the good we long since anticipated from it, and even of more; for it has already been proved to have diminished crime as well as idleness, and to have substituted order for insubordination, and industrial instruction in the place of uselessness and ignorance. Moreover it has emptied the workhouses, in place of filling them, as anticipated by some; and in no case does it appear to have interfered with industrial self-dependence or independent labour, but the contrary, as remarked.

As a sort of summary of much that is said in its favour by those members of Parliament and poor-law guardians who have detailed their experience and opinions on the subject, we may here quote from what Mr. James Bell, M.P. has written to the conference:—"I fully admit the correctness of the principle, and am of opinion that the question is one of the most important that can engage public attention. It has always appeared to me an extraordinary anomaly that this country should possess an excess of labour, a considerable extent of uncultivated land, and an abundance of manure which, *if brought to act upon each other*, might be a source of wealth; whereas the sewage from our towns is only employed to contaminate the water with which they are supplied; the labourers, from being taught habits of idleness, recruit the ranks of criminals; the waste lands are useless; and the capital necessary to render all these available for increasing the wealth of the country is employed in maintaining these able-bodied labourers in idleness, and preventing the lower classes from acquiring habits of self-dependence."

Mr. Scully, M.P. moved the following resolution :—

"That this conference, having heard with satisfaction the statements made by guardians and others familiar with poor-law administration, relative to the industrial employments successfully carried on (in lieu of idleness and useless 'tests') in various unions throughout the United Kingdom, pledges itself individually and collectively to increased exertions in promoting the more general adoption of the humane and economical system of productive labour, proposed by the Poor-Law Association, and in procuring the abrogation of all legal and other restrictions which at present interfere with the free agency of boards of guardians in the purchase and taking of land, and the disposal of the produce of the industrial operations carried on in various unions, so as not to interfere with independent labour."

The resolution was carried, as also others, recommending the introduction of the question in Parliament—the establishment of branch associations—the circulation of the *Constitutional*, a monthly periodical, intended to form a medium of communication between boards of guardians, and a record of progress,—and determining the name of the association to be "The National Poor-Law Association."

We are sanguine that this important question will be speedily discussed in Parliament, and that a complete reform in the poor-law—or rather a return to the ancient practice—so far as regards useful employment and self-support,—will be the result.

NEW PREMIUM LIST OF THE SOCIETY OF ARTS.

THE Society of Arts, though within a year of its centenary, still displays the vigour of youth. Having adopted the subdivisions of the Great Exhibition for their standing committees, their premium list for the ensuing session of 1852-53, has been made to accord with that arrangement. This list is eminently suggestive, pointing at many of the desiderata, as well as novelties, of the times. Greater attention is of course paid to those departments of the applied sciences which may be looked upon as its peculiar province. Colonial produce and manufactures may be particularly instanced as subjects entirely untouched by any other existing institution. The section of raw materials, in which colonial articles are included, embraces a wide range of subjects. The chemical arts and processes here, somewhat oddly, find a home; and though in this class there may be introduced more of what looks rather like the aspirations of the scientific chemist than of the practical man,—these are not days for despising the most hopeful anticipations of science.

The manufacture of iron as carried on in different districts and countries (No. 2) is important at the present moment, when the superiority of the measures practised in England begin to be doubted. And America is said to turn out better iron, for many purposes where hardness and tenacity are required, than the mother country. This may be rather due to the nature of the materials employed in reducing the ore, the flux, and especially the anthracite coal, than to any more skilful manipulation. Within our own immediate province premiums are offered for the best essays on the chemical composition of rocks (No. 8), on paving-stones (No. 9), and on granite and the relative fitness of different kinds for engineering and architectural purposes (No. 10).

The close connection between machinery and manufactures renders many of the subjects enumerated in the second section, under the former head, but the forerunners of the latter.

Thus improvements in the mechanism and processes by which materials are wrought into articles of commerce, whether for food, for apparel, or for decorative purposes, occupy a large portion of this section.

Now, that the screw propeller is advancing into general favour, the loss of power in its transmission through a long shaft is sought to be overcome, by the adaptation of some method of propulsion nearer, and in more immediate connection with the motive power (No. 43). The method of working mouldings and other architectural features in granite (No. 55), and the means for avoiding interference with the utterance of a voice in the construction of large buildings (No. 62) will be recognised as useful practical desiderata.

In the section of manufactures, glass seems to take the lead; seven questions (Nos. 86 to 92) being directed at all kinds, stained, crown, flint, and cast. The great impetus given of late to this branch of manufacture, and the recent extended application of glass to photographic and optical purposes, have caused many important alterations and improvements, which it is very desirable should be recorded.

Somewhat allied to this is the manufacture of Parian, China, and earthenware, and the difficulty in the process of firing or baking has caused a premium to be offered for improvements in the construction of kilns for this purpose (No. 93).

The list, which includes 112 subjects, forms the groundwork for a session of great usefulness, if responded to by the members and the public as it ought to be.*

ANCIENT PROCLAMATIONS.

The Society of Antiquaries are in possession of a singularly fine collection of Proclamations, the finest, indeed, existing, and these have been placed in the hands of Mr. Lemon, of the State Paper Office, to arrange for binding, with proper indices. The collection is weak in parts, especially as concerns the reign of Elizabeth, and our object in mentioning the steps now being taken is to induce any of our readers who may have detached proclamations, for which they may not care, or duplicates, to contribute them to the society's collection, so as to render it as nearly complete as may be. In glancing at a number of the proclamations a few days ago, the first that met our eyes was one dated in the reign of Charles II. 1671, against the increase of buildings in the metropolis, and showing that in *Windmill* fields and the fields adjoining *Soho*, small houses were being improperly carried up.

A WORKING MEN'S MUTUAL BENEFIT SOCIETY FOR ENGLAND AND WALES.

A prospectus has been issued, in which it is proposed —"1. To establish a Provident Fund without entrance fees, to which working men are to contribute either during the whole year, or a proportionably increased amount from the first Saturday in March to the last Saturday in November in each year; 2. To form by donations and subscriptions an Auxiliary Fund."

The society to be managed by a central committee with district committees, the business of each district to be mainly managed by the latter. Members passing as residents from one district to another to have their benefits also transferred or provided for by the district committee to which they belong. The central committee to manage generally, and distribute the auxiliary fund. Amongst other provisions, it is proposed that "To the provident fund any male person above the age of thirteen and under forty-five may, at the discretion of the district committees, be allowed to belong, on satisfactory proof of age, health, and moral character being given. The members to have the option of contributing for an allowance, until the age of sixty-three, of seven, nine, twelve, or fifteen shillings a week during the first six months, and of half the respective amounts for the next six months of sickness, and then, if disabled by any bodily infirmity from earning a livelihood, they shall be entitled to have one-third the respective amounts of the sick allowances; but members under the age of twenty will receive during the same periods only one-half the respective amounts of the sick allowances. Members, on attaining the age of twenty, or on entering if above that age, will also be required to contribute for an annuity to be received after the age of sixty-three, of three or more shillings a week. Members to have the option of paying an increased rate of contribution when desirous of having, if they die before the age at which the annuity is to commence, half their payments returned to their widows or children."

It is proposed to connect good local enrolled benefit clubs with the society, under certain regulations. Mr. Samuel Comyn, barrister, of Lancaster, is acting as honorary secretary.

* Special prizes are offered for Essay on Jurisprudence (100*l.* and gold cup), and for Essays on Management of Literary, Scientific, and Mechanics' Institutions (50*l.* and 25*l.* with medals).

MOVING LOADS.

Perhaps the following extract from Dr. Lardner's "Steam Engine," ed. 1836, will answer the question of "E. S. S.":—

"On a level railroad, the force of traction necessary to propel any load placed on wheel carriages of the construction now commonly used, may perhaps be estimated at $7\frac{1}{2}$ pounds for every gross ton in the load."

Thus, $50 \times 7{\cdot}5 = 375{\cdot}0$, the tractive force in pounds, to move 50 tons. Telford gives from $\frac{1}{300}$ to $\frac{1}{280}$ of the load as the resistance to traction on a well-constructed railroad. The former gives 400 pounds as the motive force required for 50 tons, the latter 480 pounds.

X.

The co-efficient of friction on railways may be taken at $\frac{1}{300}$, or 7 lbs. per ton. That is, a horizontal pressure of 7 lbs. will just move a load of 1 ton on a level rail; whence, to move 50 tons will require a pressure of $7 \times 50 = 350$ lbs.

From the enunciation of the question, your correspondent "E. S. S." seems to require what would be the strain on the chain dragging the load, and he appears to think that this strain becomes greater or less as the speed increases or decreases. This, however, is not the case; for no matter how great or how small the speed, provided it is uniform, the dragging medium still transmits the same pace. But the *quantity of power transmitted in a given time*, varies greatly at different velocities.

For example, let us take two of the cases supposed by "E. S. S." Required the power requisite to drag a load of 50 tons at the rate of ten miles per hour on a level rail. Also the power requisite to drag the same load at the rate of two miles per hour.

The resistance of friction is $7 \times 50 = 350$ lbs.; space in feet travelled over in a minute $= \frac{5280 \times 10}{60} = 880$. Power, passing through one foot of space per minute $= 350 \times 880 = 308{,}000$ lbs.

That is, the power applied is equal to a weight of 308,000 lbs. lifted through the space of one foot in every minute. If we take a horse power as the force necessary to lift 33,000 lb. through a foot of space per minute, the number of horse power applied will be $\frac{308{,}000}{33{,}000} = 9{\cdot}33$.

By the same method we find that with a speed of two miles per hour, the work performed $= 61{,}600$ lbs. lifted one foot per minute, or $\frac{1}{5}$ of the power in the former case.

Atmospheric resistance (which increases as the square of the velocity) is here neglected, as it depends on the bulk of the load.

T. D. Ridley.

Extensive Damage on the Great Western Railway.—The traffic on this line has been impeded in consequence of a series of slips having occurred between Paddington and Hanwell station. The line was flooded for several miles, by water breaking through the sides of the cutting; and it was further discovered that in about thirty or forty places extensive slips had taken place, principally on the up-line.

HOUSE AGENTS' CHARGES.

Jones *v.* Gowdly, M.D.—This was an action brought in the Marylebone County Court, before Mr. F. Adolphus, judge, to recover 9*l.* 1s. 9d. for agency and other charges.

It appeared that in April last Dr. Gowdly gave instructions to the plaintiff to let his house, 25, Chester-street, furnished, at 6*l.* per week. This the plaintiff effected, and at the request of the tenant incurred various necessary expenses in cleaning and small repairs,—such as keys to doors, cleaning windows, &c.; as also taking the inventory and drawing agreements, &c. in addition to the commission for letting the house.

Defendant disputed his liability to reimburse the plaintiff, on the ground that the retainer to act as his agent did not include any authority to charge the defendant with any of the extra items.

In support of plaintiff's case several witnesses were called to prove the work done, and reasonableness of the charges; and Mr. Thomas Langridge, from the office of Mr. Lahee, of Bond-street, was called to prove the general usage of house agents in this particular.

Defendant was heard at considerable length in support of his case.

The learned Judge, after carefully going through the evidence, gave judgment for the plaintiff to the amount claimed.

Notices of Books.

History in Ruins: a Series of Letters to a Lady, embodying a Popular Sketch of the History of Architecture, and the Characteristics of the various Styles which have prevailed. By George Godwin, F.R.S. of the Royal Institute of Architects, &c. &c. With Illustrations. London: Chapman and Hall, Piccadilly. Dublin: James McGlashan.

Our readers are so well acquainted with the "Sorillah" letters which form the staple of the book mentioned above, that all we have any occasion or right to say here is, that it is a well printed, nice little volume, well adapted for presentation in the coming Christmas time, and calculated, as we sincerely believe, to aid in a good work. We shall be excused, we hope, for quoting the author's preface:—

"The history of the world is forcibly illustrated by the history of its buildings; and the tale, so far from being dry and repulsive, is singularly curious and interesting. In the following pages an endeavour has been made to convey this history to general readers in popular language and a pleasant manner, and to interest them in an art which affects not merely our homes and the provision of structures for the fitting discharge of public duties, but the artistic progress, the æsthetic culture, and refined enjoyments of a people;—an art which is the eldest of the three and the guardian and encourager of her sisters,—an art that has recorded in stone and marble the thoughts and doings of nations, and studded the world with objects of beauty, places of reverence, and awakeners of sentiment. The various shapes that architecture took,—the characteristics and date of the styles which have prevailed amongst different people and at different times,—are pointed out, so that any may, with slight attention, read, on the face of such buildings and monuments as they may visit, their age and story. It is not unusual to find even educated men admitting, without any feeling of shame, their entire ignorance of architecture, both as regards its history and principles. This surely ought not to be, and need not be. The general history of the art, and the leading features of architecture as a science, should be communicated to the youth of both sexes and of all grades before they leave school. The greatest success that can be desired for this little volume is, that it may aid in leading to such a step."

The author inscribes it to the friend by whom, feeling the want of some such manual, the letters composing it were suggested, and asks for it the kindly consideration of all who agree with him in thinking that its object is a worthy one; in which request we join, with *exactly* the same amount of interest in its success.

Masters and Men.—We have received communications from the workmen of two or three establishments asking us to mention, that their employers had given them time to attend the funeral of the Duke of Wellington, and had paid them for the full day. We mention the letters as showing proper appreciation of a kindness, but need not do more.

Miscellanea.

New Propellers.—A patent has been taken out under the new law by Professor A. Crestadoro for propelling wheels with plain circumference and without paddles or blades, the use of which he regards as quite as much a mistake as the original idea of toothed wheels on locomotives. The adhesion of the water and the wheel or drum he considers sufficient for propulsion, and he proposes to immerse the drums or cylinders entirely beneath the surface of the water, protecting or covering their upper circumference (and the posterior portion of the lower?) with a semi-cylindrical case. The total cessation of the vibration produced by blades is thus anticipated. It is to be hoped that it is not the mere analogy of the iron bite of the rail, but practical experiment which has called forth a patent like this.——The singular properties of that strange and mystic parabolical instrument of offence in the hands of savages, the boomerang, have led to its adoption for the shape of screw propellers. It is known that the peculiar form of the boomerang enables it to present the least possible resistance to rapid and eccentric movement through the air, but whether such a property enables it to act to advantage in the ocean as a propeller remains to be seen.

Drainage and Water of Ashby-de-la-Zouch.—The Local Board of Health of this ancient and interesting town is now actively proceeding with works for its sanitary improvement, consisting of the laying a complete system of pipe-sewers, and the requisite works for obtaining an abundant supply of excellent water. The engineers are Messrs. Lee and Stevenson, The works have been divided into eight contracts, and entrusted to the undermentioned parties:— Contract, No. 1. For supplying the iron pipes; to Mr. Haywood, of Derby. No. 2. For supplying the pottery pipes; to Messrs. Stephen Green and Co. of Lambeth. No. 3. For laying the iron pipes for water supply; No. 4. For laying the pottery pipes for drainage; No. 5. For constructing water-closets, forming gullies, fixing hydrants, &c.; No. 6. For constructing two filter-beds, pure-water tank, and service reservoir; all to Messrs. Tomlinson and Harpur, of Derby. No. 7. For supplying and fixing iron tank in elevated tower; to Messrs. Waller, Chesterfield. No. 8. For building engine-house, cottage, and water tower; to Messrs. Smith and Elliott, of Ashby. The engine is ready for fixing, and it is intended that the whole of the works shall be completed by the month of May. We seriously urge on the Board the importance of seeing that the *pipe drains are strong and properly laid.*

Ipswich Mechanics' Institution.—The first lecture for the season was delivered, on 12th instant, by Mr. Cuthbert W. Johnson, F.R.S. chairman of the Croydon Board of Health. The subject of the lecture was Sanitary Improvements. In speaking of draining, the lecturer instituted a comparison between the rate of mortality in Beccles and Bungay, the former being a drained, and the latter an undrained town. From 1831 to 1841 the deaths were one in fifty-nine in Beccles, and one in seventy-one in Bungay. Another instance was afforded by the parish of St. Mary Leicester, containing a population of 22,000, almost all of whom are artizans. It was found that in one year, 1840, the average age of those who died was about 18 years. It was then determined to ascertain, as the parish was partially drained, if in the drained portions, longevity was promoted. The deaths in different streets were therefore ascertained, and the following notable results arrived at :—Average age of those who died in the drained streets, 23½ years; average in streets partially drained, 17½ years; average in streets entirely *undrained*, 13½ years. A full-sized drawing of the sewer constructed for the new Houses of Parliament, was suspended in the Lecture Hall. For the drainage of the new Houses of Parliament, said the lecturer, a sewer had been constructed like many of the London sewers, three feet wide and five or six feet high, but it was found quite ineffectual for drainage, as the water never arrived at the mouth of it, but all soaked away through the bricks, leaving the solid deposit on the bed of the sewer: in fact, the stream was not sufficient to make a current in the sewer to carry it along. The sewer was therefore abandoned, and a 9-inch glazed earthenware pipe placed along the bottom of it, which immediately remedied the evil, and is still acting perfectly well. The prevalence of consumption in Ipswich, he observed, called for the serious attention of the inhabitants. The lecturer next pointed out, with the aid of diagrams, the manner in which the drainage of a town should be effected, and remarked upon the benefits which would arise to the town if placed under the provisions of the Health of Towns Act. That which is necessary to be done could only be accomplished by an Act of Parliament. No voluntary principle could bind the refractory or unreasonable. Mr. J. B. Alexander occupied the chair.

Artisan Schools of Drawing for Clerkenwell.—The object of the Suburban Artisan Schools, as our readers may remember, is to place within the reach of all classes of workmen engaged in trades dependent on the fine arts such a knowledge of form in the execution of ornamental designs and of the rudiments of geometric drawing as will enable them to compete successfully with their continental rivals; and to afford them such recreation and employment, during their leisure hours, as will not only render them skilful mechanics, but also conduce to their moral and social improvement. In the Camden-town school it has been satisfactorily proved that artisans, desirous of enjoying its advantages, may be readily instructed in drawing and modelling by a method of tuition at once easy and expeditious. The success of this, the parent school, has induced its founders at once to extend their system of instruction to other districts; and the number of workpeople employed in the parishes of Islington and Clerkenwell in die-sinking, in casting and chasing metals, in jewellery and clockmaking, in masonry, carving, and the various branches of house decorating, renders it very desirable to establish a school in these districts on a permanent footing. With this object commodious premises have been secured at a moderate rent in William and Ann Streets, Clerkenwell, and the school will be opened as soon as the necessary fittings and models can be provided. For the funds required to accomplish this, the local committee appeal with confidence to all the friends of education and the lovers of true art, and we hope will not do so in vain. The Marquis of Northampton is the president.

Partial Destruction of a Viaduct on the Midland Railway.—The Crow Mills Viaduct, between the Wigston and Countesthorpe stations, on the Midland line of railway, about five miles south of Leicester, has had a number of its piers and arches washed away by an inundation in consequence of the recent rains, which have laid various portions of railways throughout the country under water. A part of the Crow-mills Viaduct had been recently reconstructed, but this part it is said remains quite sound. Till a temporary wooden bridge has been erected, which it was estimated would take a fortnight to do, the traffic along this part of the line cannot be resumed. Meantime the through-trains between London and the north run round by Hampton Junction, near Birmingham, and all traffic between Derby and Rugby passes the same way. The trains from Leicester to Rugby and London, and *vice versâ*, run round by Burton-on-Trent and Hampton Junction, lengthening the journey between Leicester and Rugby by about sixty miles. The mails and newspapers have thus been delayed several hours.

The Leeds Sewerage.—In consequence of its being stated in the *Leeds Mercury*, that the iron tubing below the river near Hunslet Suspension-bridge was awry, that the sewer under the Great Northern Railway station was on a false gradient, and indeed on a curve, leading to the fear that the gradients were all wrong together, and that some of the earthenware tubes were crushed by superincumbent weight, an investigation was instituted by the *Intelligencer*, in which it is explained that when the previous contractor abandoned his contract, the stakes driven in the river to show the centre of the line to be taken were removed, and hence some awkwardness and difficulty, but no real defect in the sewerage; that in consequence of being prevented from sinking shafts on the railway company's premises, there was a slight defect in the gradient, which can easily be altered if insisted on; that the sewers, so far as already formed, have been in free and unobstructed use during the recent inundations, showing that the gradients are not all wrong, as alleged or feared; and that no such thing as a fracture or crushing of any tube has occurred. It was also alleged that there was no proper supervision, which the *Intelligencer* denies, explaining that, besides the engineer, there are two competent clerks of works.

The Iron Trade.—Some of the local newspapers more particularly interested in the iron trade, as at Birmingham, are now themselves endeavouring, we observe, to moderate the unwholesome excitement which appears to be so incidental to this trade; and the masters begin themselves to doubt the policy of that rapid series of advances in price on which they had evidently resolved, and which indeed they have already carried quite far enough in the mean time. Nevertheless, there is still much talk of another advance of 20s. a ton before Christmas. Some impatient fortune-hunters would even fain take more than one 20s. stride by that time, with the ostensible purpose of stopping "the superabundant demand for iron." Would it not be well they were providing against the superabundant *supply* of iron, which is but too likely soon to topple their grand scheme of rising prices? Both supply and demand, we fear, are extending unnaturally and unhealthily. Much of the demand is on speculation, and a supply to meet such a demand can do little good ultimately to the trade at large.

A Wellington Memorial.—Her Majesty has headed with 1,000*l.* a subscription for the erection and endowment of a school or college, to bear the name of the Duke of Wellington, and to be devoted to the gratuitous or nearly gratuitous education of orphan children of indigent and meritorious officers in the army. Doubtless a purpose so auspiciously announced will be accomplished in a manner commensurate to the twofold object in view. We have every confidence that the renown of the Wellington College, and the helping hand wherewith it is destined to succour and comfort the orphans of the Duke's less fortunate companions in arms, will constitute a memorial worthy, indeed, both of the old soldier and his country. Offerings and consolations such as these may best justify us in saying with Mackay,*—

> "Dried be the tears that fall;
> Love bears the warrior's pall;
> Fame shall his deeds recall—
> Britain's right hand!"

The Interments Act, Kensington.—If there is any merit to be awarded to the first metropolitan parish which availed itself of the new law for extramural interments, pray let the public know that it was *Kensington*, and not Marylebone, as asserted by the speakers in that vestry the other day, and proclaimed in most of the public prints, that set the example. The Kensington parishioners, by vote of vestry, unanimously, on the 2nd of August last, set the example;† and they are so far in advance of other parishes that they have selected their ground for a cemetery, with the sanction of the Home Secretary, and are negotiating for the purchase of it.—One of the Burial Board.

Public Parks and Library at Macclesfield.—The committee for establishing public parks and a free library at Macclesfield, had obtained for that object 700*l.* including 300*l.* from the working classes, at the beginning of last week. They have since received 300*l.* from Mr. E. C. Egerton, M.P.; 20*l.* from his lady, and 100*l.* from his father, Mr. Wilbraham Egerton, Tatton-park, making a total of 1,120*l.*

* "Mourn for the Mighty Dead." Composed by Sir Henry Bishop. Cooks and Co. Burlington-street.

† Mentioned in The Builder, p. 509.—Ed.

BUILDINGS ACT.—"STRIPPING AND RECOVERING ROOFS."—SCHED. G.—In your very useful journal, No. 509, you have reported a case from a correspondent, headed "*Hiscocks v. Meears*," which is calcufated to convey a wrong impression, as the opinion of the magistrate does not properly appear. The magistrate observed, "That there was no doubt that such works were very important for the district surveyor to attend to, and for which due notice should have been given, and that he would pay the district surveyor properly for his services, but in a different way. That Schedule L was, like many other parts of the Act, very defective, and that he was very sorry he could not determine the fees: some fees were certainly due, but they were not named." Application will, therefore, have to be made to the official referees to appoint a fee, it being looked upon as a special duty. The object of the summons was to obtain a speedy decision that such works were subject to the rules of the Act, and to obtain due notice for the future.—A. J. HISCOCKS.

RAILWAY AMALGAMATION.—Many large schemes of amalgamation are afloat in the railway world. Mr. Henley, on the part of the Government, is of opinion that a committee of the House of Commons ought to be appointed to inquire into the whole subject, particularly as numerous Bills for the amalgamation of railways are about to come before the House. *Herapath*, in reference to the subject, says:—"There has never been a railway amalgamation which has not been to the detriment of the shareholders and the reduction of their dividends. The London and North-Western have had enough of that: the Midland have had their share. Each have come down from good dividends to very middling ones, entirely by their amalgamations and incorporations with other companies. The same has occurred with the Berwick Company; and as to the York and North Midland, they are a monument of the folly and mischief of wild amalgamations and extensions."

FINE ARTS IN DUBLIN EXHIBITION.—It may be useful to mention that the department of the Fine Arts, in the Dublin Exhibition of 1853, has been confided to Mr. Henry Mogford, who will willingly receive anything relative to architecture as a fine art, and will place it prominently. The London office is at the Society of Arts, in the Adelphi.

RAILWAY RETURNS.—The total amount received for traffic on the London and North-Western Railway, for the week ending Nov. 14, was 44,656*l.* (corresponding week in 1851, 42,030*l.*); Midland and Bristol and Birmingham, for week ending Nov. 7, 23,704*l.* (corresponding week in 1851, 22,701*l.*); North Staffordshire (railway and canal), for week ending Nov. 7, 5,270*l.* (corresponding week in 1851, 4,976*l.*), exclusive of receipts under agreement with London and North-Western; Great Western, week ending Nov. 7, 17,396 (corresponding week in 1851, 15,912*l.*); Great Northern, week ending Nov. 7, 14,528*l.* (corresponding week in 1851, 10,613*l.*).

NOISELESS BRASS CORNICE POLES, RINGS, &c.—By a recent patent granted to Mr. M. Billing, cornice poles are composed of two metals, first of zinc then of brass, the combination having the effect, it is said, of deadening all jingling and noise caused by drawing the rings across them. The rings themselves are similarly treated, and the invention is applicable to picture rods, window laths, brackets, &c. The article, it is also said, can never split, and is susceptible of a rich polish and a finished appearance.

INSTITUTION OF CIVIL ENGINEERS.—On the 9th inst. Mr. J. M. Rendel, president, in the chair, the business of the first meeting of the session was begun. The paper read was "On the Improvement of Tidal Navigations and Drainages," by Mr. W. A. Brooks, M.I.C.E. On the 16th inst. there was a discussion on this paper.

ARCHÆOLOGY IN CAMBRIDGE.—The Disney Professor of Archæology last week gave notice that he intended to deliver two lectures upon the Roman estimate of Greek art, on 22nd and 23rd instant, at the Pitt Press.

GERARD'S HALL CRYPT.—The Corporation of London have acceded to a request from the Crystal Palace Company for the materials of the crypt taken up for the new line of street, and we may expect therefore to see it re-erected at Sydenham.

THE GLASGOW ARCHITECTURAL ASSOCIATION.—The annual meeting of this Association was held on the evening of Monday, the 8th inst. in St. Mary's Hall, Renfield-street—the retiring president, Mr. Boucher, presiding. The business of the meeting chiefly embraced the reading of the secretary's report, the election of office-bearers for the following session, and the delivery of relevant addresses by several of the members. Mr. Charles Heath Wilson, director of the Government School of Design, has become the patron of the Association.

THE ELECTRIC LIGHT.—Mr. Thomas Allan, of Edinburgh, has just suggested an arrangement for keeping up a constant distance between the carbon points in the production of the electric light. The two electrodes are formed spirally, and, each bearing its carbon point, they are placed perpendicularly to each other at a proper distance, and made to revolve slowly by a simple clock-work movement. As the distance by the action of the current is gradually being increased, the points are always gaining their proper position by the rotation of the electrodes presenting fresh points of action.

EXTENSIVE ARCHITECTURAL RUINS ON AN ISLAND IN THE NORTH PACIFIC.—At Tinian, one of the Ladrone islands, according to the *Edgartown* (U.S.) *Gazette*, the ruins of an ancient and magnificent city have been discovered. The principal street is said to be about three miles in length, and all the buildings of a dark stone. About the centre of the main street are twelve solid stone columns, six on each side of the street: they are about 45 or 50 feet in height, surmounted by capstones of immense weight. The columns are 10 feet in diameter at the base, and about 3 feet at the top, and each stone or column, it is thought, would weigh about 60 or 70 tons, and each capstone about 15 tons. One of the columns had fallen. From the principal street a large number of other streets diverged, all straight, and the buildings all of stone. The city is entirely overgrown with cocoa-nut trees, 50 and 60 feet in height. In the main street pieces of common earthenware were found. The Spaniards took the island from the Knackas, who were entirely ignorant of the builders of the city, and of the former inhabitants. When questioned as to the origin of the city, their only answer was, "There must have been a powerful race here a long time ago." On the island are immense ledges of stone, from which the buildings and columns had evidently been erected. Some portions of them exhibited signs of having been worked. Are we not likely now to find, as was long since suggested in THE BUILDER, that the "far west" of the "new world," is no other than the far east of the "old," of extreme and civilised antiquity?

TENDERS

For a new Warehouse in Cannon-street, for Messrs. Cowan and Co. Messrs. Richard Tress and Chambers, architects.

Ward	£5,627	0	0
J Wilson	4,083	0	0
J. and E. Bird	4,020	0	0
Ashby and Sons	4,584	0	0
Reading	4,179	0	0
Lawrence and Sons	4,432	0	0
J. Browne	4,397	0	0
Haynes and Eyres	4,257	0	0
Lucas, Brothers	4,199	0	0
T. and W. Piper	4,168	0	0
Bran and Sons	3,997	0	0
Patience	3,994	0	0

For two semi-detached cottages at Anerley. Mr. Fox, architect:—

Brown	1,080	0	0
Locke and Nesham	1,058	0	0
Holmes	999	7	0
Redriss	950	0	0
Bowie	929	0	0
Heard	855	0	0

TO CORRESPONDENTS.

"The Thames Tunnel" (the cost of the Tunnel has been 454,714*l.* The cost of Waterloo-bridge was, we believe, 1,000,000*l.*) "Large Drains," "E. H." "Z." (next week), "R. M. P." (ditto), "T." (will appear), "Z." re T. M. "W. W." (would not be able to recover), "School of Design, Paris," "C. A. W." "A. J. H." "E. L. G." (cut not ready), "Scrutator" (declined, with thanks), "N. D." "J. N." "J. A. W." "S. T." "Archityro," "G. G. A." "Mr. F." "G. H." (thanks), "H. M." "M. D." "J. M." "J. S." "J. W. H." "Mr. R."

"HISTORY IN RUINS."—Country correspondents who have expressed a desire to have this work, will oblige us by ordering it through a local bookseller.

"*Books and Addresses*."—We have not time to point out books or find addresses.

ADVERTISEMENTS.

COMMERCIAL DOCKS. — MANAGER of WOOD DEPARTMENT.—WANTED, a suitable PERSON, of active habits, and not exceeding forty years of age, practically acquainted with all the details of the wood trade. Salary, 200*l.* per annum, with a residence upon the premises. Applications to be made by letter, in the handwriting of the applicant, stating previous employment, and giving references as to character and ability, to be addressed to the Board of Direction, at their Office, No. 106, Fenchurch-street, City, before twelve o'clock, on Friday, the 3rd December next. By order,

H. K. SMITHERS, Jun. Secretary.

Commercial Dock Office, 106, Fenchurch-street,
19th November, 1852.

THE LOCAL BOARD of HEALTH for the District of Olver St. Mary are desirous of engaging the services of an intelligent man as FOREMAN, to superintend the execution of the Sanitary Works.—Particulars may be known by applying to Mr. A. WHITEHEAD, 136, Fore-street Exeter, the Surveyor to the said Board.—Nov. 25th, 1852.

TIMBER TRADE.—WANTED, in a Merchant's Office, a YOUNG MAN, quick at figures, and accustomed to make out the Invoices peculiar to the Trade. None need apply but such as have been brought up to the business.—Apply, by letter only (with references), to O. H. D. at Miller and Field's, Stationers, 6, Bridge-road, Lambeth.

TO BUILDERS

CLERK of WORKS.—WANTED, an experienced CLERK of WORKS, to superintend a Building in the Country. Letters, post-paid, stating last and previous engagements, and terms, to be addressed to H. C. No. 11, Gower-street North.

AN APPRENTICE WANTED.—A Painter, Plumber, and Glazier has a VACANCY for a respectable YOUTH, as IN-DOOR APPRENTICE, where he would be under the immediate eye of his master, and be treated as one of the Family. Premium required.—Apply, personally or by letter, to Mr THURSTFIELD, Tradesman, 21, Shaftesbury terrace, Pimlico.

WANTED, in the office of a Builder, a CLERK and BOOKKEEPER. Address by letter stating qualification, salary, &c. to L. K. Office of "The Builder," York-street, Covent-garden

WANTED, in a Builder's Office, a YOUNG MAN, competent to assist in making out plans and detail drawings for some Contract Houses.—Apply, by letter only, to W. H. 60, Green-street, Grosvenor-square, stating terms, capabilities, and age

WANTED, five miles from London-bridge, a first-rate SHOP FOREMAN, and TWENTY GOOD JOINERS. Preference given to men who are willing to make overtime.—Apply to Mr. MORTIMER, Builder, Mount Elliott Lee, Kent, or at the bar of the Highlander.

TO ENGINEERS.

WANTED, a thoroughly Practical Man, to take the MANAGEMENT of a PLUMBER'S BRASS and IRON BUSINESS. As the salary given will be most liberal, it is hoped that no person will apply who is not perfectly competent to direct a number of men, and superintend their work.—Apply, by letter only, to GEORGE JENNINGS, 29, Great Charlotte-street, Blackfriars road.

TO ARCHITECTS, &c.

WANTED, an ENGAGEMENT, by a Gentleman, who has lately completed his articles. He has been accustomed to make working drawings, and to attend to the general routine of office work. He has also some knowledge of building.—Address M. H. A. Office of "The Builder," 1, York street, Covent-garden.

TO PLUMBERS, PAINTERS, GLAZIERS, AND BUILDERS

WANTED, by a Person perfectly conversant with the above, a SITUATION; he understands contracting; measurements are also practicall understood or to take part of a BUSINESS where a small capital is required.—Address to E. C. post-paid, 11, Wellington-road, Saint John's Wood.

TO ARCHITECTS AND SURVEYORS.

WANTED, by a Gentleman thoroughly acquainted with the practical part of BUILDING, a good and expeditious Draughtsman, Surveyor, &c. a SITUATION for a permanency, in either of the above offices, and who has been in the profession upwards of twelve years. First-rate references and testimonials can be given as to ability and respectability.—Address, prepaid, REBATE, Office of "The Builder," 1, York-street, Covent Garden

TO ENGINEERS, CONTRACTORS, &c

WANTED, by a Practical Carpenter, a Situation as FOREMAN on RAILWAY, HARBOUR, or other WORKS, who has had much experience in constructing, erecting of staging, centering, cranes, travellers, &c. including pile-driving, coffer-dams, and attending to masonry. Most satisfactory references can be given.—Address, A. N. at the Office of "The Builder," 1, York street, Covent Garden

A GENTLEMAN, having extensive estates under repair and in course of erection, WANTS a PRACTICAL CARPENTER to take the superintendence of the workmen in that department.—Apply per letter only (enclosing testimonials, and stating amount of wages required) to JEREMIAH LONG, Esq 26, Hackney-road.

A STAIRCASE-HAND, of good experience, is OPEN to an ENGAGEMENT, in the STAIRCASE and HANDRAIL DEPARTMENT, either for a long or short period, in any part of town or country.—Address, A. B. 22, Pendall-street, Bermondsey, Lonpon.

TO ARCHITECTS, SURVEYORS, AND BUILDERS.

AN ASSISTANT, who has been in the Profession five years, wishes for an ENGAGEMENT; is a good draughtsman, and understands the general routine of the above offices. Salary not so much an object as a permanent appointment.—Address to A. Z. 14, Bryanston-street, Portman-square.

TO ARCHITECTS, &c

A YOUNG MAN, who is a competent Draughtsman, and is accustomed to make working and detail Drawings, is desirous of an ENGAGEMENT.—Address, A. B. I. care of the Porter, Marlborough-house, Pall-mall.

TO ARCHITECTS IN THE PROVINCES.

A YOUNG MAN is desirous of ENGAGING as an ASSISTANT to an ARCHITECT, or an Architect and Surveyor, in a large Provincial Town. He has served for a period of seven years to an Architect and Surveyor in London, and can give recommendations from eminent London Architects.—Address, H. S. L. Office of "The Builder," 1, York-street, Covent Garden.

UNIVERSITY COLLEGE, LONDON.—MECHANICAL PRINCIPLES of ENGINEERING.—On MONDAY, 6th DECEMBER, Professor Eaton Hodgkinson will commence a COURSE of about TWELVE LECTURES on the STRENGTH of MATERIALS in General, with their use in Construction, including recent researches on the Strength of Columns and Iron Beams; on the Tensile Crushing and Transverse Strength of Materials, &c.; on Bridges, particularly Tubular Bridges, and those of Suspension, &c. Hours of Lecture, SEVEN o'clock, p.m. Subsequent Lectures on Mondays and Thursdays. Fee, £2 10s.; College fee, £5.

An Elementary Course of Lectures, on the Theory of the various Forms of Water-Wheels, of Turbines, of Windmills, of Steam Engines, and collateral subjects, adapted to those commencing the study of Practical Engineering, will be given, if an adequate class be formed.

These Lectures are open to gentlemen who are not otherwise students of the College, as well as to those who are.

JOHN HOPPUS, Ph. D., Dean of the Faculty of Arts and Laws.

CHAS. C. ATKINSON, Secretary to the Council.

November, 1852.

ARCHITECTURE, CIVIL ENGINEERING, SURVEYING, &c.—Offices, 68, Chancery-lane, Holborn.—Established above forty years. Mr. GRAYSON begs to inform those gentlemen who are interested in the above sciences, that he continues to GIVE INSTRUCTION to Morning and Evening Classes; where, besides architecture, &c. ornamental, perspective, and landscape drawing, with access to an extensive and valuable collection of models and works on the fine arts.—Mr. GRAYSON in attendance from Nine a.m. to Two p.m. and from Six to Nine p.m.

FIRE-PROOF CONSTRUCTION.—FOX and BARRETT'S PATENT.—The great importance of fire-proof construction is shown by the recently published returns of fires in London during the past year, by which it appears that there is a considerable increase as compared with former years, the number actually exceeding 1,000, or an average of three per day.

This result affords strong corroboration of a fact stated upon high authority, THAT NO BUILDING IN WHICH TIMBER JOISTS ARE USED IS PRACTICALLY SECURE FROM THE DANGER OF FIRES; and when to this fact it is added that timber is also liable to dry-rot and the ravages of insects and vermin, for which it affords a ready harbour, the mischief arising from its extensive use will be sufficiently apparent.

It becomes, then, worth the attention of those who are interested in building, to inquire whether materials of an imperishable nature cannot be substituted for timber in the construction of floors, &c., without involving additional cost; and attention is invited to a number of buildings of all classes, either finished or in course of erection, upon the above improved system, in which joists, either of rolled or cast-iron, are substituted for timber, together with a solid superstructure of concrete, adapted to receive a finished surface of floor or roof of any kind.

Among the buildings at present in progress in London on this system is the new GUY'S HOSPITAL, an extensive range providing accommodation for 300 additional beds; and for buildings of this description and magnitude, as well as for PRIVATE DWELLING-HOUSES, OFFICES, WAREHOUSES, &c. it possesses very great advantages.

A detailed description of the system, estimates, and all further information, may be obtained on application to the Proprietor of the patent,

Mr. BARRETT (late FOX and BARRETT),

12, York-buildings, Adelphi,

whose offices form part of a building erected on this principle, and where specimens of the rolled iron joists may be seen.

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY.

TRUSTEES.

Jeffery Smith, esq. David Ferguson, esq.

Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.

Policies indisputable, except in cases of fraud.

All the medical fees paid by the Society.

Assurances of every description effected.

NON-FORFEITURE OF POLICIES.

Assurers who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.

Loans granted on personal and other securities, in connection with life assurance.

BONUS

The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:—

No. of prems. pd	Age when assured.	Annual premium	Sum assured.	Bonus added.	Amount now assured.
		£ s. d.	£	£ s. d.	£ s. d.
5	50	45 19 2	1,000	34 0 0	1,034 13 0
4	40	22 19 2	1,000	65 0 0	1,065 0 0
3	30	14 15 0	1,000	43 14 5	1,043 14 5

GEORGE THOMSON, Manager.

5, Chatham-pl. Blackfriars. THOS MUSGRAVE, Secretary.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.

ADVANTAGES OFFERED.

EXTENSION OF LIMITS OF RESIDENCE.—The assured may reside in most parts of the world, without extra charge, and in all parts by payment of a small extra premium.

MUTUAL SYSTEM WITHOUT THE RISK OF PARTNERSHIP.

The small share of Profit divisible in future among the Shareholders being now provided for, without intrenching on the amount made by the recent bonuses, the assured will henceforth derive all the benefits obtainable from a Mutual Office, with at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital also combining in the same Office all the advantages of both systems.

The Assurance Fund already invested amounts to £50,000, and the Income exceeds £70,000 per annum.

CREDIT SYSTEM.—On Policies for the whole of Life, one half of the Annual Premiums for the first five years may remain on credit, and may either continue as a debt on the Policy, or may be paid off at any time

LOANS. Loans are advanced on Policies which have been in existence five years and upwards, to the extent of nine-tenths of their value.

BONUSES.—Five Bonuses have been declared; at the last in January 1852, the sum of 121,136*l.* was added to the Policies, producing a Bonus varying with the different ages from 24*l* to 55 per cent. on the Premiums paid during the five years.

PARTICIPATION IN PROFITS.—Policies participate in the Profits in proportion to the number and amount of the Premiums paid between every division, so that if only one year's Premium be received prior to the books being closed for any division, the Policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1856, therefore those who effect Policies before the 30th June next, will be entitled to one year's additional share of Profits over later assurers.

APPLICATION OF BONUSES.—The next and future Bonuses may be either received in cash, or applied at the option of the assured in any other way.

NON-PARTICIPATING.—Assurances may be effected for a Fixed Sum at considerably reduced rates, and the Premiums for Term Policies are lower than at most other Safe Offices.

PROMPT SETTLEMENT OF CLAIMS. Claims paid *thirty* days after proof of death, and all Policies are *indisputable* except in cases of fraud.

INVALID LIVES may be assured at rates proportioned to the increased risk.

POLICIES are granted on the lives of persons in any station and of every age, and for any sum on one life, from 50*l.* to 10,000*l.*

PREMIUMS may be paid yearly, half-yearly, or quarterly; but if a payment be omitted from any cause, the Policy can be revived within *fourteen* months.

The Accounts and Balance Sheets are at all times open to the inspection of the Assured, or of *persons desirous to assure.*

A copy of the last Report, with a Prospectus and Forms of Proposal, can be obtained of any of the Society's Agents, or will be forwarded free by addressing a line to

GEORGE H. PINCKARD, Resident Secretary.

10, Great Russell-street, Bloomsbury, London.

PUTNEY BRIDGE and PIER COMPANY. (Registered provisionally)

Capital 65,000, in 3,250 Shares of 20*l.* each.

Deposit 1*l.* per Share, and no further Call until the Act of Parliament be obtained.

PROVISIONAL DIRECTORS.

Wilford George Brett, Esq. Governor of the Chelsea Waterworks Company.

Anthony F. Bainbridge, Esq. Putney.

Francis Lonergan, Esq. Putney.

Captain F. A. Griffiths, R.A. Putney.

George M. ore, Esq. Putney.

(With power to add to their number.)

CONSULTING ENGINEER.

James Simpson, Esq. C.E. F.R.S.

BANKERS.

Samuel Clegg, jun. M. Inst. C.E. F.G.S.

SOLICITORS.

Messrs. Few and Co.

BANKERS.

The Commercial Bank of London, 6, Henrietta street, Covent garden.

SECRETARY.

Augustus Griffiths, esq.

The inconvenient position and dangerous state of the present Bridge between Fulham and Putney, the very high tolls charged for transit over it, the occasional impossibility of passage during high tides, and the serious impediment and danger which it offers to navigation, have been such as to render imperative the erection of a better structure. This Company has therefore been projected to carry into effect that long wished-for and highly desirable object, a new Bridge over the Thames between Fulham and Putney, in order to facilitate the means of intercommunication, and to diminish the charges attending it.

It is proposed to construct this Bridge in the most substantial manner and of the most elegant form; the works will be executed subject to the approval of the Navigation Committee of the Corporation of London; and every security has been required and given that the Bridge will be adapted to facilitate and render secure the navigation of this part of the Thames.

It is most important that Parliamentary sanction be obtained for this measure in the present session, because otherwise an independent aqueduct will be made across the river between the same points by the Chelsea Waterworks Company, which would be utterly useless for the purposes of any future bridge, and would form an additional impediment to the erection of a new structure, and at the same time the present item of revenue for a way-leave for the water mains would be permanently lost.

It has been ascertained that there is much traffic between Putney and its neighbourhood and London, which at present takes a circuitous route, in order to avoid the heavy tolls now charged on Putney-bridge; and that the same cause, combined with the dangerous state of the present wooden structure, has prevented the extension into Putney of the facilities of travelling by omnibus to and from London now enjoyed by the inhabitants of Fulham.

The traffic of the populous districts on each side of the Thames at this spot, and that which will result from establishing a cheaper and easier line of communication from London to the most west part of Surrey, are calculated to afford adequate remuneration to the shareholders in the bridge, and the solidity of the structure will be such as to render the tolls received a permanent, unfailing, and gradually-increasing source of dividend, which will also be further augmented by the annual receipt of a considerable rent from the Chelsea Water-works Company, for the right to carry their mains over the Thames by means of the new bridge.

It is proposed also to build a landing-pier for steam-boat passengers at one of the piers of the centre arch of the bridge, and thereby constitute a further source of revenue, which, according to the present traffic at Putney by steam-boat, would yield a return of about 1*l.* per week, and which would doubtless increase with the extension of this rapidly-increasing and picturesque suburb.

The project of an improved bridge receives, as might be expected, the cordial sanction and support of the Navigation Committee of the Port of London; and in the immediate neighbourhood the approbation of the project is universal, and no accommodation earnestly desired.

The capital required for the building, purchase of land, approaches, and compensation, is estimated at 65,000*l.* which sum it is proposed to raise in the manner above stated

The annual revenue has been calculated as follows:—

Traffic, based upon the income derived from the present bridge, and after allowing for reduction of tolls	£2,000
Additional receipts, in consequence of reduction of toll	500
The acquisition of omnibus and increased carriage traffic ..	300
Steam-boat pier	200
Rent for way-leave for the mains of the Chelsea Waterworks Company	500
	£4,000

This sum, after allowing for the expenses of maintenance, direction, &c. will yield a profitable return on the capital to be invested.

Applications for shares and prospectuses may be made to the Secretary, 11, Buckingham-street, Adelphi, in the following form:—

To the Directors of the Putney Bridge and Pier Company.

Gentlemen,—I request that you will allot to me shares in the above company; and I agree to accept such shares, or any smaller number that may be allotted to me, and to pay a deposit of 1*l.* per share thereon, and to execute the Parliamentary Contract and Subscribers' Agreement, when required.

Dated..... 1853.

Name .....

Residence .....

Profession or Calling .....

Reference in full .....

SUBMARINE and EUROPEAN TELEGRAPH COMPANIES.—Notice is hereby given, that MESSAGES between LONDON and DOVER are forwarded through the above companies from the offices, No 71, Cornhill; and Clarence place, Dover. MESSAGES for the CONTINENT are forwarded from the offices, No 30, Cornhill, London. By order of the board,

30, Cornhill, Nov. 17, 1852. G. L. PARROTT, Secretary.

FOR SALE, a DUMPY LEVEL, by Troughton and Simms, also a THEODOLITE, in excellent order.—Apply by letter (post-paid) to L. T. Office of "The Builder," 1, York-street, Covent-garden.

FLUORIC ACID.—This article can be obtained of the best quality, at 2*s.* per lb. of GRIFFITHS'S Chemical Warehouse, 41, Clerkenwell-green, London.

THE BEST MATTING and MATS, of Cocoa-nut Fibre.—The Jury of Class 28, Great Exhibition, awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate-hill, London.



NOISELESS RINGS.

GUTTA PERCHA CURTAIN and CORNICE RINGS. These Rings have been much approved by the Faculty, particularly for nervous and aged patients. Owing to the peculiar properties of Gutta Percha, these rings do not make a noise when drawn along the pole or rod. The following sizes may be had, either with or without loops:—Sizes: 1 inch diameter, 1¼ inch ditto, 2 inch ditto, 2¼ inch ditto, 2½ inch ditto, 3 inch ditto.

TUBING, LINING FOR TANKS, ORNAMENTAL MOULDINGS, &c. manufactured by the

GUTTA PERCHA COMPANY,

(Patentees), 18, Wharf-road, City-road, London.

BUILDERS' BENEVOLENT INSTITUTION. An ELECTION of FIVE PENSIONERS (three Males and two Females) will take place on TUESDAY, FEBRUARY 22, 1853, at the LONDON TAVERN, Bishopsgate-street. Candidates may obtain forms of application to be returned on or before 6th DECEMBER) from the Secretary, at the offices, 476, New Oxford-street. Pensions 24*l* per annum for males, and 12*l.* for females. A. G. HARRIS, Sec.

THE BUILDERS' BALL, in aid of the funds of the Builders' Benevolent Institution, will take place at Willis's Rooms, St. James's, on the 3rd of FEBRUARY, 1853. Gentlemen wishing to assist by acting as Stewards on that occasion will please forward their names to Mr. JOSEPH BIRD, Hon. Secretary, 38, Portman-place, Edgware road.

PRIZE CATTLE SHOW of the SMITHFIELD CLUB, 1852.—The ANNUAL EXHIBITION of PRIZE CATTLE, Seeds, Roots, Implements, &c. commences TUESDAY MORNING at EIGHT o'clock, and closes FRIDAY EVENING, 7th, 8th, 9th, and 10th DECEMBER. Bazaar, King-street and Baker-street. Open from Daylight till Nine in the evening. Admittance, One Shilling.

ROYAL COLOSSEUM.—Every MONDAY, at One Shilling.—The Panorama of London, Saloon of Sculpture, Conservatories, Gothic Aviary, Swiss Cottage, &c. &c. open daily from half-past ten till half-past four o'clock. In the Evening from seven till ten, Paris by Night, and the whole establishment brilliantly illuminated. Admission, Day or Evening, 2*s.*; children and schools half price.

CRYSTAL PALACE (admission 1*s.* only). At the CYCLORAMA, Albany-street, daily at three, evening at eight o'clock, seven stupendous Tableaux of the Great Exhibition and its contents, painted by Mr. M Nevin, from the original studies, and on a scale nearly equal the original. Reserved seats, 3*s.*

PATRON, H. R. H. PRINCE ALBERT.

ROYAL POLYTECHNIC INSTITUTION.—ENTIRELY NEW EXHIBITION.—An Optical and Musical Illustration of "A Midsummer Night's Dream," the words from Shakespeare, the music by Horn, Stevens, Henry West, Bishop, and Dr. Cooke, every Evening except Saturday, at Half-past Nine. Lecture by Mr. Crispe on Ballooning and the Prospects of Aerial Navigation, illustrated by a beautiful Model of Poitevin's Parachute, Green's Guide Rope Dangerous, &c. Lecture by J. H. Pepper, esq. on Chemistry and its Manipulations. Lecture by Dr. Bachhoffner on Electrical Electricity, illustrated by the Hydro-Electric Machines. Dissolving Views, with a Day and Night View of Walmer Castle, Chromatrope, &c.—Admission, 1*s.*; Schools and Children under ten years of age, half-price.

TO BUILDERS AND OTHERS.

SEASONED WOODS by the Patent Desiccating Process for SALE, at E. J. FULLER'S Depôt, 37, Wharf-road, City-road. Spanish and Honduras Mahogany, Wainscot, Hornbeam, Limetree, Birch, Beech, and Veneers. Flooring and Match Boards, &c

ANCIENT MANSION.—TO BE SOLD, Fifty superior large Yew, and several fine Ash, Elm, and Oak Trees; an antique Oak Staircase, with balustrade and panelling, in perfect condition; six handsome Wainscot Doors, and a Turret Clock. The above to be seen on the estate, seven miles from the Stevenage Station of the Great Northern Railway.—For further particulars apply to Mr. C. SLEE, 11, Osborn-street, Whitechapel.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by FIXING the RAILS, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders, held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The PATENT FISH JOINTS have been adopted to the extent of upwards of 400 miles by the engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Moravshire,
North and South Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick,

And are also in course of adoption on many other railways.

Extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly Meeting of Shareholders, held on the 25th August

"The system of fishpointing has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

Our lines not yet furnished with rails, the company draw attention to W. H. BARLOW'S PATENT RAIL, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been adopted to the extent of upwards of 120 miles by the engineers of the following railways:—

Great Western,
Dublin and Belfast Railway,
London and North Western,
Midland,
Midland Great Western (Ireland),
Northern Railway of France,
Newport and Abergavenny,
South Wales,
St. Germains and Versailles,
West Cornwall, and
Hereford, Ross, and Gloucester.

Copy of a letter from I. K. Brunel, Esq. C.E. to W. H. Barlow, Esq. C.E.:—

Is. Duke-street, Nov 10 1852.

My dear Sir, Our South Wales Railway from Swansea to Caermarthen, a distance of thirty miles, having now been completed and open for upwards of a month, I think it is due to you, whose system of Permanent Way has been adopted for the entire distance, to express to you my full satisfaction of the result. In the original construction there was considerable economy, as compared with the system which I have hitherto generally adopted, of longitudinal timber. While proper arrangement it admits of very rapid laying, and so far as I can judge at present, it forms an excellent road.

I am, my dear Sir, yours very faithfully,

W. H. Barlow, Esq. (Signed) I. K. BRUNEL.

THE PATENT CAST-IRON SLEEPERS of Mr. P. W. Barlow are adapted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They have been adopted to the extent of upwards of 130 miles by the Engineers of the following:—

East Indian,
Midland,
East Lancashire,
London Derry and Enniskillen,

and several other lines.

Extract from the Directors' report to the last half-yearly meeting of the London Derry and Enniskillen Railway.

"The general steadiness of the additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the Cast-iron Road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

The Permanent Way Company confines itself entirely to the granting licenses to use their various patents, which is done upon very moderate terms. Every information may be obtained by applying to Mr. CHARLES MAY, C.E., 3, Great George-street, Westminster; or to WILLIAM HOWDEN, Secretary, 36, Great George-street.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TOWER; ZOOLOGICAL GARDENS, Regent's-park, and various other public and private buildings; in quantities to finish twenty square yards for 1os.

PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt, at 8s. per cwt. each.

PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 5s.; Greens and Blues, 6s. per gallon.

BLACK MINERAL PAINT, very permanent, half the usual price: only 2s. per gallon.

NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.

G. REID, and CO. Steam Mills, 2, Wellington-street, Goswell-street, London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.

Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead

Its confessed superiority over every other paint hitherto known brought forward various imitations.

These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious material, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.

In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.

Hubbuck's paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the public against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON, PATENT"

and if the cask has not been so marked, the reason is obvious.

The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and or plaster decorations, and the other purposes where it is used with size, gum, varnish, milrit &c. &c.

A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, of the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is therefore unsusceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.

WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well, as persons inhabiting newly-painted houses, are subject.

The VIEILLE MONTAGNE COMPANY import the Oxide in casks bearing their mark, VM, without which none are genuine, and is to be obtained dry or ground at the Company's Agents at the following places, viz.:—London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, Jersey, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull. It may also be obtained from the Grinding Agents, Messrs. C. DEVAUX and Co. 82, King William-street, City. Wholesale Agents, Mr. CHARLES JACK, 3, Tottenham-court, New-road, and 90, Upper Thames-street, who sells it in kegs of 14 lbs. 21 lbs. 28 lbs. and upwards, as low rates; and Messrs. R. ANDERSON and Co. Timber-bush, Leith, wholesale and retail.

The Company also employ a painter, who will undertake any description of painting in Zinc by contract.

Since its introduction into the United Kingdom, the Admiralty and the most eminent professional men have given it their preference. The public is cautioned, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.

For further particulars apply to Mr. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 19, Manchester-buildings, Westminster.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and S. KNIGHT, of Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;

Manufacturers of

PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new, and that it judged by its merits, it must make its way, and finally take its place as one of the important manufactures of this country.

Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalent of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, otherwise what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and still less that it should be the best compound of lead for that purpose. In point of fact it is not so, for the newly discovered Oxichloride in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.

But the chief and by far the most important advantage it possesses is its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all Cavil. They have themselves performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its covering power as compared with the best White Lead, and they now state the proportions to be as 80 to 100, that is, 80 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more like an Enamel than paint.

In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable. The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

AGENTS.

LONDON	Messrs. Blundell, Spence, and Co. 9, Upper Thames st.
LIVERPOOL	Mr. Richd. Cooke, 7, Sise-lane.
MANCHESTER	Messrs. Johnson and McGowan.
LEEDS	Mr. James Douglas.
SUNDERLAND	Messrs. T. and R. G. Jepson.
DEVONSHIRE AND CORNWALL	Mr. John Young, Plymouth.
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Richd. Penrose, Tavistock and Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
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NOTICE.—PATENT PORTLAND CEMENT. The CO-PARTNERSHIP lately subsisting between ROBINS, ASPDIN, and COX, having been DISSOLVED on the 6th day of November, by a decree of his Honour the Vice-Chancellor Turner, and an injunction granted, restraining William Aspdin, then of Ormc House, Northfleet, Kent, from intermeddling with, or receiving or disposing of any of the moneys, property, or assets of the said late partnership, and from using or pledging the name thereof for any purpose whatsoever. Messrs. ROBINS and COX, being alone authorised to wind up the affairs of the late Co-partnership, request the Creditors of the late Firm forthwith to render their accounts, that the same may be discharged; and the Debtors to the late firm will be pleased, at their convenience, to pay their accounts, either at the Cement Works, Northfleet, Kent, or at Great Scotland-yard, Whitehall, where Messrs. ROBINS and COX continue to carry on their Manufacture and Trade in Portland Cement, in connection with Messrs. Goodwin and Schmidt, under the style or firm of ROBINS and COMPANY.

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The Builder.

SATURDAY, DECEMBER 4, 1852.

THE question of the expediency or otherwise of removing the NATIONAL GALLERY from Trafalgar-square is exciting considerable interest, and we return to the discussion of the subject at the Institute of British Architects, which was resumed on the 29th of November. Professor Donaldson, who was in the chair, in re-opening the discussion, observed that it might be regarded as the pursuit of a National Gallery under difficulties. In the first place, he believed the Government had actually purchased a new site. The question was, is the atmosphere of London injurious to the pictures? The mere improvement of the present building externally would be costly; and there was a further question, whether the vicinity of the present site would admit of a sufficient enlargement of the building. For himself, he thought the difficulty and expense of properly ventilating the existing building was a great objection to it. It had been said that the public would not go so far as Kensington to see the collection, but he believed few men of business, and still fewer artizans, went now to the National Gallery, without devoting half a day to the purpose; and that if they could do so in pure air, and among trees and gardens, it would be a greater inducement to them. He therefore preferred the site suggested by the Government. With regard to the space required, he thought a National Gallery should embrace not only pictures, but the sketches and drawings of ancient and modern painters, together with illustrations of pottery, porcelain, and metal work; casts of public monuments and antiquities; and for that purpose courtyards would be required, and a much greater space than Mr. Smith's plan provided. He further objected to that gentleman's project, that it ought to have embraced a complete architectural elevation in each front. Such a design should be conceived largely and magnificently, and the houses in St. Martin's-place and the access to Duke's-court should not be allowed to interfere with it.

Mr. Papworth considered that an additional building to the westward, corresponding with that proposed by Mr. Smith to the east, with the removal of the Royal Academy, would provide for a collection as extensive as that at Munich,—the largest on the continent. Sculpture should be an essential portion of a National Gallery; and the noble squares in the vicinity of the British Museum afforded ample space for adding picture-galleries to the sculpture there displayed. Mr. Papworth particularly called the attention of the meeting to the evidence of Sir C. Eastlake, Mr. Uwins, and Mr. Faraday, to the effect that the removal of the pictures to the suburbs would reduce the number of visitors; and read some passages, from which he inferred that they recommended the removal on that ground. If the public were to see the pictures, they must be in a central situation; otherwise they might, with great propriety, be taken through the provinces for the benefit of their health, and for the instruction of the inhabitants of the large towns of the kingdom. As no new site could be purchased without the assent of Parliament, he thought there was time for the Institute to interpose.

Mr. Pocock agreed with the chairman that few casual passers entered the National Gallery. The crowds at the Crystal Palace last year, and at the recent lying in state at Chelsea, proved that the distance was not an objection where the attraction was sufficient. The artizan would seek fresh air when he took a holiday; and a new site would subject the carriages of a different class of visitors to less risk of injury than the present. He did not consider the project to remove the National Gallery to Brompton as a "job," but rather as a move in the right direction; and it ought not to be thwarted by any illiberal or unhandsome observation. Many artists, connoisseurs, and scientific men resided in that locality; and considering a clear atmosphere most desirable for the preservation of the pictures, he hoped the plan proposed by the Government would be carried out.

Mr. Foggo asserted that the real object of the proposed removal was to diminish the number of visitors. If, therefore, as Mr. Pocock had argued, their number would be increased by such removal, that was a good reason for retaining the present site. Mr. Uwins, Mr. Etty, and others had stated that, till within the last four years, the pictures were in the best possible condition; and Sir C. Eastlake and Mr. Seguier had admitted that, with some alterations proposed by Sir C. Barry, they would not object to the present building. Together with the chairman, Mr. Hume, Mr. Godwin, and others, he (Mr. Foggo) had used zealous and effectual exertions to throw open the public buildings of the country to all classes; and as there was now an opportunity of enlarging and improving the National Gallery, the only substantial question was the safety and preservation of the pictures. It was on the latter point only that the Parliamentary Committee proposed a change of site; but that report was based on insufficient evidence: it excluded the results of Mr. Faraday's unfinished experiments, and also the evidence the committee had sought as to foreign galleries. Everything, in fact, had been done to make out a case of injury to the pictures. In three months 120,000 persons visited the Royal Academy, whilst 700,000 went to the National Gallery in ten months and a-half. The visitors to the latter were not in the rooms more than an hour each on an average, whilst those who went to the Royal Academy stayed at least three hours. The Academy was notoriously the most crowded, and the injury by exhalation from the crowd was therefore greater than in the National Gallery. If the national collection ought to be removed from London, it would be incumbent on the City Companies, the Society of Arts, the Dukes of Northumberland and Buccleugh, Lord Grosvenor, and Sir R. Peel, to remove their collections also. It was intended to decorate the Houses of Parliament with pictures and statues, and surely a locality subjected to the malaria of Milbank and Lambeth was far inferior to that of Trafalgar-square. Mr. Farrar had ascribed the injury to the pictures to some workshops in the rear, rather than to the smoky chimneys; but those workshops were adjacent to Wardour-street, where Mr. Farrar kept some of the choicest works of the old masters. The situation of Greenwich Hospital, from its dampness, was much inferior to that of the National Gallery; and, on the question of facility of access, it had been proved that neither there, at Dulwich, or at Hampton Court, were the visitors at all so numerous as at the present National Gallery. Mr. Foggo adverted to the serious complaints made by the authorities of St. George's Hospital as to the effluvium from the Serpentine, and contended that the site proposed by the Government would be open to the same objection.

Mr. Varley said that, as a chemist and an artist, he was convinced that London was the driest spot in England, and that there was far more fog and moisture out of the metropolis than in it. Though perhaps a little too near the Thames, a better spot than the present for the National Gallery could scarcely be found. He strongly urged the importance of educating the very humblest classes of the community in art, by giving them the utmost facility of access to the collection; and believed that for every mile which the pictures were taken from the heart of London, the number of visitors would diminish in an immensely increased proportion. The present site was most convenient for students, and the neighbourhood afforded ample space for enlargement. Mr. Varley entered into some particulars of his own practice in preserving pictures, in order to shew that the supposed causes of injury might be effectually counteracted.

Mr. Knowles, considering that the Government project should neither be supported nor condemned till it was fully known, moved the following resolution (which was afterwards seconded):—"That this discussion do stand adjourned, until the intentions of her Majesty's Government have been communicated to the public."

Mr. Fergusson, having measured the present site and the adjoining buildings, informed the meeting that, by including the workhouse, the barracks, and some inferior tenements behind, space might be provided for as many pictures as are now in the Louvre, for four times the sculpture now in the British Museum, together with a large gallery for prints, and a library; in fact, for seven times the present contents of the National Gallery and the British Museum. Regarding experience as better than reasoning on the question of injury from the atmosphere, he observed that the Marquis of Westminster and other noblemen possessed pictures which had been kept in London since the time of Charles I. and which were in at least as good condition as those in their country houses. As to the locality, the manager of any exhibition would infinitely prefer Regent-street or Charing-cross to Kensington.

Mr. Seddon spoke in favour of the enlargement of the present site, suggesting a quadrangular structure of adequate importance.

Mr. Tarring stated that he had consulted Mr. Woodburn, the well-known connoisseur, who, from his long experience, believed that the locality of St. Martin's-lane, where his own gallery is situated, was by no means injurious to pictures; and that the damage has, in fact, been caused by injudicious cleaning. Mr. Tarring thought it desirable that some opinion should be clearly expressed by the meeting, and therefore moved, as an

amendment, "That, in the opinion of the architects, artists, and amateurs present, sufficient evidence has not been laid before the public to warrant the removal of the national collection from a central position in the metropolis."

Mr. Inman, V.P. strongly expressed his opinion that the National Gallery should be made as freely accessible to all classes as possible, due regard being had to the preservation of the pictures. He knew nothing of the intentions of the Government. He thought the Institute should pay every attention to the question, and seek the co-operation of other societies, so that an efficient force might be exerted in favour of whatever might be deemed the proper course.

Mr. J. Bell, M.P. said he had great reason to believe that the Government had determined upon a plan which it might require all the exertions, and perhaps more than the power, of the Institute to alter. In the evidence before the Parliamentary Committee, he saw no reason given for the removal, except that fewer persons would visit the Gallery, an argument which the Institute could only apply in a very different way.

The Chairman, in answer to a question on the subject, stated that, whatever resolution might be passed, it would only bind the members present, and not the Institute as a body. He trusted it would not be supposed that the Government desired to exclude any class from the examination and study of works of art; or that such distinguished men as Sir C. Eastlake and Mr. Faraday could entertain such an idea. Though himself an advocate for the change of site, he trusted his own labours to promote the free admission of the public to our national monuments, would relieve him from any such imputation.

Mr. C. H. Smith thanked the meeting for the interest they had taken in a subject which he had brought forward without any such expectation; and simply because he believed that the site of St. Martin's Workhouse might soon become available. Whether for the enlargement of the National Gallery, for the accommodation of learned and scientific bodies, or otherwise, he hoped that site would be secured for public purposes.

The amendment was then put, and carried by the votes of the Fellows of the Institute.

It was moved by Mr. Thompson, seconded by Mr. Bell, M.P. and carried, "That the resolution be referred to the Council, to take such steps in furtherance of it as may be proper."

In reply to an inquiry as to the manner in which the opinion of the Institute at large could be elicited, the Honorary Secretaries stated that a special meeting might be called on the requisition of eight Fellows.

Without finding the expediency of removing the pictures to Old Brompton actually proved by the evidence before the public, we do not participate in the objection to the proposed removal held by some of the speakers, and are disposed to view with satisfaction the comprehensive scheme contemplated by the Royal Commissioners of 1851.

The Commissioners have just now issued their second report, wherein (showing that the probable amount which will remain at their disposal is 173,298*l.*), they set forth the terms on which they, with the concurrence of Government, have purchased the land in Kensington and Brompton, and say,—

"The question of the apportionment of the ground among the different institutions to be erected upon it, or of its division between the Government and the Royal Commission, as already spoken of, must obviously be left for future arrangement. It appears to us, however, that it would be desirable that the new National Gallery, if placed in this locality, should occupy the advantageous and more elevated site fronting Hyde-park, on the Gore House estate, while an institution like the Commercial Museum or Museum of Manufactures, already suggested by us, might be established on the corresponding site fronting the Brompton-road, at the further end of the property; the central portion containing a building in which the different societies might procure that juxtaposition, the means of effecting which, as we have before mentioned, they have been for several years considering; while the two sides might be devoted to the departments of practical art and practical science."

The Commissioners are acting on the conviction, that all sciences and all arts have only one end—the promotion of the happiness of mankind—and that they cannot perfectly obtain that end without combination and unity.

A SANITARY AND FIRE-PROOF FLOOR-CEILING GIVING THE ARCHITECT NO WORK AT ALL.

The floor construction described by Mr. W. Bridges Adams, in your late number, reducing the architect's work to a single casting, appears sound in principle, if *confined* to floors (not roofs); and did anything call for floors of 200 feet span, or render them advantageous, I do not think I should make them differing much from that design in any particular, except making the meshes triangular, to get the doubled security of ties in three directions instead of two, and giving the turnstile pieces six arms. The whole problem, however, is purely one of curiosity. There is no present requirement, and I can conceive of no future one, that may motive floors of even 50 feet span. For, admitting the inconvenience, and, indeed, *barbarism* (with our science and resources) of pillars anywhere between the speakers and hearers, in churches, lecture-rooms, and theatres,—yet, as the utmost extent the voice can reach is included within a circle of 150 feet diameter, no auditory can in reason be extended beyond a figure inscribed in such a circle. Now, a *floor* over any place can only be motived by another room being above it: otherwise we should want, not a *floor*-ceiling, but a *roof*-ceiling. Our auditory, then, is supposed to have a room over it, and, therefore, can only be lighted from side windows. But a room requires, to get light enough in this manner, a height at the very least two-thirds of its width. Therefore, before it is worth while to make a floor of 150 feet span, we must find it worth while to mount 100 feet of stairs to get on this floor. This cannot be the case until the ground is worth very many times moré than it has ever yet been, in any city, ancient or modern. If we take 30 or 40 feet as the utmost height worth ascending to a "*one-pair*" floor, then 40 or 50 will be the utmost span worth covering in this manner,—leaving taste out of the question.

But, moreover, even rooms of these widths, or of 30 feet, or even 20, must, to get light enough from the sides, be high enough to admit arched bearers, the cheapest and best spanners of any space. Therefore, there can be no rational motive for the omission of arches in any ceiling beyond the scale of our commonest domestic ones; in other words, no motive for a piece of floor-ceiling ever wider than those in ordinary houses. I may go further, and say that none can rationally occur in public buildings *so wide* even as these, because there is always, owing to the height, opportunity for arched bearers between every window, and, therefore, decidedly nearer together than the walls of domestic rooms.

As I am reasoning only of what admits reason—of the architecture of men, not that of monkeys—of course I take for granted that the levelness of a floor-ceiling would never be *imitated*; that this inherent and hardly conquerable element of ugliness would prevent its ever being made wantonly, or allowed to subtend a larger angle to the eye than is necessary; in short, that taste, no less than engineering economy, would always confine it to the least possible span.

It is otherwise with a roof or roof-ceiling. Here the engineering requirements not only involve no necessary ugliness, but would, in any material, if honestly thought out, necessitate much positive beauty. I do not think even —— could succeed in making a *good* roof ugly or mean. To do so he was obliged to throw reason and the structural requirements overboard. A rational roof is unavoidably beautiful, and hence its span might be enlarged for æsthetic considerations beyond what the utilitarian ones strictly called for. Pillarless roofs on the scale Mr. Adams mentions (one, for instance, housing the Crystal Palace, like a model in a glass shade) would doubtless, if treated without very egregious absurdity, have a certain grandeur, just enough to justify the incurring some shillings per cent. extra to dispense with pillars. And I have elsewhere shown how easily this might be done (at certainly *no* greater expense than a pillared baby-house *à la* Hyde-park), by a construction which is so far similar to the floor of Mr. Adams as to have the net-like substratum of ties in two directions; but not depressed into a level plane, which would (as that memorable warning has proved) utterly preclude all grandeur, let the scale be what it may. I only refer to this project to show that the net I am about to describe is not borrowed from that of Mr. Adams, which some, I believe, would regard as a heinous sin.

Otherwise, the proposal to make one contrivance serve for a floor or a roof, simply recalls the umbrella-telescope class of work-wasters; but without their ingenuity. To see one thing combine the functions of a clock and an almanac, or a compass and a nutmeg-grater, excites pity at the amount of serviceable thought and ingenuity perverted; but to see one design pretend to answer (for it never can answer) those of a floor and a roof, only excites laughter at the astounding assurance of undertaking such things at all without even seeing that they are two things; and that after all possible narrowing of his office, an architect must still somehow manage to get two ideas before he can design them both. I shall not waste words to prove that their functions are utterly incompatible.

Having shown you, then, that we have no reason for floor-ceilings wider than 15 or 20 feet, but that even these, to be rightly treated, involve considerations a great deal more than are dreamt of in your modern architect's philosophy,—I proceed to give you my simplest solution of them; or, at least, one free from the insuperable objection that I know attaches to others I have proposed, viz. that they exact a few minutes' thought from the applier of them to each special case,—a very minute modicum, indeed, but still a modicum, of *design*, where he has hitherto been accustomed only to "*specify*,"—a little bit of work for his own head that is now replaced by a good deal of the carpenter's. Improvements to be practicable now-a-days must, I am well aware, involve nothing of that sort,—not the smallest particle of work for those paid for it, that has passed into other hands. We have to design for "designers," who, as Mr. Braithwaite desires us to mark, have no "deliberate intention of doing damage," but merely "from want of knowing how to act," transgress the "code of taste" by *getting their neighbours' money for knowing how*; and though I fear I hold that "unlucky cant" which makes morality embrace these matters of taste, I fully agree with him as to the extravagant project (which I had not heard of before) of hedging them in with penal regulations, and think with him, we should endeavour to convince them (as we should Jack Sheppard) that their works tend to an injurious effect, and by no means "violently assail" them for innocently follow-

A SANITARY AND FIRE-PROOF FLOOR-CEILING.



FIG. 1.



FIG. 2.



FIG. 3.

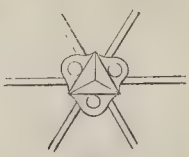


FIG. 4.



FIG. 5

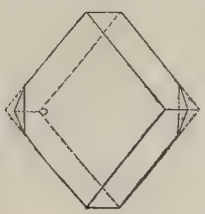


FIG. 6.

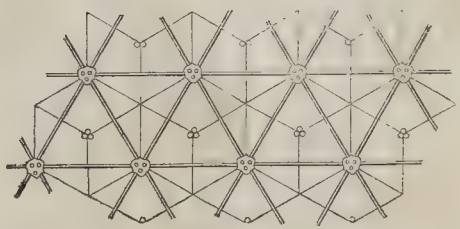


FIG. 7.

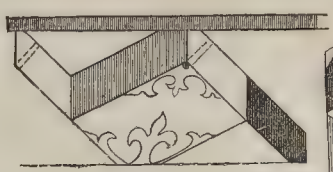


FIG. 8.

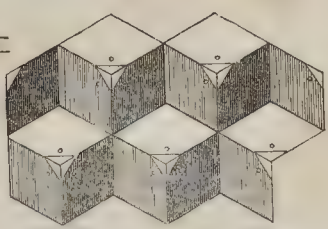


FIG. 9.



FIG. 10.

ing pursuits (such as obtaining money upon false pretences) for which we "have found no better substitute." The charge of "intention to do damage" is ridiculous, whoever made it. No intention is at all clear from these gentry's designs, beyond the far from singular one of doing nothing they can by possibility get paid for without doing. So whatever substitutes for their pursuits I may find them, must, to "be feasible or conduce" (as Inigo said), have this peculiarity,—to occasion no work whatever on *their* part, only on mine, the manufacturers' and the workmen's, to be (like their present elegant resources) such as they may have nothing to do with but to "specify"—and be paid for.

This flooring, then, will, I hope, be Paxtonian enough for them, consisting, as it does, of only *three* invariable elements or types, which may be supplied entire, as to both form and ornament, by the manufacturers, just like pantiles or paper-hangings. Exclusive of common bolts or rivets, here is but one brick or tile, one hoop-tie, and one small link or coupling-piece.

The hoop-ties are to be welded in the form of the musical instrument called a triangle, but of half-round iron, with the flat side inward; and fig. 1 shows their arrangement in the ceiling.

The short link or coupling, fig. 2, is to hold together, by three rivets or bolts, the adjacent angles of three of these triangles; and it may either form a pair of jaws, both like that in fig. 2; or the lower plate may be punched out in the shape of fig. 3, its ends turned up at right angles, rounded in a swage, passed through the three holes of the upper plate, and rivetted above.

The triangles will thus be united into a continuous web tightly stretched to the four wall-plates, as canvas to an embroidery frame. The plates may be very thin, but broad, their outer edges being convex arcs as deep as the thickness of the walls will permit, and of course they are so pulled in as to need no fastenings, only mitred and radiating joints.

The ceiling brick or tile will be understood from fig. 5, its underside, and fig. 6, its upper (represented transparent). Both these faces would, but for the truncation of one angle, be rhombi having their short diagonal to their long one as $\sqrt{2}$ to $\sqrt{3}$, which makes the angles very nearly 78½° and 101½°. The four edges are all to be bevelled, at angles of 52½° to one face, and 127½° to the other; and when the material is too brittle for arrises of 52½°, they may be replaced by a narrow face inclined 142½° to the tile's main face, and perpendicular to its edge face. The four short edges are all inclined 45° to the tile's faces, and all parallel. The sharpness of two of them is 60°, and of the other two 120°; and the two latter have each *one-third* of its length removed by the small truncation. These truncation planes are parallel, equal, and similar, each perpendicular to the short edges, and inclined 135° to the tile's faces, and each forming a triangle, with an angle of 120°, and two angles of 30° (the latter truncated if the arrises of 52½° are so). The ratio of the tile's thickness to its size is indefinite. The vent-hole is close to one of the angles of 101½°, and going through perpendicular to the main faces; and I should think a bore of half an inch at the entrance, diminishing to a quarter at the exit, ample for the largest tiles that can be made. Except this hole, the tile presents no more work in moulding than a common brick.

Fig. 8. Three tiles in their position. All their faces will be inclined 45° to the horizon; all the margins thereof, 26° 34′ (or 2 horizontal to 1 vertical). All their edge planes will be vertical, and all the small truncations horizontal; the lower forming the feet on which they stand, and the upper the heads to support the flooring.

Fig. 4. The manner in which three tiles' feet stand on each of the coupling links, between its three rivet or bolt heads.

Fig. 7. The appearance of the finished ceiling. To fit the sides of rectangular rooms, or any walls forming angles that are multiples of 30°, you require only two kinds of half-tiles, long and short halves, cut by their two diagonals.

Fig. 9. The naked floor; on the flattened summits of which you may lay sawn or split slates, or tiles as small as those of the ceiling, yet leaving free passage for the foul air in every direction to its provided wall outlets. You can also lay, in any direction, smoke or hot-water pipes, to warm the room above, and slightly assist the ventilation of that below. To get more height for these, as well as more bearing for the floor-covering, it will be well, in superior buildings, to place on the protuberances, spreading circular capitals, with triangular depressions in their underside to fit on the pyramidal summits.

A cementitious floor-coating would always be proper for rendering it air-tight, whatever the material beneath.

In large and superior works, all effects of the metallic *expansion* and *contraction*, may be perfectly *compensated* as follows:—Distend the three sides of each triangle, as in Fig. 10, by a distender of cast *zinc*, so that as the said triangle expands, the zinc (expanding *more* than wrought iron, in the ratio of 7 to 3), may push out the sides more, and keep the three angles at an invariable distance. To produce this compensation, the zinc arms must be of such length as to increase the original angles of the triangle to about 110°, and make the new ones 130.° I have not reckoned this very exactly. I need not say how much these zinc castings will, if well treated, add to the richness of the ceiling.

The ceiling-tiles admitting any kind of clay, however coarse, and any kind of ornament applied to encaustic tiles, they may cost any sum from a penny to a guinea, and thus express, without change of form, any degree of ostentation, from that of the cottage

to that of the palace. But a real architect will never exhaust the ornament obtainable from the plain cottage ones, of two or three colours (and every neighbourhood affords at least two) by arranging them in stars, hexagons, lozenges, broad bands, zigzags, and borders. No two ceilings need be alike.

There are two variations in their form, however, that I should use in particular circumstances.

1st. For narrow passages, closets, stair-landings, and other ceilings having rectangular well-holes, or much bounding-line forming either right angles or angles of 135°, I should use a web of *square* hoop-ties, united by couplings of only *two* bolts; from each of which couplings would spring the feet of *four* tiles; and the heads of *four* would meet over the centre of each mesh.

The faces of these must be rhombi whose diagonals are as 1 to $\sqrt{2}$, or the angles 70½° and 109½°, the bevels regulated as before by the four short edges being inclined 45° to the faces, and the truncation planes each removing *half* one of these edges. (Mind, the position of these rhombi is to be contrary to that of the former ones, the short diagonal being horizontal.) The construction is altogether inferior to that first described, and will not admit the expansion-compensators; but it will fit rectangular breaks without cutting or half-tiles, and octagonal ones by the two half-tiles only.

2ndly. In palatial rooms and churches (which may possibly require floor-ceiling under their galleries) I should use the common triangular net, but a *trapezium* tile, of which *six* would spring from each coupling-link, and the heads of *three* meet over the centre of each mesh. To give them the common inclination of 45°, the upper angle of the trapezium must be 101½°, the lower (truncated) 43° 40′, and the side ones 107° 25′. The constant rule that the short vertical edges lean 45° on the faces, will determine the bevel of the edges, viz. the two upper 52½° as in the first-described tile, and the two lower 68° 10′. Made with the due accuracy (attainable only in good material) this construction will be far more beautiful than the others, the inverted pyramidules being six-sided. These may further be made lily-shaped by giving the tiles concave faces. Lastly, slabs of stone or marble may replace them in large works: and perhaps in freestone districts, it may do so always with economy.

E. L. Garbett.

THE EDUCATION OF THE ARTIST AND THE PUBLIC.

At Marlborough-house, on the 27th ult. Mr. Redgrave, R.A. the Art Superintendent, delivered a discourse on the methods adopted by the Department of Practical Art to give instruction in art to all classes of the community. He divided his subject into three general heads:—

1st. The method adopted to give instruction to all in drawing, &c. as an improvement of the perceptive powers, and the appreciative taste; with the collateral advantage of imparting at the same time a language of explanation between employer and workman.

2nd. The more peculiar instruction which it is their office to impart in ornamental decoration, both as to power of execution, knowledge of styles, and proper application of ornament to different fabrics and manufactures; and this equally for the education of the art-workman, the training of the future designer, and the improvement of the public at large.

And last, the methods adopted in those classes which the department has provided for instructing the art-workman and the designer in their *special* branches of industry. In which classes, not only the principles which regulate the just application of design to the special fabric or manufacture are taught; but all those *processes*, whether of the hand, the machine, or the laboratory, which govern its production, are explained to the student by professors qualified for such specialties.

It would appear that a very extended course of instruction has been provided.

We shall confine ourselves to the superintendent's remarks on the education of the public, whereby to enable them rightly to appreciate what is just in taste and excellent in Decorative Art, and these we give in full.

Though last to be spoken of (he proceeded to say), this is certainly not the least of our duties, since, unless effected, it is to be feared that all other efforts will be useless, and any improvement in design a thing beyond our hope. Until men turn their attention to the subject, they are little aware how entirely empirical most of their judgments in matters of taste are, and consequently, as to what is correct and just in Decorative Design also. Men are inclined to believe that judgment on objects of taste does not depend on any acknowledged principles nor can be defined by any rules, but is an innate feeling or perception; and the trite maxim that "*taste* is not to be disputed"—which is as much as to say that it is amenable to no laws—is still the measure of public opinion in the matter. It is true that we allow that there is a City taste and a West-end taste, a Provincial taste and a London taste; and although these are each known to have their distinctive differences and characteristics, they are considered to depend on the sentiment of this or that public, and are believed to be under no rules nor regulated by any laws. But is it really so? is true judgment in matters of taste neither to be imparted by any teaching nor improved by comparison or observation? We venture to think not, and shall endeavour to give causes for choice and the reasons for preference as the *principles* which are to regulate and guide us; not as dogmas, or as infallible, but open to all objectors who diligently seek after what is true. The fact is, that the ignorance of the public in such matters is most melancholy, their want of guidance like that of a child, and deeply have they paid and are still paying for that ignorance. This causes men to rely on precedent and the authority of past times, or on fashion—instead of striving for proper information on which to found their judgment; and then, thinking and judging for themselves, they trust to what has been done before as right, and do not stop to consider what should be done now,—what is suitable to present wants. Let me give you two or three illustrations of this, turning first to *Architecture*, which must be considered as the parent of Ornamental Art. The rich man who is about to build a mansion in these days, does not sit down to consider what is useful and what he really wants—how many rooms, what aspect for health, what arrangements for comfort, what order of distribution of the offices for convenience—but referring to the past, or to some prevailing fashion, and considering decoration before utility, he instructs his architect what *style of architecture* shall be adopted: his house must be castellated, Gothic, Grecian, or Italian: it must have a cloister, a portico, or a colonnade, whether it is to be a place he can live in when built or not. Thus instructed, and not allowed to exercise his own judgment, the architect also reverts to precedent and authority, and the estate is cumbered, it may be, with a load of stones called a castle, with walls whose thickness increases the space in his client's pockets at the expense of space in his rooms, duly ornamented, no doubt, with corbels, battlements, and embrasures, things perfectly useless in the present age. The whole when completed is an unsatisfactory absurdity, and the employer pays the penalty, not only in money, but in the inconvenience of dwelling all his days in a dark, gloomy, unsightly, and inconvenient abode. It may be, however, that the builder of the mansion is emancipated from the rigours of mediævalism, and desires a palace or a hall in the Grecian style. It is furnished with a portico according to the strictest Greek proportions, but to allow of this magnificent portico, the lower rooms are so lofty that their size dwindles into insignificance, the two wings are cut apart by a splendid entrance-hall and staircase that leads to bed chambers lighted by *skylights*, for windows in the front would derange the architectural disposition; thus, the possessor, in a lovely country, open to the sweet breezes from downs and commons, with a far-away sea, and a fair prospect around, pays the life-long cost of being unable to look out of his windows on the lovely landscape, that the outside of his residence may be decorated with a costly piece of inappropriate decoration. Even when men are about to build a church for the worship of God,—when, at least, it might be hoped that the best means of accommodating the worshippers, and the best arrangements for their joint worship, would have the first consideration,—it is not so: the war is still between styles of architecture; and if churches combined of Grecian temples and Gothic spires, edifices unsuited to our climate, our feelings, or our wants, have at last passed out of date, gone out of fashion, it is to be feared, rather than been rejected on sound principles of taste, these have only made way for the re-introduction of a style wherein symbolism is thought of more importance than convenience, the form of the structure more than its fitness for the worship of God or for hearing therein the preached word of the Gospel. These forms may be suited to the ceremonial of that worship which we have laid aside, because it overlaid the truth with, as we believe, useless ceremonies, but they are quite unsuited to our simpler worship, our larger concourse, or our desire to hear the words of the preacher.

Now all these evils arise from the want of an educated taste and judgment, which being wanted, men cannot or dare not think for themselves, but are in bondage to fashion, to authority, or to the traditions of antiquity. They neglect, or have never had opportunity to learn even these simple rules, which would guide their taste and direct their judgment; namely, that utility should have our first consideration; that constructive propriety should precede ornamentation; and that each age has its own characteristic wants, which are unsuited to the wants of its successor;—rules that, although simple, would root out a large amount of false taste in all things, as well as in architecture, and might be the means of implanting an equal amount of correct judgment and good taste in their stead. But let us turn from architecture to see whether good taste in other matters may not be assisted and regulated by laws and principles; and since the leading characteristic of architecture is *form*, let us consider the question in respect to colour.

Colour has its laws of harmonious arrangement and disposition, and requires to be present in definite quantities in any distribution to satisfy and please the eye. Now, although it would not be true to say that this subject has had no consideration among artists or designers, since no arrangement of colour in any composition, either *pictorial* or *ornamental*, can be made without a consideration of some of these *conditions*, it would not be too much to say, that the arrangement of colour has been far too often considered an affair of the eye only, both by them and by the public; and that he who is born with a fine eye for colour—as of course every one thinks himself to be—has no need of rules to guide him. Thus too many have been accustomed to proceed *empirically*, and to laugh at laws they are not at the pains to understand. There is no disputing the fact, that there are varieties of organization in the human race; and it is well known that there are persons whose vision is perfect as far as the perception of form goes, with a completely disorganized sense of colour; so far, indeed, as to be able to read the smallest print and clearly to distinguish objects at great distances, yet to be unable to distinguish between red and green; and that from this state to the perfect perception of tints, hues, and their various minute gradations and relations, there is every amount of perceptive discrimination. Now, as all classes have more or less to do with colour, either in the choice of their furniture, their dresses, or the decoration of their houses, apart from any necessity which may belong to their occupation as workmen, manufacturers, designers, or tradesmen, it must at once be evident that a knowledge of those natural laws which regulate the harmonies of colours and their just distribution, while it is valuable to all, must be an absolute necessity to those whose business is connected with the choice or arrangement of

colour, and that taste in colour will rarely be correct which is not founded on a knowledge of these immutable laws. It is necessary, therefore, to make them more generally known, not only to designers, but to all classes, who are called upon more or less to judge of its employment.

To give, however, some idea of the public education and the public taste as to colour, I may, perhaps, be allowed to relate two circumstances which I think will aptly illustrate the want of instruction prevalent in the matter of colour. Being lately in the workshops of a manufacturer, who employs several hundred workpeople upon a branch of industry largely dependent on colour for its decoration, and happening to speak of the laws of colour, I was interrupted by the remark,—"Laws of colour: to what do you refer? I was not aware that there were any laws of colour." It was to meet this ignorance that this Department issued their diagram of colour, which, at a small cost, gives, in words intelligible to all, some of the simplest of these laws; and it is hoped that its distribution in our schools, in our workshops, nay, in the nurseries of our children, will prevent in future such an inquiry as whether there are indeed laws of colour. The second incident occurred to me a short time ago, when, being by accident early in the morning as a casual and unknown customer in the rooms of a carpet warehouse, doing perhaps as large an amount of general business as any house in London, whilst making my own purchase I was led to look round, by overhearing a dialogue between the principal of the house and a manufacturer's agent, who had brought up a number of pieces of carpet as new patterns for the tradesman to choose from. His choice was no doubt regulated by what he could judge would be the taste of his customers. When I looked round I found, to my surprise (although, perhaps, it may not so greatly surprise you), that these several patterns consisted of but two showy designs, with very brilliant colouring applied, with perfect indifference, to the same ornamental forms; so that what was green in one was blue in another and red in a third,—at random.

Now as harmony under these conditions must be impossible, and as only one *could* be right, whilst all might be wrong, I think it may illustrate the value that a knowledge of the laws of colour would have been, both to the manufacturer and the trader, and how little their choice could be consonant with what was really good taste, from their want of knowledge of these laws. To explain this I have prepared a diagram to show that colours must be arranged together in specific and absolute quantities to be agreeable to the eye: it is founded on the experiments of Field, who laid down, from able researches and experiments, what these relative quantities must be. Thus, in arrangements of the primaries, a surface quantity of three yellow requires, to be agreeable to the eye, a surface of five red and eight blue, or three yellow harmonises with its secondary purple as three to thirteen in surface quantity. If, therefore, in any composition these colours were used interchangeably in the ornamental spaces, it must be inharmonious, unless another law is attended to, which is, that a *hue* of colour diluted with white into a *tint*, requires a much greater increase of surface quantity to contrast harmoniously with its complementary full *hue*. Of these rules the manufacturer, however, did not seem in the slightest degree aware, since the colours were as full in hue in the one case as in the other.

Time will not permit me, even if it were desirable, to give other illustrations of the various ways in which taste is improved and informed; and that correct judgment, which is called *good taste*, acquired by the study of nature's laws, and of those rules which govern artistic and ornamental arrangements. I have said already that the public pays dearly for its want of instruction in those laws—pays, not by hundreds, or by thousands, but by hundreds of thousands; and this might be proved in a multitude of ways. I have just been speaking of colour. Now the least knowledge of its laws will shew that the simplest combinations of colours are the most harmonious. Yet the paper-stainer, the calico-printer, the silk and ribbon weaver, the carpet-manufacturer, and a host of others that I need not enumerate, are striving to gratify the public by introducing the largest possible number of colours into their patterns, not only, by throwing away useless labour, rendering costly those few to which fashion gives a certain amount of success, but still further increasing their price by those numerous patterns which are failures in the market, being such faulty, overcoloured efforts after novelty—such lawless and abortive productions, that even an uneducated public cannot tolerate them, and they are sold off at the end of the season at a "tremendous sacrifice;" their cost, by the immutable laws of trade, becoming an extra charge, reckoned beforehand, on those which were at least less unsuccessful, which cost, of course, comes out of the pockets of the untaught public. Now, if there is this loss on one kind of manufactures or fabrics, what must be the loss on all, when we consider the fearful over-ornamentation they too largely display?—the carving, inlaying, gilding, and burnishing that are thrown away upon them.—for where there is much ornamentation we may be pretty sure that it is in bad taste or ill applied.

DRAINAGE OF TOWNS.

PIPE DRAINS AND BRICK SEWERS.

At the Institution of Civil Engineers, on the 23rd inst. Mr. Robert Rawlinson read a paper "On the Drainage of Towns." We pass over the introductory matter, and proceed to the practical.

It was to the social effect of town drainage he said that the attention of civil engineers would be most naturally directed, as under that head the leading principles of actual practice and the proposed modifications must be brought forward and discussed.

The position of the outlet would in some measure be governed by natural local conditions, and the dimensions would be fixed by the area and the number of houses to be drained.

The material of construction was a question dependent very much on experience and practice: earthenware pipes were, however, according to the author's views, the most economical and effective for all sewers and drains within the capacity of the material.

It was contended that town sewers could not receive the excessive flood waters, even of the urban portion of the site: they should never receive the suburban drainage, nor be combined with watercourses: they should be adapted solely to remove the solid and liquid refuse from the houses. Mr. Rawlinson considered it was safer for the inhabitants that there should be no sewers at all, rather than they should be of such dimensions as to become places of deposit. Pumping, it was stated, could be profitably adopted in certain situations, where, from the level, or the effect of tidal influence, the outlet flow might be checked. Intercepting sewers at mid-level were approved. Sewers of minimum dimensions were advocated, in connection with pumping; and they should be capable of resisting internal hydraulic pressure in case of the water rising in them.

The flow through sewers should be constant, and it was argued this could only be secured by having conduits adapted to the delivery.

It was contended that the maximum surface water could not be passed through the sewers, but the natural surface outlet should be retained, to assist in carrying off flood waters from the streets of large cities. The fact of town sewers not having been originally intended to receive house drainage or soil was prominently noticed. The want of connection between the houses and the sewers in many parts of the metropolis, the absolute disconnection at Paris, and the prohibitory law, only recently repealed, at Liverpool, were quoted.

With regard to earthenware pipes, 3 inches diameter was considered too small for any drain pipes, and 30 inches diameter too large for the material of which they were at present made.

Pipes of 4 inches diameter would probably be found the least sectional area that should be used for house drains, and 9 inches for streets. House drains should not be laid at a less gradient than one in sixty. It was decided that the beneficial use of pipe sewers could not be pushed beyond certain limits; but the system should not be condemned, because it had been denounced by those who wanted experience.

The general success of the use of egg-shaped pipe sewers, at Manchester, was given as an example of the advantageous adoption of the pipe system.

Sewers of radiated bricks, moulded for the purpose, might, in some cases, be better and cheaper than large earthen pipes; a sewer thus constructed, 3 feet in diameter, being cheaper than one of pottery pipe of 20 inches diameter; their relative capacities being as the squares of their diameters; and there was no reason why brick sewers should not be as smooth within and as impervious as any pottery pipe.

It was stated that natural outlets had in many cases been destroyed, that houses had been built and cellars dug in improper places, and that large sewers had been constructed, where they were stopped or back-watered during a considerable portion of each twenty-four hours.

After treating of side junctions, gulley-holes, drain-traps, and ventilation, the use of cast-iron conduits, in certain bad soils, was advocated, and, as a summary, it was stated that all sewers should be below the level of the cellars, if they were to be of use, and should be specially adapted to the work they had to perform. All sewers and drains should be impervious to water, and should present even and smooth surfaces: the gradient of all large sewers, in steep ground, should be such as would resist rapid wear and bursting: wherever it was practicable, the outlet should be free, and in all cases complete ventilation must be provided for.

In the course of the discussion which followed, the writer mentioned, that at Hitchen the largest pipe drain used was 20 inches; and at that place no breakages had occurred. The length of each pipe was 2 feet 6 inches. If he had acted upon Mr. Roe's table, lately published, the outlet drains should have been 5 feet diameter, whereas they were now pipes of 20 inches. They were socket-pipes throughout. In Bury, in 1847, pipes were laid down in Back King-street, a place where fever had never previously been absent. He had a letter lately from there, which stated that the pipe drainage had worked entirely to the satisfaction of the town, and most beneficially as regarded the health of the people in the district.

Mr. G. Donaldson (being called on) said, that though there had been many successful cases, there had also been several cases of breakage. It had properly been said, that if any works should be permanent they should be those of drainage; but if the materials were subject to breakage, there must be something very unsatisfactory in the system. There had been failures lately, he had heard, through the weakness of the pipes used. It was certainly most desirable that they should attain some form of sewers that did not require to be opened and re-laid down twice in the course of a year. He had heard that at Croydon they had been obliged to case a 15-inch pipe drain with brick in order to preserve it. Would it not have been better to have had the brick sewer constructed at once!

Mr. Rawlinson repudiated the responsibility of works of which he knew nothing from personal observation, for he had never seen those at Croydon. He would, however, never use socket-joints (in deep cuttings) of more than 15 inches diameter. He did not think very large pipe sewers could be joined together, in sockets, without the risk of breaking. Hollow brick sewers might sometimes prove very useful.

Lord Ebrington stated, that he had watched with considerable interest the working of the new system of drainage at St. Thomas's, near Exeter. The effect there had been very satisfactory. He had seen some of the pipes after they had been in use some time (and he had heard from others that such was the case about the district), which were as clear of deposit as the first day they were laid down. 18-inch pipe drains had been there doing the work satisfactorily, which formerly would have been deemed to require much more expensive and much larger brick sewers. No doubt great difficulty would still be experienced in using the large-sized pipes. Indeed, he had often marvelled how such long cylinders could be laid so true as not to

fracture under heavy pressure. His friend, Mr. Stephenson, could support him in the statement, that pipe sewers were not the only ones whose rise had been staved in. He hoped that this metropolis would be provided with a complete system of sewerage, which would be cheaper and do the work better than the present sewers did.

Mr. Trelawney Saunders proceeded to address the meeting on the burdens borne by the "unrepresented and powerless ratepayers" of Westminster, and spoke of the failure of Victoria-street Sewer, recently constructed at an enormous cost.

The Chairman interrupted his remarks, stating that the object was to discuss the engineering question of the most desirable and effective form of sewers for town drainage, and not to discuss the constitution or actions of any particular body of commissioners, who might have it entrusted to them to superintend the carrying out of works of drainage.

In answer to a question, Mr. Rawlinson said he should certainly use a brick sewer rather than a smaller sized pipe drain, where the brick sewer would be the cheaper and an equally applicable mode. At Hitchin, there were no brick sewers throughout. An entire length of drain had to be laid below the bed of the river, and he therefore preferred laying in pipes as being more easily put together, especially as there was no great pressure upon them. If it had been a valley outlet without the river, he would probably have laid down a 3-feet brick sewer. At Oranskirk, all the outlet sewers were of radiated bricks, the sewers being from 2 feet to 2 feet 6 inches in diameter. In reply to Mr. Hawkshaw, who asked what was his conclusion as to the largest size of pipes, not being socket-pipes, which it would be safe to use, the speaker said that such a question could only be decided on the spot, as much would depend on local causes; and frequently plans had to be much altered to meet obstacles and difficulties which were never expected to arise. As to the question of the thickness of the pipes, very much depended on the nature of the materials of which the pipes were to be constructed. In Manchester they were enabled to make pipes of from 2 to 2½ inches in thickness, but in London an eminent maker had informed him recently they could not be made of more than 1 inch in thickness, owing to the quality of the clay which had to be used:—even that clay had to be brought from a distance for the purpose. Many failures of which they had heard were to be attributed, not to the system of pipe drainage, but to the bad system of making the pipes. It was stated that at Croydon the 8-inch pipes were only ⅝ths of an inch in thickness. The pipes used in Manchester were made of a kind of fire-clay, and were from 2 to 2½ inches thick for the larger sizes.

Mr. G. Donaldson said that at Croydon he understood there had been pipes taken up which had been found split from end to end as it were into ribbons, and the foreman who took them up and laid pipes down again, had stated that he had found some that might be broken into pieces like biscuits, but which when exposed to the air became quite strong again in the course of a very short time.* He did not vouch for the truth of these statements, but merely gave them to the meeting as he had them told to him.

On the 30th November the discussion was continued.

Mr. Rendel (the chairman), in opening the proceedings, reminded the meeting that the question was one that demanded rather the opinion of professional men than of those who merely acquired their knowledge of the subject by reading, however extensive that reading might be.

Mr. Haywood (the City of London surveyor) said, that after having read many dozens of reports from superintending inspectors, as also the other works emanating from the General Board of Health, he was delighted to find from Mr. Rawlinson's paper that the profession were to be, at last, allowed to have some judgment in the matter of drainage. The question was one of size; and the point to determine was, what material would best form effective sewers. Up to a certain point, he thought there was little doubt that it was better to use pipes for the purposes of drainage; but, beyond that, some other material must evidently be employed. It should be remembered that a town once sewered was in a very different condition than previously; and the rainfall that might pass off without injury before drainage could not afterwards pass off without injury. If the sewers were so made as to be adapted only to take off a small rainfall, and an excessive rainfall occurred, he could not see how basements below the gulley could escape being flooded. He thought that in most districts which were urban it was wise to calculate for a large rainfall, and to provide for carrying that rainfall away; and surely it would be better to carry that and the ordinary contents of the drains away by one system of sewers than by two separate systems. It was generally thought that in Paris no fæcal matter went into the sewers, but this was a mistake, for thirty-five sewers emptied their fæcal matters into the Seine. All the hospitals, markets, barracks, and other similar buildings there emptied such matters direct into the river, and had done so for the last forty or fifty years. The question as to using pipes was one as to the size of the sewers, and as to their expense. To lay down a system of town sewers merely large enough to carry off the quantity of water that they have to carry off (a question which has yet to be settled), would be found to be a serious error. He had himself within the last two years built more than two miles of pipe drainage, but he still felt that there were dangers in the system. The first danger was as to stoppage. The experience that had yet been had in small provincial towns furnished no criterion. The stoppages in the pipes would commence after the early and careful superintendence had ceased. He had himself only met with three stoppages in the pipe sewers he had laid; the first by rubbish getting into the pipes; the second by fish cleanings; and the last by breakage. But the main difficulty of pipe sewers was, when stoppages did occur, in telling where they occurred; while in brick sewers a man was sent down, and the cause of the stoppage was at once discovered, and without the slightest inconvenience to the neighbourhood. With respect to the size, what tables were they to take? Were they to use those of Phillips or Cowie, of Roe or Austin, or of others, who had put forward tables on the subject?

Mr. Hawksley said, that very recently he had to lay main pipes 3 miles in extent and 13 inches diameter, near Whitehaven, and he found that his calculation, made according to the formula which was then on the walls of the room, had come out entirely correct. With regard to Mr. Rawlinson's paper, the first point worthy of consideration was where that paper stated that the size of the outlet sewer should be in proportion to the number of houses. Now he thought that the number of houses had nothing to do with the matter. The real point was the size of the area to be drained. As to a strictly suburban area, very little difficulty existed. The result of Mr. Roe's experiments showed that the quantity of water coming off any given area was in proportion to the extent of area. No suggestions had been made by the adoption of which water, that would otherwise flow down the streets, and flood water from the lower parts of a town, could be carried off; and yet book after book was issued treating the matter as if nothing but the sewer-water had to be removed. He was sure that the system they had heard advocated would have a deplorable effect.

Mr. Netherway said, that he had tried various experiments since the last meeting as to the weight that pipes would bear before crushing. He had tried with pipes 12 inches in diameter. The pipes were Staffordshire blue pipes 15-16ths of an inch thick, and glazed pipes 13-16ths of an inch thick; the first kind crushed with a weight of 13 cwt. placed on the centre of the pipe, and the other 14 cwt. The weight was equally distributed over the whole length of the pipe, which was partly embedded in gravel.

Mr. Ritchie (of Glasgow) said, that in Edinburgh a quantity of pipes had been laid 10 inches in diameter with 6-inch side-pipes. In twelve months the whole of the side-pipes were stopped up. In another case, pipes 15 inches in diameter would, it was apprehended, be obstructed; and the general opinion appeared to be, that all main conduits should be of such a size as to be accessible.

Mr. Parker said he would try to explain the cause of some of the failures of pipe drainage. With 12 or 15 inch pipes, the fault was often committed of leaving a space below the joint and to be filled up by chance. They ought always to be laid in clay or sand, and so arranged that the pipes should not receive all the pressure, but that the cutting should bear a part of it.

Mr. Bazalgette, the recently-appointed surveyor to the Metropolitan Sewers Commission, stated that he had never seen a sewer either constructed of pipe or brick that did not collect deposit. If such was the case, it was surely cheaper to let men go in and discover where the obstruction lay, than to have to take up a whole line of pipe sewers. If the streets were to be broken up on every occasion of obstructions occurring, great inconvenience must inevitably result. He understood from persons well acquainted with the subject, that men who were accustomed to go into the sewers lived as long on an average as other working-men. Indeed, there were many occupations connected with the production of mere luxuries which were far more unhealthy. It was not fair to compare the cost of pipe drainage, which would only half drain a town, with the cost of large brick sewers, which would carry all away.

Mr. Doulton, the sewer-pipe maker, said that he had had considerable experience in the manufacture of pipes, but the manufacture of pipes on the present system had only been carried on to its present extent for four or five years, and the improvement in those years in the manufacture of pipes had been very marked. At his establishment they were turning out weekly 14,000 feet of pipes, and they made several hundreds of miles in extent every year. He thought failures would be found to be very small in proportion to the quantity made. He was convinced that there was no difficulty in making pipes, 18 or 20 inches, sufficiently strong to bear all the pressure they were likely to be exposed to. They were now making them quite as strong and as truly as the smaller sizes of pipes could be made. If any of the pipes were insufficiently strong, it arose either from bad materials being used, from there being imperfect vitrification, or from the pipes being of insufficient thickness in proportion to their diameter. He had tested the strength of pipes since the last meeting in a manner they were not likely to be tested when laid. The experiments were made at Messrs. Burton's, and the pipes were exposed to an extreme trial. They were two feet long, and were supported at either end by a block of wood, there being no support between the blocks. A piece of wood, 12 inches square, was then placed on the middle of the pipes. The 18-inch pipe broke at 53½ cwt; the 15-inch pipe broke at 31 cwt.; the 12-inch pipe at 53 cwt.; and another 12-inch pipe broke at 71 cwt. The 9-inch pipe broke at 54 cwt. Another cause of failure was the improper application; but bad laying of the pipes was the greatest cause of their failing. Thus, where there was tunnelling and open cutting alternately, the pipes were exposed to unequal pressure, so that there was often an upward leverage, which caused the rigid pipes to break. He thought 2-feet pipes were quite long enough; and they did not know of any failures in the pipes they had furnished, though they had already supplied eight or ten towns with them. At Rugby, a considerable quantity of large pipes had been used, for upwards of 3,000 feet of 18 and 20 inch pipes had been laid in that town. He had heard from the local surveyor, Mr. Phillips, that the result had been most satisfactory. Upwards of 600 houses, which had been supplied under his own supervision, were now enjoying water-supply and drainage, and only one case of breakage or failure had occurred, and that had arisen from causes easily explainable.

The Chairman said, that the question they had to consider was, to what extent pipes might be judiciously used, and where brick sewers might be absolutely requisite. There were evidently numerous gentlemen who still wished to speak on the subject, and he would therefore adjourn the discussion till next week's meeting.

* Mr. Doulton offered Mr. Donaldson 1,000*l.* for an inch of this wonderful pipe.

CLEOPATRA'S NEEDLE.

Since the publication in the *Builder* of my letter on this obelisk, on the 2nd of July last year, and fresh matter in the *Times* of the 9th of September, by which influential journal the subject was taken up, the public mind has been much turned to the means of transporting it to this country, to which it belongs: and an almost universal desire exists to see it here. This wish I am happy to see is about to be gratified. In your number of this day appears an advertisement from the committee of the new Crystal Palace, inviting tenders for "the removal of Cleopatra's needle, and its safe deposit in a ship which will be provided for the purpose." Having taken so prominent a part in this matter, perhaps it may be allowed me to show what attempts I made to have its removal accomplished, and to point out where hints may be gathered likely to assist those who may be disposed to turn their attention to the contract. The accomplishing this object to the extent now required, is a matter of easy operation, small risk, and, at this time especially, of comparatively small expense. Steam power, skilful engineers, practised mechanics, and labourers, all abound in Lower Egypt, congregated by reason of the railway now forming; and we are credibly informed that the Pacha is well disposed to offer facilities. Moreover, the obelisk has been within the twelvemonth visited by and is well known to Mr. Robert Stephenson and many of our engineers and contracting men; and Mr. J. Scott Tucker, C.E. employed by our Government, reports it to be "a most interesting and valuable relic of antiquity, which the nation would be proud to possess." With all the present means and information at hand, the facilities are greatly increased, and the cost diminished, since I wrote. On June 6th, I attempted to influence her Majesty's Government, through Lord John Russell, and on the 26th of August, the Royal Commission of the Great Exhibition, but without satisfactory result.* Well, sir, what I failed to do by remonstrance, has been done voluntarily by the committee of the new Crystal Palace, much to their credit, and I doubt not hereafter to their advantage and the admiration of the public.

I will now give notices of references for those who may be disposed to consider the subject, with a view of tendering.

My first lengthy article appeared in the *Brighton Gazette* of 2nd July last year, and in the *Builder* of the 2nd August. I proposed to bring it to England, and gave various modes that might be adopted in detail; and the probable expenses of those different modes. In the *Times* of the 11th of August is an article by Dr. Beke; on the 13th a leading article; on the 16th the letter of a Traveller, with some good hints; on 22nd a letter from M. Giovanni D'Athanasie, who had offered to transport it in 1833. On the 9th and 26th of September a popular history of obelisks, with modes of transport, by myself; and on 17th November a letter from S. Briggs, esq. formerly H.M. consul at Alexandria.

I have purposely omitted very many communications, either mere repetitions or absurdities; and will only further state that in the "Campaigne du Lusquor," a book easily procured at Paris, will be found a complete and very interesting account of the whole proceedings of the French in taking down and bringing the obelisk to Paris; the most minute details of every incident in taking it from its foundation, moving it to the Nile, transporting it to Paris, and erecting it where it now stands; that on its pedestal is engraved the whole proceeding of its erection; and in the "Musée des Métiers et des Arts" will be found the machinery used.

As regards information on the obelisks of Egypt for those who have neither the learning nor the inclination to dig into the Greek writers or the archæological works of the Germans, most interesting matter will be found in the Transactions of the Royal Society of Literature, by many contributors, especially Bonomi; and very elaborately collected notices full of learning and research, by Mr. Birch, in an article in the third part of the second volume of the "Museum of Classical Antiquities," just published.

As to the cavils and sneers of those who affect to abuse all who have served the cause of archæology and history by rescuing such remains of long bygone times, by transporting them from the countries, now, alas! of ignorance, poverty, and fanaticism, to places of security, where they can be properly studied and made subservient to true history, or as models of high art—I pass them by. But I confess that I am sorry to have heard that M. Lepsius, with his Royal German Commission, in their too eager desire and too great haste to monopolise all that may still remain in Egypt—fast disappearing under the utilitarian and Mammon school, in which the Pacha delights,—should have committed much unnecessary violence, and left numerous interesting remains in a state of exposure to further devastation and atmospheric influences.

Should any gentleman think that by personal conference he can get any assistance or information, I shall most readily grant him an interview.

Nath. Gould.

4, Tavistock-square.

* Mr. Gould forwards to us copies of the letters and replies, but we have not space for the insertion of them.—Ed.

NOTES IN THE PROVINCES.

Lyme.—The town water is to be supplied from a large reservoir, which is about to be dug at a convenient spot on the road to Uplyme. Fire-plugs are to be provided at various parts of the town.

Bromyard.—The Health Act has been applied to this place, and a local Board of Health elected. At Bromyard, however, as elsewhere, it is not all gold that glitters, for it seems that the very party which has strongly opposed sanitary reform here for years past have had the courage to regard themselves as the fittest persons to carry out the Act they repudiated, and have accordingly got themselves or their representatives elected in rather too strong force to offer much prospect of immediate benefit from the application of the Act to the town.

Louth, Lincolnshire.—We hear plans have been prepared by Mr. P. Bellamy, architect, Lincoln, and approved of by the town council, for the proposed new town-hall, the outlay of which will be about 4,000*l.* It is expected the building will be commenced early in the spring.——A corn exchange is also about to be erected at the same place, at an estimated cost of about 2,000*l.* for which plans, prepared by the same architect, have been approved of by the directors.

Tewkesbury.—The Abbey Church is being fitted up for gas, both for light and warmth, the latter effected by gas stoves already placed in different parts of the church.

Chippenham.—A movement is in progress for the erection of a district church in the immediate neighbourhood of the railway station, in the parish of Langley Burrell, approximating to the town. The Rev. R. Ashe, rector of Langley Burrell, has given the land, value 600*l.* for the site and burial-ground; and nearly 1,000*l.* have been already subscribed towards the building, the erection of which is estimated to cost 3,000*l.* in addition to the endowment.

Chester.—Building operations and the laying out of roads, says the local *Chronicle*, are progressing in the Queen's Park, though not very rapidly at present. Between twenty and thirty houses are now erected, and preparations are being made for the erection of many more: the works will be prosecuted with vigour in the spring of 1853. The carriage-road immediately above the bridge is nearly finished, and the side has been planted with trees and shrubs.

Wolverhampton.—It has been determined to accept the offer made by the Coalbrook Dale Company to sell, at a reduced price, the fountain which stood near the gates exhibited by that company at the Crystal Palace, and now put up at Kensington Gardens. The fountain, which is to be placed in the centre of the new market, is from a design by Mr. John Bell, and is taken from a popular German subject. "The Illustrated Catalogue of the Great Exhibition" describes it as an "ornamental fountain of cast iron, bronzed, 7 feet wide by 8 feet high, with group of 'Cupid and the Swan.' The group forms the jet, and occupies the centre of a tazza, ornamented with a decoration of the white and yellow water-lily." It is intended, it is said, to place it in an elevated position, in order that it may produce a more imposing effect. The works at the new market itself are rapidly progressing. The erection of the clock turret has been commenced. The last contract for the fittings has been taken by Messrs. Haywood, of Derby, and notice has been given to all the contractors that the works must be completed on or before the 22nd inst.

Birmingham.—A correspondent says the handsome fountain lately erected in the Market-hall, Birmingham, has been stopped playing entirely, at the request of the stall-keepers. To render this resolution permanent, a clock has been suspended to one of the trusses immediately over the fountain, and the works attached thereto are finished.——Almshouses for Glover's Charity, twenty-two in number, with other premises attached, are in course of erection in Steel-house-lane; Mr. Frederick Empson, architect.——A very large manufactory in St. Paul's-square, with an ornate front, is likewise in course of completion, under the same architect. Building in Birmingham is looking up, but the difficulty in building *now* is want of hands and not money.

Swindon.—There appears to be sad want of a new lock-up at Swindon. The present one is a veritable "black hole" of the Calcutta calibre. It measures 10 feet 2 in. by 5 feet 2 in. and 6 feet 4 in. in height, and the only opening for ventilation is a small grating in the door, which overhangs an overflowing cesspool immediately under or in front of it. Into this den, within the last four years, 1,200 *suspected* persons *of both sexes* have been huddled. There is no separate place for females: persons of both sexes are frequently shot into this hole together, and there compelled to associate night and day. For an exposure of these and of still more horrid details, and a subsequent examination of the place by several magistrates, the public are indebted to Mr. A. Wheeler, who gives an account of the matter in the *Devizes Gazette*, in which he also states that plans for a new lock-up were laid before the last Sessions at Devizes, by Mr. Sage, architect, who states his readiness to "provide a highly respectable builder" who will complete the work (and not in the plainest manner) for 400*l.* The cost of a site, it is said, will be 100*l.*; so that for the sum of 500*l.* a disgrace to the country may be put an end to, and many honest and well behaved, though "suspected" persons, treated in something like a decent civilized and Christianlike manner, such as even the guilty are entitled to.——We regret to observe that the Gas Company and the Gas Consumers' Association have not yet come to a friendly understanding as to the price of gas. The association demand a reduction to 5*s.* The company have come down from 8*s.* 4*d.* to 7*s.* They ought, at least, to engage to reduce their price another shilling in twelve months, and the remainder in the year following. We do think, however, that the association should not insist on an immediate reduction from 8*s.* 4*d.* to 5*s.*

Hedgerley.—The small dilapidated old church of Hedgerley, Bucks, has been taken down and a new one built near the site, under the direction of Mr. Ferrey, whose designs have been carried out by Mr. Thomas Hardy, of Cowley. It is in the early decorated style, and consists of a nave, chancel, porch, vestry, and tower,—the latter unfinished from want of funds. The exterior of the church is flint, with stone dressings, roofed with old square and new Gothic tiles, mixed. The window tracery is singularly chaste. The stalls are of oak. The pulpit, reading-desk, and altar-rail are carved of beautiful wood, from beams rescued from the ruins of the church of St. Peter's, Parham, Antigua, in the West Indies, and which was thrown down by an earthquake in 1843.

Little Gidding.—The church of Little Gidding, Hunts, once the residence of Nicholas

Ferrar, is now in process of restoration. "The proprietor of the soil," says the *Cambridge Chronicle*, "has undertaken, at his sole expense, the entire restoration of the fabric of the nave. The Jacobean style is to be preserved, as tending to connect more closely the present building with the time of Ferrar: the chancel, of course, will be made to correspond architecturally with the nave. All the genuine relics of Nicholas Ferrar will be preserved. But if the church is to be in its internal arrangements and decoration a fitting memorial of the piety and devotion of the Ferrar family, larger funds will be required than either the rector or the immediate neighbourhood can support. It has been suggested that an appeal should be made to churchmen throughout the country for aid in the work of beautifying the church of Nicholas Ferrar."

Cambridge.—Part of the well-known "Spinning House" is to be altered, and appropriated to the purposes of the police force of the city and their prisoners.

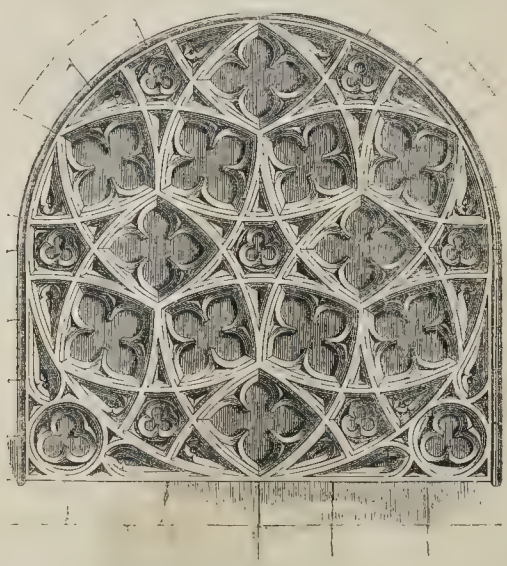
Braintree.—The parish church has of late been somewhat improved by the removal of the mass of woodwork at the back of the altar which interfered with the east window, whose dimensions, however, are still also interfered with by the red bricks which block up the lower part of it. The parishioners, it is said, intend to fill the window with stained glass. The lath and plaster partition at the arch between the tower and nave has been taken away. The font has been placed on its proper site, close to the western entrance.

PRINCIPLES OF GLASS PAINTING.

In my first letter on the subject of painted windows, I asserted that the characteristics of cinque-cento glass given by Mr. Winston never obtained but a very partial influence, and that the instances were "attempts to emulate oil pictures" in effects as undesirable as unattainable. I had a remembrance of some examples at Rouen that might have corroborated some points of Mr. Winston's statement, and thought that I had seen others; but I am more than ever convinced that the instances are rare, *i. e.* in works known and approved; for, in a pretty long course I took this autumn through Germany and Bavaria, I did not fall in with any answerable to Mr. W.'s description, although I was looking for them. All I wish to say, however, for the present is, that whatsoever windows may support these said characteristics, those alluded to at Brussels are not of the number. Indeed, were it not for an anxiety to place the question of the principles of painted glass on a clear and consistent basis, the correct and enlightened appreciation of these undeniably fine windows shown in Mr. Winston's letter, would have prevented my saying any more about them. And there is just one point more in his letter to which I would advert, as it would seem to condemn the quest as well as the enunciation of all principles or rules whatsoever. The writer says: "It is not my intention to question the rules which your correspondent has been so good as to lay down for the guidance of all future glass-painters, further than to remark, that if rules to the like effect were applied to other kinds of painting, they would lead to the condemnation of works which have obtained the suffrages of the learned and experienced; and deservedly so, if their world-wide celebrity and popularity are entitled to any weight." To which I may reply, that it is quite possible—nay, I should myself assert such to be the fact—that the stupendous works in the Sistine Chapel may be as false in principle as the Dome of St. Paul's, though the commanding genius displayed in the one extorts admiration, in spite of outraged construction, while the cumbrous mediocrity of the other provokes a very different sentiment; and yet I fear that in neither could the practical question, "Does it look well?" be answered in the affirmative: still this would not settle the matter, nor prove rules out of order or void of utility. I am unwilling just at present to engage in the whole question, but shall, from time to time, ask leave to contribute to its solution in your columns; meanwhile I would just observe that where sculpture or painting are employed on integral parts of a building, they cease, or ought to cease, to be independent; that we will find such to have been the practice in sculpture, in the highest period of art in Greece; and though I am not aware of any wall paintings remaining to us from that time, the late Greeks acknowledged it in the mosaics of Italy, as did the fresco painters, more or less, down to the time of Michelangelo, and the excavations at Herculaneum and Pompeii show that their artists were of the like opinion. In every great work a certain obedience and unanimity is required, so to speak, in all its parts, and no one part, with whatever authority of talent, can despise its conditions without injury to the whole.*

F. W. O.

WINDOW IN WEST FRONT, CAUDEBEC.



CAUDEBEC, ON THE SEINE.

It would be difficult in the whole course of the Seine, to find a more charming spot than the small town of Caudebec!—its beauties, together with those of its immediate neighbourhood, have been celebrated alike by French and English artists. There is a spot upon the quay of the little town which Vernet instanced as presenting one of the most charming pictures in France. Turner also has made it the subject of one of his delightful drawings; but no drawing, however faithful, can give more than a feeble notion of the place: the traveller, therefore, who has dwelt upon its beauties with his own eyes, has reason to be doubly grateful.

The town, itself, is very picturesque. It has a good quay well planted with trees. Cottages and many coloured summer pavilions dot the sides of the hill, imbedded in and contrasting well with the dark green of the surrounding foliage. Paths wind upwards among the trees, and lose themselves in distance; and from the eminence thus reached, a view may be enjoyed equal, if not superior, to that so lauded by Vernet. At the foot of the steep incline lies the town, in many places its houses washed by the river, and on the opposite bank the ground gradually rises, until the view is terminated by a chain of hills richly clothed with verdure. The interior of the town has undergone but little alteration. It has all the features peculiar to French towns some centuries back: the streets are narrow—in many places intersected by a dark stream, which receives the drainage of the overhanging houses: some of these houses still present good specimens of domestic architecture, none of them very ornate, but all picturesque: one has some good specimens of wood carving very sadly cut about to afford more light to the interior, which it possibly stood much in need of.

About the centre of the town is a small square, of which the church forms one side: the east, west, and north fronts of this splendid building are so completely blocked up, that it is nearly impossible to get any good view of them. This is the more to be regretted, as the west front is a work of exceeding beauty, perhaps not to be equalled in all Normandy: the portals, three in number, are magnificent. Some portions of this front have been restored in very bad taste, and in a style totally at variance with the original work. One smaller illustration shows the tracery of the circular window in the centre gable, the forms in which are singular. The south front is equally beautiful with the other parts of the church: the excellence of the general design is much enhanced by the great variety of ornamental detail, the tracery to the windows and the pierced parapets showing great fertility of invention. But perhaps the most beautiful portion of the whole building is the lantern and its spire: on these every variety of ornamental detail has been lavished. The plan of the spire is singular: it is formed by eight triangles pierced their entire height and encircled in different parts by bands having the effect of coronets.

The interior of the church is well proportioned. There are in the various chapels some very pretty piscinæ, and in a chapel to the south of that, dedicated to the Virgin, is a fine specimen of tabernacle work, which seems originally to have formed the canopy of a sepulchral monument.

The building of the church was commenced in 1436, and is said to have occupied fifty years. The architect's name was Le Tellier, his body rests in the chapel of the Virgin.

It would be hardly grateful to leave this pleasant spot without a good word for the small hotel standing on the quay. To be sure, there is no great variety offered in the bill of fare, but then everything is done in so pleasant a manner, and there is such an evident desire to oblige, that many a hotel of larger pretensions might take a lesson from that at Caudebec.

* Our correspondent's letter contained remarks on some of Mr. Winston's comments on his previous communication, but we do not think it necessary to give these.—Ed.

CAUDEBEC, ON THE SEINE.



BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the meeting held on Wednesday, Nov. 24, a paper was read by Mr. Planché entitled, "Archæological Gleanings at Lincoln and Southwell," in which some singularly interesting pieces of painted glass and sculpture, hitherto unnoticed by antiquaries, were described and commented upon. One in particular, the sculptures on the capital of a column in Southwell Minster, was considered by Mr. Planché as literally to settle the long-disputed question of the date of the earlier portion of that magnificent edifice. It represented an ecclesiastic of rank—a bishop or archbishop—standing within a building, on the outside of which was the figure of some saint bowing before the Trinity, behind whom stood a female with a lily in her hand, and having a child or smaller personage near her. Mr. Planché suggests that the subject of this sculpture was the consecration of the second church at Southwell by Archbishop Thomas, and that the saint was intended to personify Paulinus, the founder of the first church, soliciting the protection of the Father, Son, and Holy Ghost for the new or restored edifice. The female with the lily being the Virgin Mary, to whom the church is dedicated, and the child probably a repetition of the Saviour as an infant. In illustration of his paper, Mr. Planché exhibited drawings and tracings of some figures at Lincoln; an oak-tree with bows from the windows of the chapter-house at Southwell, and a crowned head forming a corbel to a doorway in the south aisle of that minster, which exhibited remarkably early and interesting examples of the collar of SS.

THE EDINBURGH SLATERS.*

The slaters were united, along with the glaziers, to the incorporation of wrights and masons in 1703. The wages of the workmen at that time were equivalent to 1s. sterling per day. Fifty years ago they had risen to double that amount; and during the war to 20s. 25s. and even to 30s. per week. Previous to 1820 they were as low as 15s. and 16s.; but during the reign of the building mania they varied from 18s. to 25s. per week. They subsequently fell once more to 16s. and 18s. and continued at these rates for a period of ten years.

In 1832 the slaters established a union. In 1837 they perpetrated a strike. It lasted some two months, when the masters yielded, and the wages rose to 1*l.* per week. In the interim the men had opened a yard in the Castle-road, and commenced business on their own account. A curious fact occurs to us in connection with this enterprise. It was not the old hands, nor the best hands, nor even the most outrageous unionists, that reaped the benefit of the speculation, or, in other words, received the most wages; but chiefly it was those men who could be least depended upon, who cared not a fig for the union, or for their masters, but who were ready to sell their labour and their principles to whichever party was best prepared to pay for them. This was "moral force" with a vengeance. This was a specimen of the manner in which the obnoxious principles of a trades'-union invariably react on the interests and schemes of its most devoted partizans.

There have been several partial strikes since that time, and all of them successful on the part of the workmen. At present the wages are 21s. per week throughout the year, since, notwithstanding that the hours are necessarily shorter in winter, the wages are not reduced. It is proper to state, however, that these wages are seldom realised. The loss of time in summer with rain, and in winter with frost, sadly depreciates the amount. We have had the average given to us as high as 17s. and as low as 13s.; but probably the mean difference of these sums will represent the true average wages per week. There are upwards of 100 slaters in Edinburgh and Leith, including apprentices, who serve five years. Probably one half of that number were bred in the country.

Notwithstanding the continual danger and the uncertain nature of the trade, it is very remarkable how it runs in families. We have been more than astonished at the number of slaters we have met whose fathers belonged to the same occupation.

Setting aside its danger, the trade is by no means unhealthy. There is no disease peculiar to it, as in the case of masons. The slaters as a class have been dissipated and irregular in their habits. It is true that no trade in connection with building more requires men of steady and temperate habits than that of the slaters; but it is equally true that no trade is, or rather was, more given to dissipation. "Thirty years ago the slaters were a set of drunken rascals, and they are little better to-day," are the words of one of the oldest master slaters in Edinburgh. The character of the men has greatly improved. Temperance has made good progress among them. They have also established a library in connection with their association, which we are glad to see is flourishing, and which, undoubtedly, is one of the very best purposes to which they could apply their union funds. Their educational standard is also improved, although, we may add, there is yet room enough and to spare for greater advancement.

Besides the roofing of houses, the slater occasionally rough-casts and paints the walls, repairs the chimney-pots, and puts on cans. A large proportion of them are also firemen. For these duties they are peculiarly adapted, from their habit of climbing in dangerous situations.

* Condensed from the *Edinburgh News*.

TEMPLE BAR.

You are not, I hope, Mr. Editor, a Temple-Bar-rister, but will cordially join in recommending the removal of that bar which now serves only to keep up an invidious distinction between those who reside east and west of it. Be it the work of Wren or not, and that it is his has been questioned, as a piece of architecture it is positively ugly, and exhibits almost as many solecisms in taste and design as it was possible to put together within the same compass. On the score of antiquity, it possesses as little claim to mercy as on that of artistic merit. There is nothing at all venerable about it: it is merely what, in speaking of a person, we should term an old-fashioned quiz; and, by the bye, ere I forget it, I may observe, *à propos* to it, that a friend of mine, perhaps you will say he is number one, is wont to make use of the epithet, *Temple-barbarous*, to express the superlative degree of barbarousness.

Were it, however, as beautiful as it is now the contrary, it is at all events a positive inconvenience and obstruction, and bars the way to the highly-desirable improvements which, if not immediately at first, would, no doubt, follow its removal. Whereas, so long as it is suffered to remain, it is impossible to widen the street on either side of the way, just at that particular point where a considerable increase of breadth is highly desirable.

What occasion there is for having any formal and visible boundary between the City and Westminster any more than between the several separate districts of the metropolis, it is difficult to understand; more especially as its conspicuousness renders it all the more an eye-sore. If the corporation regard it as their palladium, let them by all means take it to themselves, and plant it in front of that marvel of taste—the façade of their own Guildhall.

Z.

Improvements in Paris.—We learn that public works are being carried on with great activity. The question of the continuation of the arcades in the new Rue de Rivoli has been under discussion. Numerous proprietors of houses have declared themselves in favour of continuing them throughout the whole line of the new street, while others have opposed it, and have even disputed the right of the city to enforce a style of architecture, as it did not come under the exact meaning of a measure of public utility. After discussing the pros and cons at some length, the commission ultimately decided that the arcade should be continued.

METROPOLITAN SEWERS COMMISSION.

APPOINTMENT OF SURVEYOR.

At a special Court of Sewers, held on Friday, the 26th ult. in Greek-street, Soho, tenders for works in Lee-road and Eltham-road were received from Mr. Hill and Mr. Dethick, contractors. The tender of the former amounted to 2,673*l.* and that of the latter to 2,600*l.* while the estimate of the surveyor of the commission was only 2,000*l.* The discrepancy attracted the attention of the Court, who ordered the insertion of fresh advertisements, inviting further tenders.

Upon the recommendation of the committee, Mr. Joseph William Bazelgette was appointed general surveyor of works under the commission, the chairman, at the same time, passing an eulogium upon Mr. Bazelgette, who, he stated, had produced before the committee flattering testimonials from Mr. Robert Stephenson and Sir William Cubitt, and had been selected by the committee out of thirty-three competitors. The commissioners had felt this to be a most important appointment, and their judgment had not been at all swayed by the successful candidate being an officer of the commission.*

In the House of Commons, on the 30th, Sir B. Hall said, by an Act of last session, power was given to the Metropolitan Commissioners of Sewers to levy a rate of 6d. in the pound, to carry out improvements in connection with this department. This Act would terminate with the close of the present session of Parliament, and he wanted to know, first, if it was the intention of the Government to bring in a Bill in the present session of Parliament to continue the present Act? and next, if such was their intention, whether the Bill would be brought in at such a period of the session as would afford to the inhabitants of the metropolis an opportunity of discussing its provisions?

Lord J. Manners said that the hon. baronet had described very accurately the object of the Act referred to. With regard to the questions put by the hon. baronet in connection with this subject, he had to answer both of them in the affirmative.

* We understand that four were selected as worthy of especial consideration; viz. Mr. Bazelgette, Mr. John Billing, Mr. Grantham, and Mr. Netherway.

CALCULATIONS FOR THE CITY RAILWAY TERMINUS.

The committee to whom Mr. Pearson's scheme was referred have brought up their report to a public meeting. In it they say,—

"We find that the capital required to construct the railway and stations thus limited, to fill up the valley of the Fleet, and effect the great street communications from east to west, between Battle-bridge and Holborn, would, in round numbers, amount to 1,000,000*l.*

The balance of the cost of the ground to be cleared for the execution of so much of the project as lies north of the Holborn valley is estimated by Mr. Higgins and Mr. Bunning at 823,000*l.*; while Mr. Tite estimates it at 612,000*l.* and Mr. Stevens and Mr. T. M. Nelson value it at 480,000*l.* Of course it is impossible for us to determine between such extensive differences of opinion upon an avowedly difficult question between such able professional men: probably in this, as in many other questions, experience may shew that safety of calculation would place the sum midway between the two extremes, which will leave the amount about where Mr. Tite places it, namely, 612,000*l.*

Mr. Stevens reports to the committee that the cost of constructing the railway stations and street improvements north of Holborn valley will amount to one-half of the sum which these items would cost if the whole project is carried at once; and from the concurrent evidence of all parties we gather, that the cost both of land purchases and construction of the first section of the project will amount as nearly as possible to one-half of the whole undertaking. It also appears to us, that if, in conformity with the Railway Commissioners' report, the total cost of the combined operations of railroad undertaking and street improve-

ments be fairly distributed, the amount would be divided between them in about equal proportions."

They advised the immediate formation of a company to take proper steps to raise a capital of 600,000*l.* for the execution of the trunk railroad and stations north of Holborn valley, to be constructed with four double lines, sufficient for the accommodation of all the companies, if they shall elect to come in, with means and facilities of proceeding to complete the entire project as originally proposed, by a bill in the next session of Parliament,—and this the meeting confirmed.

THE HAWK-BOY AND THE JUDGE.

AN INCIDENT IN A LAW COURT.

In the Islington County Court, recently, an action was brought by a boy against his master, to recover a week's wages, and the following colloquy took place between the learned judge and the plasterer's page:—

The Judge.—Why is your master not here?

The Boy.—He's as drunk as a judge, this morning.

The Judge.—What's this bill for, against your master?

The Boy.—For feeding the hawk.

The Judge (innocently).—What! does your master keep birds?

The Boy (holding up his hands, as if pitying the legal and learned functionary for his ignorance).—*Buds*, no! How green you must be. (Roars of laughter.) The hawks we feeds an't live uns.

His Honour was here set right by one of the officers of the court, who in his youthful days, it appeared, fed the plasterer's aviary.

The Judge.—Ah, I see: we must all live and learn.

The Boy.—Well, I'm blest if you an't, begging your parding, Sir, my lord, got a deal more to larn afore you dies. (Much laughter.)

His Honour, finding the hawk-boy a chalk too much for him, as the *gamin* expressed it, disposed of the suitor by telling him he would order his master to pay his wages, and allow him his day's expenses.

LANDLORD AND TENANT.

IMPORTANT AS TO THE PAYMENT OF LAND-TAX.

Robertson *v.* Russell.—This was an action brought before Mr. Serjeant Jones, the judge of the Clerkenwell County Court, to recover two quarters' land-tax paid by the plaintiff for a house hired of the defendant.

The defendant put in an agreement, signed by the plaintiff, in which no mention was made of the payment of the tax in question, and cited the cases of *Armfield* v. *White*, 1 Ryan & Moody, 246, and *Manning* v. *Lunn*, 2 Car. & K. 13, in which it was held that the tenant was liable unless there was an express stipulation to the contrary.

His Honour, having looked into the authorities, observed that, although the land-tax is a tax peculiarly falling upon the landlord, from whom the tenant has a right to recover it, it was perfectly clear that he could not do so where, as in the present case, he enters into an agreement to pay all taxes. The plaintiff had no doubt entered into the agreement in ignorance of the law, the state of which he (his Honour) could not alter. The tax should have been expressly excepted in the agreement, and there was no alternative but to give judgment for the defendant.

CAUTION TO BUILDING SOCIETIES.

Brompton County Court.

An action was brought by Robert Clarke and John Quick, trustees of the Union Joint-Stock Building Company, to receive 42*l.* of William Bell, drawer of a bill of exchange, a third time renewed. The bill was put in, and payment by the acceptor shown by the plaintiffs, several of the directors, and the treasurer of the company. The deed was produced, on which the society was founded, duly registered, enabling it to sue in the names of the trustees, but only giving it power to *borrow* and *lend* moneys on *mortgage*, and not otherwise, or as the plaintiffs had in this instance. A supplemental deed was also put in by Mr. Clarke, the plaintiff's counsel, but was objected to by Mr. Pullen, the counsel for the defendant, on the ground of its not coming within the provisions of the Act relating to Joint Stock Companies, the 7 & 8 Vict. c. 110, ss. 10 and 21. The learned judge coincided with the views of Mr. Pullen, and rejected this supplemental deed as evidence. Mr. Pullen then urged that the original deed was inadmissible as evidence, as it did not give power to sue for moneys merely advanced on personal security, or bills of exchange in the way now proposed. His Honour rejected this deed also, and considered that he ought at once to nonsuit the plaintiffs; but as the defendants had other objections, he would go on with the case. The defendant and a witness now proved, to the satisfaction of the Court, that a material alteration had been made in the bill since its drawing and acceptance. Plaintiff's counsel now proposed to give at a future time evidence respecting the deed, and asked an adjournment. His Honour refused this, and gave judgment of nonsuit on two grounds,—first, the invalidity of the deeds in this case,—and, secondly, because he considered the defendant had proved the alteration in the bill. Verdict for defendant, with costs. This decision is of interest to all building societies, who, to obtain higher rate of interest than they can upon mortgage, have lent their funds upon bills of exchange, or otherwise than their deeds of enrolment provide. It is clear all moneys lent as in the present cannot be legally recovered.

Notices of Books.

Progress in Art and Architecture, with Precedents for Ornaments. By John P. Seddon, Architect. London: Bogue, 1852.

When we opened Mr. Seddon's volume at the illustrations, we fancied, for an instant, that it was a new work by the able and popular author of the "Lamps," so closely is the manner followed; and there is a similar reflex to be found in the letter-press, including wild abuse of "Restoration," the Renaissance, and those who have the misfortune to think differently from the writer, with corresponding admiration of St. Mark's, at Venice. We do not say this unkindly, to discourage the writer, but to warn him against being simply an echo, and lead him to think for himself. We should be glad if we were able to speak with unqualified praise of the work, because the writer is possessed of ability and energy, and will, we have no doubt, aid in advancing the art he evidently loves. It has many good passages, and twelve plates of Byzantine and Early Gothic ornament, some of them, especially plate 7, very cleverly drawn on stone by the author.

He is enthusiastic in claiming pre-eminence for *art* over *science*. He says—

"The latter may, indeed, like the insect architects of the ocean coral isle, patiently adding fact to fact gleaned by observation, build again in theory the system of the universe; yet her work is that of reason and intellect alone, a simple process of induction, and, amid all the pride of the knowledge thus gained, and the ease of wealth it procures, there is cause for fear lest the affections become blunted, and the faith relaxed, and the heart steeled, so that men take no more notice of the glory of the heavens, save that they drop fatness on their fields, or guide their vessels through the deep, nor of the bow set in the clouds, but for its prophecy of the seasons; but the warning voice of art is raised to fix the most transient beam of loveliness that passes over the face of nature, and to stay for the thankful admiration of millions and tens of millions yet to be born those revelations of grandeur and beauty which stand as the epochs of a life-time, while she is able further to create beauty for herself, working with the principles she has gleaned from nature, and adding thereto the image of thought."

The headings of its four chapters are—

1. The due rank of art corresponding with that of science, and the hopes and means of attaining thereto.

2. The unity of art and the relation of its several branches.

3. The respective positions of architecture, painting, and sculpture, and the requisite treatment of the latter for the purposes of architectural decoration.

4. Precedents for architectural ornament.

The British Almanac and Companion for 1853. Charles Knight, Fleet-street.

For twenty-six years Mr. Knight has given the Almanac a "Companion,"—one always brim-full of information and useful knowledge. We willingly endorse the publisher's own statement that "The series is of permanent value on two accounts:—1. The unparalleled course of public improvement during the quarter century of its publication is here recorded, year by year, either in separate articles, or in statistical tables; and 2. A great body of information, principally in a tabular shape, on subjects of mathematics, natural philosophy and history, chronology, geography, &c. is here preserved."

The present volume contains, amongst other papers, one of Mr. DeMorgan's erudite and ingenious essays, "On the Difficulty of Correct Description of Books;" a paper on "Electric Telegraphs," which records progress up to this time, and some remarks on the "Railways of the Continent and America."

With respect to the section on "Public Improvements," we do not throw any discredit on it by saying that it contains nothing new to the readers of the *Builder*,—but considering the great extent to which it is obviously indebted to our journal, some reference to it would not have been out of place.

Ancient and Modern Colours, from the earliest Periods to the present Time, with their chemical and artistical Properties. By William Linton. London: Longman and Co. 1852.

In an age such as this, when,—notwithstanding chemistry and its progress constitute, in many respects, a fair and just subject of self-gratulation,—we are told that there are painters of good name and note whose elaborate and valuable productions actually melt away and disappear in about as many months as ancient paintings have withstood the influence of centuries without change at all,—and in so melting, dropping an eye, and so forth, afford an incredulous age, perhaps, some glimpse into the mysteries of bleeding Salvators and winking virgins,—such a little work as the present cannot but be an acceptable and a valuable boon to art. It is, doubtless, based on the tabular concentration of important information on the same subject, by the same author, printed some time since for private circulation, but published in the *Builder* at the time. The present much more extended production is appropriately dedicated, by permission, to H.R.H. the Prince Consort, as president of the Royal Commission of Fine Arts and of the Great Exhibition of 1851. That portion of it which relates to the knowledge of the ancients in colours and painting is particularly interesting. It evolves many glimpses of a far higher state of art and knowledge than the moderns are generally willing to allow that the ancients possessed. Many of the colours used by the latter were, as is well known, of the most durable kind; and it is ascertained that discoveries regarded as quite modern, such as those relating to the silicates, were well known in ancient times.

Still, much remains to be done, both in the re-discovery of ancient processes, and the advancement of new. Sir H. Davy, and other eminent modern chemists, have done not a little towards these ends, especially the former; and every one who can,—however little authority he may be able to bring along with his suggestions,—ought to aid in so good a cause as far as possible. With this view, perhaps it may even be worth while for us to mention a little circumstance noticed by ourselves while experimenting with one of the most esteemed colour-bases of the ancients, namely, iron, though without any relation to the preparation of mere colours. Hæmatite, or blood-stone, is an exceedingly hard and stony red oxide of iron. Desiring to *grind* (shall we call it) this stony oxide into a very fine powder *chemically*, we extracted its nitrate with nitric acid in the usual way, precipitating the oxide with caustic potash or soda. Now, what we regard as worthy of note here is the fact that although the oxide, while being so precipitated for the first time, had still a crude, rough, and heavy aspect; a second and a third extraction and precipitation seemed gradually to refine its particles, so that at length it precipitated in a beautiful and subtle floating film, with quite a gelatinous aspect. This we do not presume to explain chemically: it may appear to be not very consistent with the atomal theory: nevertheless, it is *a fact*, and as such we think it worth while to state the circumstance, together with the suggestion,—might not metallic colours be thus, as it were, chemi-

cally *ground* and *refined* to a very high degree, so as to render them much more brilliant as well as subtle than as ordinarily prepared? This idea first struck us lately while observing an artist-friend calcining oxide of iron into redness on his parlour fire.

One other hint, and we are done: have the properties of iodide of nickel ever been examined with reference to colouring or gilding? It sublimes in metallic crumbling flakes like gold, and might perhaps be of some special use to artists.

Mr. Linton's work should go into the hands of every painter and investigator of the subject.

Miscellanea.

Engineering at the Queen's College, Birmingham.—The engineering department of this institution, of which we early spoke, has commenced its operations, under the directions of Professors the Rev. W. Hunt, W. P. Marshall, H. Rose, and G. Shaw. According to the newspapers, the Rev. Dr. Warneford has enabled the college to erect a lecture-room, engineering workshops, and rooms for resident engineering students, and has defrayed the expenses of a supplemental charter, under the provisions of which the council is enabled to confer by examination the degree of "civil engineer." "Considering the present condition of engineering, mining, and architectural science, the unrestricted competition to which our trade and manufactures must inevitably be henceforth exposed, in connection with the fact that systematic education in arts and manufactures is established in some continental states, a cogent argument is supplied that this department should be energetically and efficiently carried out in Birmingham, the great centre of manufacture and mining operations; and the recent alarming and numerous accidents in ships, mines, manufactories, and railways, must be allowed to add to the growing necessity of this branch of education, and to its importance and value to the public at large."

Schools of Art.—At Cheltenham, drawing-classes in connection with the School of Art are in course of progress. A committee, consisting of several clergy and laity, has been formed for the purpose of framing rules, securing a suitable building, &c. and Lord Ward has consented to give an inaugural address.——The Dean and Chapter of Hereford are announced as the first ecclesiastical corporation which has set the example of supporting art education, by subscribing 10*l.* towards the establishment at Hereford of an elementary drawing-school in connection with the department of practical art.——At Carnarvon, the necessary arrangements are in progress to found a school of drawing and design in connection with the training and other educational establishments there. An efficient master will be appointed by the Board of Trade.——A public meeting has been held at Swansea, at which it has been resolved to accept the offer made by the Government for the establishment of a drawing and modelling school there, and to support it to the utmost of their ability. A committee has been appointed, including representatives of "The People's Institute," and "The Literary Society of Working Men;" as well as the head master of every seminary in the town accepting the offer of the Government aid.

On Warming.—I have lately read in The Builder much about chimneys, ventilation, and carbonic acid: all these bear indirectly upon my requirements, as I will endeavour to explain. I get up about half-past six, breakfast with the family at nine, and go to business about ten. My best opportunity for study is therefore between seven and nine, in a quiet little growlery of my own; but in winter I find it very cold, notwithstanding a great coat and a horsecloth. This my sanctum is about 12 feet square, and I want some simple means of warming it before seven in the morning. The source of heat must be lighted over night: it has in it a stove and a chimney. Some of my friends recommend a gas stove, some an Arnott's stove, and some an oil lamp. There is no gas in the house, so the first is impracticable. Arnott's stove requires peculiar fuel and nice management, besides having a risk of explosion. An oil lamp would no doubt be very easy to manage, and I am told that lamps are used for this purpose in France. If any of your readers can assist me in my warming difficulty, it will be of use to myself, and probably to many others similarly situated.

C. P. S.

Engravers in the Royal Academy.—According to the *Athenæum*, her Majesty, as the head of the Royal Academy, has backed the petition to that body of the engravers, with her gracious recommendation of their prayer; and the Forty, in obedience to royal wishes, and in compliance, doubtless, with their own sense of the justice of the demand, have, we believe, consented to admit a certain number of engravers (to be hereafter determined on) to the full honours of the Academy. "Thus, after nearly ninety years of heart-burnings, this grievance is removed,—and the little stool in the ante-room which Woollett contemned, will be changed for a morocco-chair in the midst of the Forty." The "Select Committee on Arts" expressed themselves strongly against the exclusion so long ago as 1836, when Mr. John Pye and others interested themselves strongly on the subject. Mr. Pye's pamphlet of that date has doubtless aided in bringing about this ultimate result.

French and English Iron.—The Paris *Constitutionnel* has a long article on a report from M. Lechatelier, engineer of mines, who had been charged by the French Government with a mission in England to ascertain the state of the railroads there, the condition of the rolling stock, and the expenses of working, with a view to the adoption in France of any advantages that they might present. The report of M. Lechatelier goes into many technical details, which are briefly noticed by the *Constitutionnel*, but which are little understood by the public at large. Our contemporary inclines to a belief that, in the construction of the locomotives, and in many other points, the English have no superiority; but admits that there is an immense economy in the expense of traction or haulage as compared with what it costs in this country. We must express some surprise at the statement of the quality of French iron being superior to that of England. This statement, taken in a general sense, is decidedly incorrect. There are, certainly, parts of France which supply ore of a very superior quality, but the quantity of this iron is comparatively small.—*Galignani.*

New Truss Bridge.—The Troy (American) paper, states that a bridge has been erected over the creek in Second-street, New York, by the inventor, Dudley Blanchard, in company with Louis Fellows, of that city. It is an iron truss bridge of 73 feet span, composed of twenty-four separate castings, after six different patterns—four to each. It weighs about 5 tons of cast-iron, and has about 2 tons of bolting. It has been tested with 40 tons on it, and no sign of deflection exhibited. This bridge is constructed with braces and chords of various proportions—each part of the truss frame being made and proportioned to the strain which it has to sustain. The inventor, it is said, employs less material in making a bridge of equal strength to that of the uniformed truss bridges. Messrs. Blanchard and Fellows are now engaged in roofing the rolling mill of the Albany Iron Works, a building 336 feet long by 135 feet wide, with an iron roof, supported on same principle.

New Steam-Condenser.—There is now in operation at the North Point foundry and machine-shop in Jersey city, says the *New York Courier*, a "condenser," invented by Mr. J. Miller, lately of New Orleans, so constructed as to convert the steam into water, and return it to boilers undiminished, so that when once filled with pure water, they will continue to operate for a week or more without addition; and a steamer could thus readily carry, in a few hogsheads, an ample supply of water to last across the Atlantic Ocean; or, if salt water were used, it would be immediately converted into fresh by the condensation of the steam, and a very trifling precipitation of salt or other impurity would take place. It has been ascertained, adds the *Courier*, from actual experiment, that a steam-engine, with this condenser attached, will produce equal power, at a saving of more than one-third the fuel. By this attachment it turns the high-pressure engine into a low-pressure, and reduces the great unwieldy air-pump now in use to one-tenth its size.

Wood Screws.—Mr. Newton, of Chancery-lane, has patented an improvement in the manufacture of screws for fastening wood, &c. Instead of shaving the heads, either before or after the nick, they are first cut to a more obtuse angle, then the nick given, and afterwards shaved, by which means all burr and irregularities are removed. The jaws of the nicking machine are furnished with a spring, by which they are made to hold various sized screws, and in pointed screws the blank is cut to the proper form before cutting the thread. An improvement in the feeding and supplying of screw blanks, pins, and other similar articles, is effected by apparatus furnished with hooked fingers, by which the articles are seized, the heads preventing them from slipping; also for assorting them according to length or diameter; and a machine is described for shaving the heads, forming the nick, and reshaving, without removing from the jaws in which they are first held.

Improved Coupling.—A coupling has been patented by Messrs. Gale and Fensom, of Homerton, for joining the two ends of bands or straps used for driving machinery. It consists of a gun-metal plate, covered with gutta percha, with two studs screwed throughout, to receive two screws with countersunk heads, for bringing down a top plate of the same metal. By passing the studs through two holes in each end of the band, and screwing down the top plate, a powerful grip is obtained throughout the whole width of the band, without causing any obstruction in passing over or under rigging, friction pulleys, &c. Specimens of this invention will shortly be exhibited at the Society of Arts.

House Property in the Metropolis.—We take the following results of sales from the newspapers:—

By Mr. Gadsden.—Freehold premises, being the City Club-house, let on lease at a ground rent of 330*l.* per annum—11,200*l.*

Freehold house and shop, No. 99, Bishopsgate-street Within, let at 63*l.* per annum—1,390*l.*

By Mr. Alfred Cox, at the Mart.—Leasehold house, No. 72, Cadogan-place, let at 60*l.* per annum, held for 25 years at 5*l.*—450*l.*

By Messrs. Davis and Vigers, at the Mart.—Freehold residence with workshops, &c. Horseshoe-alley, Finsbury, annual value, 50*l.*—950*l.*

By Mr. Price, at Garraway's.—Three messuages, Green Dragon-alley, Narrow-street, Limehouse, annual value, 31*l.* 4*s.* less taxes; term, 846 years, at a peppercorn—220*l.*

By Mr. Fred. Godwin.—A leasehold residence, No. 1, Halkin-terrace, Belgrave-square, let at 130*l.* held for thirty-two years unexpired, at 20*l.*—bought in at 1,490*l.*

A leasehold house, No. 3, Halkin-terrace, let at 100*l.* held for the same term as the preceding, at 5*l.*—sold for 1,350*l.*

A similar house, No. 5, Halkin-terrace, let at 120*l.* also held for the same term at 5*l.*—sold for 1,620*l.*

A leasehold messuage and shop, No. 13, Lowndes-street, Belgrave-square, let at 145*l.* held for an unexpired term of 77 years at 20*l.*—sold for 2,270*l.*

A leasehold mansion, No. 33, Lowndes-street, let at 130*l.* held for the same term as the preceding, at 15*l.*—bought in at 1,995*l.*

A spacious leasehold mansion, No. 36, Lowndes-street, let at 298*l.* held for an unexpired term of 77 years, at a ground-rent of 25*l.*—bought in at 3,700*l.*

Improved ground-rents, amounting to 24*l.* per annum, secured upon three houses in Walton-street, Brompton, held for 80 years from 1849—sold for 470*l.*

By Messrs. Hoggart, Norton, and Trist.—Freehold shop and dwelling-house, No. 105, Lower Thames-street, let at 60*l.* subject to rent-charge of 2*l.* 12*s.* per annum—sold for 2,010*l.*

Freehold shop and dwelling-house, No. 19, Love-lane, Lower Thames-street, let at 32*l.* per annum—1,280*l.*

By Mr. Leifchild.—A freehold estate, known as the Blackwall Railway Hotel, in the city of London, producing 350*l.* per annum—sold for 7,000*l.*

By Messrs. Warlters and Lovejoy.—A ground-rent of 63*l.* per annum, arising from two houses in Houghton-street, Clare-market, held for 70 years from 1823—1,610*l.*

Somerset Archæological Society.—The first conversational meeting of this society was held on Monday week, the Rev. F. B. Portman in the chair; when the Rev. F. Warre read a paper on the ancient history of Taunton; and Mr. E. Walter, of Barr, an account of recent excavations in Ham Hill, and a paper on his discoveries on Worley-hill, Weston-super-mare. Various drawings, water-coloured and oil paintings, and objects in Natural History, &c. were exhibited.

Free Public Library and Museum for Norwich.—A stir is again being made to promote the establishment of a free library and museum in Norwich, and the *Norfolk Chronicle* points out how the foundations of such an institution might be readily laid without great cost, there being already a museum and two libraries in the city which might be purchased towards this end by help of a half-penny rate, as authorised by the Act.

Fall of Two Houses.—We hear of the fall of houses, close to the railway station in the Kingsland-road. Owing to the late heavy rains, it is supposed that the work had not properly set.

The Mediæval Secret.—There will be an intermediate meeting at the Institute of Architects on the 6th inst. when Dr. E. Henslzmann will explain a series of drawings illustrative of his alleged discovery of the constructional rules observed by mediæval church architects. If the author's assertion be borne out, he is able to revert to the so-called key or master secret of the freemasons.

Marylebone Free Library.—We are happy to state that the attempt to establish this, the first free library in the metropolis, is meeting with the most hearty support in all quarters. His Royal Highness Prince Albert has become the patron, and has forwarded a donation of 50*l.*; and, on the other hand, a committee of working men has been formed, and they are earnestly co-operating with their more wealthy friends in attempting to permanently establish this, one of the most promising institutions of the age.

Utility of a High-pressure Water-supply.—The new water-supply of the Local Board of Health at Tottenham has been called into requisition for the extinguishing of fire, under circumstances which show the advantages of a constant high-pressure supply, available against fire at all times, and, as in this case, extinguishing the conflagration within less time than on the average suffices to bring the engines to the spot even in London. The fire had got complete hold of the premises, and being a timber house, it and six houses adjoining must have fallen before the enemy: as it was, the damage done is only the destruction of the furniture of the upper floors, with part of roof, partitions, ceilings, and part of the outside of a single house.

Gas Manufacture.—At the Sheridan Debating Society, Liverpool, Mr. S. Edwards, of the Liverpool Gas Company, lately read a paper on coal gas manufacture, in which it appears to have been maintained that the gas of London as compared with that of Liverpool, in point of quality, ought only to be calculated in the ratio of 2*s.* per 1,000 cubic feet, or half the present price of gas in Liverpool.

Compensation for Improvements.—On Friday in last week, in the Lord Mayor's Court, London, a sailcloth maker of Broadstreet, City, claimed compensation in respect of his premises, which were required for carrying out the improvements westward of King William-street to St. Paul's Churchyard. The sum claimed was 300*l.* as compensation for loss of trade, 152*l.* for repairs and alterations, 80*l.* for fixtures, 100*l.* for expenses of removal, and 250*l.* for unexpired term of lease, making a total of 882*l.* The recorder summed up, and the jury returned a verdict for 400*l.*

Swindon New Church.—A correspondent complains to us in, we should hope, somewhat exaggerated language, of the entry of water through the roof and tower. He says, when he was there, "Service was performed amidst such a splashing of falling water that all the eloquence of the preacher failed in preventing the thoughts of the congregation from rambling to 'The Flood.'"

Society of Antiquaries.—It may interest some of the readers of our journal to hear that, at a very full meeting held on 25th ult. the reduction of the subscription from four guineas to two, and the composition fine from forty guineas to twenty-five was confirmed. Considerable discussion took place; but good feeling was manifested on all sides.

New Application of Iron.—A manufacturer in Wurtemburg has invented a mode of applying a surface coating to sheet-iron, which enables it to take freely the mark of a slate-pencil. It is much lighter and less liable to injury than a common slate.

[ADVERTISEMENT.]

TO THE EDITOR OF THE BUILDER.

Patent Shutter (and Brass Sash) Works,
Gate-street, Lincoln's-inn Fields,
London, 2nd Dec. 1852.

Sir,—Messrs. Clark and Co. of Gate-street, Lincoln's-inn-fields, Engineers and Shutter Makers, assuming that a charge is made against them in the advertisement of Messrs. Bunnett and Co. which appeared in the *Builder* of last Saturday, beg to inform the readers of the *Builder*, and all persons, that Messrs. Clark and Co. have directed inquiries to be made whether they be the firm referred to in the advertisement, and in the event of Messrs. Bunnett and Co. confirming the assumption of Messrs. Clark and Co. such proceedings will be taken by them as will give Messrs. Bunnett and Co. the opportunity of proving what, until then, Messrs. Clark and Co. will declare to be an unfounded and slanderous attack.

TENDERS

For the proposed King's College Hospital. Mr. T. Bellamy, architect;—

	Portland.	Ancaster.
Locke and Nesham	£49,659	47,630
Hill	49,117	47,574
Sissons and Robinson	48,221	46,701
Cooper	48,181	46,633
Myers	48,070	45,794
Sanders and Woolcott	48,040	46,350
Mansfield and Son	47,400	45,740
Holland	47,328	45,550
Jay	46,999	45,270
Rowland and Evans	46,083	44,435
Glenn	45,296	43,213
Lucas, Brothers	44,692	42,844

For building a new chapel and certain alterations at the Middlesex County Lunatic Asylum, Hanwell:—

Patrick and Son	£5,635
Hardy and Cowley	5,422
Nye and Ealing	5,039
Pollock and McLennan	4,986

TO CORRESPONDENTS.

"A. W." (we decline interference), "Oliver," "A. B." "P. B." (shall be happy to look at drawings), "T. R. W." (at the Office of Works, Whitehall), "Alpha," "J. W. H." (declined), "W. J." (ditto), "T. G." (thanks), "W." (shall appear), "L" (ditto), "J. A. N." "N. G." (very late), "G. E. P." "B. G." "F. W. R." "B. and P." "R. R. B." "R. T. W." "W. G. L." "Lynx" (we are unable to return newspapers), "J. D." (there is *not* "a cubic inch in a common brick"), "B. A." (a mixture of wood and stone for pavement has been suggested before now. We cannot recommend the plan proposed), "Vulcan," "Department of Practical Art" (no charge is made for the time allowed for holidays. To those who have graduated at Somerset House the subscription is but 3*s.* per month. We may speak hereafter of foreign schools.)

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

TO LANDOWNERS AND AGENTS.

A T Lady-day next, or earlier if required, the Advertiser is desirous to take a SITUATION as AGENT to a LANDOWNER, or as MANAGING CLERK in an Agency Office. He has a good knowledge of Architecture, and the arts of construction, having been for some time in the office of a London Architect of good standing. During the last five years he has been engaged with a firm of land agents in the country of very high standing and extensive practice, and is familiar with the practice of Land Survey or Levelling, Engineering as applied to Drainage, including underdraining on the most scientific principles; farming, and all the details of the letting and management of estates; valuations for sale or letting, the arrangement and erection of farm buildings, and the management of woods and plantations. The highest references can be given as to his respectability and competence, together with any security which may be required.—Address B. B care of Messrs. Woolley and Son, South Collingham, Newark.

MARBLE WORKS.—Wanted, a Young Man of good address to take the management of a concern where chimney-pieces and monumental work will be carried on. He must be clever at working, and also capable of making an estimate. This would suit a young practical carver. Letters containing references and salary required, address ed (prepaid) J. S. H, care of Mr. Tuck, 166 Bishopsgate-street Without.

PLUMSTEAD, WOOLWICH, and CHARLTON CONSUMERS' PURE WATER COMPANY.—WANTED, a man of general experience as FOREMAN of WORKS, to act as Time-keeper, Receiver of Stores, &c. &c. Salary twenty-five shillings a week, house-rent, coals, and gas.—Testimonials and references to be directed to the Secretary as under, on or before the 10th of December.

JAMES BLACK, Secretary.
Dec. 1, 1852. 76, Powis-street, Woolwich

TO ENGINEERS AND OTHERS.

WANTED, for the Plumstead, Woolwich, and Charlton Consumers' Pure Water Company, a PORTABLE PROVING MACHINE, capable of testing pipes from 2 inches to 18 inches diameter, of the usual length. A plan, with detailed reference of strength of materials, to be sent with the price to the Secretary, 76, Powis-street, Woolwich, on or before Saturday, the 11th December instant.—By order of the Board,

JAMES BLACK, Secretary.

TO PARENTS AND GUARDIANS.

WANTED, a respectable Lad as an IN-DOOR APPRENTICE to a good manufacturing business, where he will be treated as one of the family.—Apply by letter, post-paid, X. Y. No 6, Sussex-terrace, Brixton-road North

AN Architect, holding a Government professorship, and in important practice, having buildings of the first character erecting in the neighbourhood of London, has VACANCIES in his office for ONE OUT-DOOR and ONE IN-DOOR PUPIL. None but gentlemanly well-behaved youths, of good family, will be taken.—Apply, S. S. S. Mr. Phillips's, 43, Store street, Bedford-square.

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AN opportunity now offers for a respectable youth as an IN-DOOR APPRENTICE to a BUILDER and DECORATOR in the Country (about eighteen miles from London, where he would have a comfortable home, and every facility for acquiring a thorough knowledge of the business.—For terms apply to Messrs. A. and R. WILCOXON, Plate-Glass Manufacturers and Paper Stainers, Monument-yard, London.

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WANTED, a CLERK in an ENGINEER'S and FOUNDERS OFFICE. He must have been engaged in a similar situation previously. One who understands mechanical drawing and estimating preferred.—Apply by letter, stating salary required, to X. Y. Office of "The Builder," 1, York street, Covent Garden.

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WANTED, in the country for a permanency, a steady, active, Three-branch Hand in the above trade. He must be a good plumber, lead, and sash glazier. One who can make himself generally useful would be preferred. Good references as to character and qualifications will be required.—Apply, stating age, to W. R. Post office, Ongar, Essex.

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WANTED, a SITUATION by a man who perfectly understands the above three branches, having had twenty-four practice. Recommendation can be given if required.—Direct to H. H. No. 47, Pimlico-street, Pimlico.

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WANTED, a permanent SITUATION, by a Young Man, as PAINTER and GLAZIER. He can do writing, graining, paperhanging, gilding, &c or make himself useful in any branch of the above trades. Country not objected to.—Apply to A. B. No. 3, Market street, St. John-street-road, Clerkenwell.

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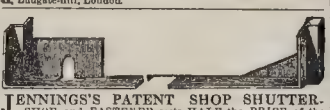
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5	35	19 19 2	1,000	34 11 0	1,034 13 0
4	40	32 10 2	1,000	65 0 0	1,065 0 0
3	30	24 15 0	1,000	43 14 5	1,043 14 5

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	£ s. d.	£ s. d.		£ s. d.	£ s. d.
10	1 7 6	1 8 4	46	3 11 6	3 3 2
13	1 9 3	1 7 0	50	4 1 9	3 13 3
16	1 11 3	1 8 10	53	4 11 6	4 2 6
18	1 14 4	1 11 6	56	5 4 0	4 14 0
23	1 17 0	1 13 8	60	6 6 0	5 12 6
28	2 0 3	1 16 2	64	7 4 0	6 9 6
*30	2 2 0	1 19 3	66	8 8 4	7 10 8
33	2 8 6	2 2 10	70	10 0 4	9 7 6
36	2 13 0	2 6 4	73	11 16 2	11 2 6
40	2 19 0	2 12 0	76		13 1 9
43	3 5 7	2 17 2	80		18 12 10

* EXAMPLE.—A gentleman whose age does not exceed 30, may insure 1,000l. payable on his decease, for an annual payment of 22l. 10s.; and a lady of the same age can secure the same sum for an annual payment of 19l. 17s. 6d.

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LOANS.—Loans are advanced on Policies which have been in existence five years and upwards, to the extent of nine-tenths of their value.

BONUSES.—Five Bonuses have been declared; at the last in January 1853, the sum of 191,125l. was added to the Policies producing a Bonus varying with the different ages from 24s. to 55s. per cent. on the Premiums paid during the five years.

PARTICIPATION IN PROFITS.—Policies participate in the Profits in proportion to the number and amount of the Premiums paid between every division, so that if only one year's Premium be received prior to the books be closed for any division, the Policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1856, therefore those who effect Policies before the 30th June next will be entitled to one year's additional share of Profits over later assurers

APPLICATION OF BONUSES.—The next and future Bonuses may be either received in cash, or applied at the option of the assured in any other way.

NON PARTICIPATING.—Assurances may be effected for a Fixed Sum at considerably reduced rates, and the Premiums for Term Policies are lower than in most other Safe Offices.

PROMPT SETTLEMENT OF CLAIMS.—Claims paid *thirty* days after proof of death, and all Policies are *indisputable* except in cases of fraud.

INVALID LIVES may be assured at rates proportioned to the increased risk.

POLICIES are granted on the lives of persons in any station and of every age, and for any sum on one life from 5l. to 10,000l.

PREMIUMS may be paid yearly, half-yearly, or quarterly, but if a payment be omitted from any cause, the Policy ceases to exist *during fourteen months*.

The Accumulated Balance Sheets are at all times open to the inspection of the Assured or of *persons desirous to assure*.

Copies of the last Report, with a Prospectus and Forms of Proposal, can be obtained of any of the Society's Agents, or will be forwarded free by addressing a letter to

GEORGE H. PINCKARD, Resident Secretary.

99, Great Russell-street, Bloomsbury, London.

PUTNEY BRIDGE and PIER COMPANY. (Registered provisionally)

Capital 65,000, in 3,250 Shares of 20l. each.

Deposit 1l. per Share, and no further call until the Act of Parliament be obtained.

PROVISIONAL DIRECTORS.

Wilford George Brett, Esq Governor of the Chelsea Waterworks Company.
Anthony F. Bainbridge, esq. Putney.
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George Moore, esq. Putney.
(With power to add to their number.)

CONSULTING ENGINEER

James Simpson, esq. C.E. F.R.S.

ENGINEER.

Samuel Clegg, jun. M. Inst. C.E. F.G.S.

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BANKERS.

The Commercial Bank of London, 6, Henrietta street, Covent garden.

SECRETARY.

Augustus Griffiths, esq.

The inconvenient position and dangerous state of the present Bridge, the high tolls, the occasional impossibility of passage during high tides, and the serious impediment and danger which it offers to navigation, have been such as to render imperative the erection of a better structure. The solidity of the structure will be such as to render the tolls rees veil a permanent, unfailing, and gradually-increasing source of dividend, which will also be further augmented by the annual receipt of a considerable rent from the Chelsea Water-works Company, for the right to carry their mains over the Thames by means of the new bridge.

It is proposed also to build a landing-pier for steam-boat passengers at one of the piers, at the centre arch of the bridge, and thereby constitute a further source of revenue.

The project of an improved bridge receives, as might be expected, the cordial sanction and support of the Navigation Committee of the Port of London; and in the immediate neighbourhood the approbation of the project is universal, and the accommodation earnestly desired.

The capital required for the building, purchase of land, approaches, and compensation, is estimated at 65,000l. which sum it is proposed to raise in the manner above stated.

The annual revenue has been calculated as follows: -

Traffic, based upon the income derived from the present bridge, and after allowing for reduction of tolls	£2,000
Additional receipts, in consequence of reduction of toll	500
The acquisition of omnibus and increased carriage traffic ..	500
Steam-boat pier	500
Rent for way-leave for the mains of the Chelsea Waterworks Company	500
	£4,000

Applications for shares and prospectuses may be made to the Secretary, 11, Buckingham-street, Adelphi.

THE PERMANENT WAY COMPANY beg to call the attention of Boards of Directors, Engineers, and others interested in railways already made, to the important advantages obtained by FISH-JOINTING the RAILS, as exhibited by the annexed extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly meeting of Shareholders, held on the 25th August. This invention not only saves a large current expense in keeping up the permanent way, but by its causing engines and carriages to run more smoothly, decreases the wear and tear of both the rails and rolling stock, and adds greatly to the comfort and security of the passengers. The PATENT FISH JOINTS have been largely adopted by the engineers of the following railways in this country and abroad:—

Eastern Counties Railway,
East Indian,
Edinburgh and Glasgow,
Egyptian,
London, Brighton, and South Coast,
London and North-Western,
Midland,
Moravshire,
North and South Western Junction,
Waterford and Limerick,
York and North Midland,
York, Newcastle, and Berwick,

And are also in course of adoption on many other railways.

Extract from the Report of the Directors of the Eastern Counties Railway to the half-yearly Meeting of Shareholders, held on the 25th August.

"The system of fish-jointing has hitherto fully borne out Mr. Ashcroft's reports, as giving a smoother road, with less wear and tear to the rolling stock, and at a much reduced expenditure in maintenance."

"Not having yet furnished with rails, the company draw attention to W. H. BARLOW'S PATENT RAIL, as by its adoption the permanent way may be constructed at the lowest rate per mile, and with greater durability than by any other known system. These rails have been largely adopted by the engineers of the following:—

Dublin and Belfast Railway,
Great Western,
Hereford, Ross, and Gloucester,
Midland,
Midland Great Western (Ireland),
Northern Railway of France,
Newport and Abergavenny,
South Wales,
St. Germains and Versailles,
West Cornwall.

Testimonial from G. W. Hemans, esq. C.E. to Peter Barlow, esq. C.E.

"Dublin, 22nd September, 1852.

"Dear Sir,—In reply to your inquiry, whether I find fault with the wide iron rail permanent way on account of hardness, I beg to say, that although of course not so soft to the ear and feel as the rest of this line, which has longitudinal timber, I do not consider it unpleasantly hard. The motion is very steady upon it, and the hammering noise of the wheels much diminished. It is no more, or less, to say, and accommodate to maintain or renew, that I disregard the slight hardness, and mean to recommend this kind of permanent way always in future, provided I am not disappointed in the durability of the riveted joints.

"Yours very truly,

(Signed) "GEO. W. HEMANS, Chief Engineer."

THE PATENT CAST-IRON SLEEPERS of Mr. P. W. Barlow are adopted to double-headed rails of any pattern, and supersede or replace wooden sleepers. They are adopted on the

London, Chatham, and Dover,
East Indian,
Midland,
East Lancashire,
Londonderry and Enniskillen,

and several other lines.

Extract from the Directors' report to the last half-yearly meeting of the Londonderry and Enniskillen Railway.

"The trial afforded by six additional months' working has also confirmed your directors in the favourable opinion expressed by them respecting the Cast-iron Road of Mr. Peter W. Barlow."

It has fully answered the expectations formed of it, and there can now be no doubt that its adoption, coupled with the lessened wear and tear from the use of light engines, will effect a material saving in the maintenance of permanent way.

The Permanent Way Company confines itself entirely to the granting licenses to use their various patents, which is done upon very moderate terms.

These several systems have been adopted hitherto to an extent of upwards of 100 miles on the above-mentioned railways.

Every information may be obtained by applying to Mr. CHARLES MAY, C.E. Office of the Company, Westminster; or to WILLIAM HOWDEN, Secretary, 28, Great George-street.

TARPAULINS FOR COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PUGSLEY, 115, Fore-street, City, Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

The Builder.

SATURDAY, DECEMBER 11, 1852.

PARLIAMENT has voted 150,000*l.* as the first step on the part of the Legislature in furtherance of the proposal made by the Royal Commissioners of 1851, to provide "one large Institution devoted to the purposes of instruction, adequate for the extended wants of industry, and in connection with similar institutions in the provinces." The Chancellor of the Exchequer, in bringing forward a motion for the grant on the 6th inst. urged that the time was come when it was necessary that a great effort should be made, by which an industrial education should be given in this country, and the influences of science and art upon productions be more systematically brought to bear. That our various institutions were scattered about, and not working in connection with one another; that the British Museum could not afford sufficient accommodation for its purposes; that the Schools of the Royal Academy were closed at the time most favourable for the students, because of the annual exhibition of modern art; that our pictures were stowed away in different buildings, instead of being brought together under one roof and made to form a complete school of art; and further, that the various learned societies of the metropolis all wanted space and accommodation. He looked ultimately to find the learning, the science, and the art of the country collected together in one place, and illuminating with their accumulated radiance not only the metropolis, but every part of the kingdom.

Lord Seymour thought the societies would object to being removed to Kensington.—— Lord John Russell, as one of the commissioners, supported the proposal, and said Lord Seymour was possibly right with regard to many of these associations, but the commissioners left the matter quite optional with the societies themselves. Any one who was acquainted with the Treasury knew that frequent applications were made by some of these scientific societies for the use of public buildings in which to hold their meetings; and it had been stated, on behalf of some of them, that they found house-rents so very expensive that they would be obliged to dissolve the societies if their applications were refused. It must be evident that, in such cases, the societies would be very glad to have rooms allotted to them in the proposed buildings, where their meetings might take place.

Mr. H. Drummond made an extraordinary speech: we have never done anything good in the arts and never will.

"To try to make the people of this country like the highest order of painting was just as absurd as to try to make the Italians like beefsteaks and porter. We never did excel in the highest departments of manufactures even. At no time had we even attained the degree of perfection in the working of iron which had been reached abroad. Up to this moment we were unable to keep up the supply of patterns for ordinary articles of dress; we were obliged to go to France for them. Not one of our greatest painters ever knew how to draw. Reynolds never did; Lawrence never did. It was, he believed, impossible to find any man in this country to do that which was of everyday occurrence in Italy,—namely, to make an outline drawing of a great picture. Let those who talked about 'high art' go into the lobby and look at the fresco painting, and, if they did not feel ashamed, why, all he could say was, that they ought to do so. It was now proposed that a great national building should be erected on the ground about to be purchased; but where were we to find an architect? The original estimate for the new Houses of Parliament was 700,000*l.* They had already cost 2,500,000*l.* and the room in which the House now sat—the room *par excellence*—the building in which the great business of the country was conducted, was not sufficiently large to hold the members. Until lately it was impossible for members to hear each other in it, and now they were frozen out by cold."

All that we have recently done in the comparatively brief space of time during which endeavours have been really made to advance the arts in this country goes for nothing with the honourable member, and he reverts to what we thought was an exploded libel.

The mover, in reply to this, said that no attempt would be made to force a feeling for art upon the people of this country. The establishment of a National Gallery formed only a subordinate part of the scheme. The object chiefly desired was to give an industrial education to the people, and to bring the influence of science and art to bear on our manufacturing productions. No attempt would be made to infuse a *dilettante* spirit into the working classes, but an opportunity would be given them of fitting themselves for competing with their rivals throughout the world. Should the House determine to erect buildings on the site about to be purchased, the whole plan would be under their control, and care would be taken to INSURE THE COMPETITION OF ALL THE ARCHITECTURAL TALENT IN THE COUNTRY.

This last part of the statement will be received with gratification by the members of the profession throughout the kingdom.

Comments were made on the price paid for some of the land, and it was stated that a demand of 70,000*l.* had been sent in for four acres, but that it had been treated with the contempt it deserved.

Looking back to the Commissioners' report, mentioned last week, we find some particulars under this head which will interest our readers. The Gore House estate (Kensington-gore) obtained through "the disinterested instrumentality of Mr. Kelk, the builder," contains about 21½ acres, with a frontage, facing Hyde-park, of between 500 and 600 feet, and cost 60,000*l.* The Villars estate adjoining (negotiated for gratuitously on behalf of the Commissioners by Mr. Thomas Cubitt), contains 48 acres, and was bought, as we said at the time, for 153,500*l.*

We may mention, as illustrating the subject, that we have just now negotiated the sale of a plot of land in Brompton adjoining the church, under 3½ acres in extent, for which we received 16,000*l.* nor would we have consented to our principal's accepting any less sum. To show the degree in which the value of land near London has increased, we may mention what we are told is the fact, that less than twenty years ago the whole of the land on which Brompton-square stands, close to the last-mentioned plot, and *double in quantity*, was offered for sale at 3,000*l.* The increase in the value of land in the City is even more startling: for example, an offer of 16 guineas per annum per foot frontage has been made (not yet accepted) for land about 24 feet deep in Finch-lane and Threadneedle-street, belonging to St. Thomas's Hospital.

The Royal Commissioners state, amongst their reasons for buying so large a plot, and advising the purchase of even more, that the space provided for the British Museum being inadequate, a sum of not less than 67,500*l.* would be required to purchase a few neighbouring houses, which it would be necessary to demolish in order to obtain the necessary area.

"A similar history attaches to the various metropolitan improvements, which are rarely undertaken until the great lines of communication (which ought to have been originally provided for, but the necessity for which becomes only fully apparent with the growth of the town) have been already covered with houses and buildings. The expense at which these improvements have then to be carried out is of course enormous.

As an instance of the cost of making improvements in the metropolis, it may be mentioned that the outlay on some of the more important improvements undertaken of late years have been as follows:—

Line of Street.	Area of Property purchased.	Total Cost.	Average Cost per Acre.
	Square feet.	£.	£.
Oxford-street to Holborn	220,151	290,000	57,380
Bow-street to Charlotte-street	61,653	96,000	67,827
Coventry-street to Long-acre.	65,410	180,000	119,871

It is also within our cognizance that no less than 25,000*l.* per acre were paid for ten acres of the site occupied by one of the chief railway termini in London.

"In such towns as Liverpool, Manchester, Birmingham, and Leeds, the price of sites for public buildings, streets, railway stations, &c. is frequently most excessive. In Manchester, from 10*l.* to 12*l.* per square yard (being at the rate of from 50,000*l.* to 60,000*l.* per acre), is a common price for the land on which the warehouse property is built, and as much as 40*l.* per square yard (or at the rate of nearly 200,000*l.* per acre), have been paid for land in the centre of the town. In Birmingham, again, some surplus land in the centre of the town belonging to the London and North-Western Railway Company, has, within the last few weeks, been sold at the average price of 11*l.* 16*s.* per yard, or at the rate of more than 57,000*l.* per acre; while a portion fetched 13*l.* 10*s.* per yard, or upwards of 65,000*l.* per acre.

In the same manner, land at Liverpool, in the immediate neighbourhood of the Town Hall and Exchange buildings, sells for 30*l.* per square yard, or at the rate of nearly 150,000*l.* per acre; and in extreme cases, 40*l.* per square yard, or nearly 200,000*l.* per acre, have been given. At a distance of 300 yards from the above, and off the great thoroughfares, land has sold for 20*l.* per square yard, or nearly 100,000*l.* per acre; while, even at the distance of more than a mile from that central point, and in a direction quite away from business, land has been bought for building purposes, in quantities exceeding an acre, at from 35*s.* to 38*s.* per square yard, or at the rate of from 8,470*l.* to 9,196*l.* per acre."

Architecture, it would seem, is not to be overlooked in the new Institution. The report says:—

"Before concluding these observations on the subject of the Fine Arts, it is necessary to notice the important subdivision of *Architecture*. Of all the higher branches of art, it is the one which may be said to require the most varied degree of instruction, and to be connected with the greatest number of branches of practical science. An acquaintance with the properties of raw materials, a knowledge of physics, of chemistry, of manufactures, are alike indispensable to its correct appreciation; but although this truth has long been acknowledged and acted upon in other countries, it has not been so with us to the extent that might be desired.

The necessity of a more perfect system of artistic instruction, as already shown by us in the case of painting, is equally a necessity in this instance; and we may observe that the collection of casts made by Government on the occasion of the building of the new Houses of Parliament, and *ultimately destined*, as we have mentioned, *for a National Museum of Mediæval Art*, would, if only as a nucleus, form a most valuable object of study in this department."

Reference is made in the Report to Dr. Playfair's lecture on Industrial Instruction on the Continent, to show what we shall have to compete with. It is calculated that in Germany alone 13,000 men annually receive the technical and scientific training of the Trade Schools and Polytechnic Institutions, while more than 30,000 workmen are being systematically taught the elements of science and of art, in schools which communicate instruction to them in their leisure hours. This lecture is now published, and deserves the attention of all who are interested in our Industrial Progress, even though they may think with us that up to this time the schools in Germany have produced smaller results than might have been expected. "The whole of industrial competition," says the writer, "is now resolved into a struggle to obtain a *maximum* effect by a *minimum* expenditure of power. But this power is derived from natural forces, and not from brute strength: mental labour has engrafted itself upon muscular effort, and, by a healthy growth, has reduced the size and relative importance of the latter. Every new acquirement in the knowledge of natural forces is the acquisition of a new sense, which may be applied to production; and as every substitution of a natural force for muscular exertion depends upon a knowledge of the former, it surely requires no argument to prove, that the economical application of it must rest upon a perceptive and not merely empirical knowledge; or, in the language of the Wise King of Scripture, 'If the iron be blunt, and we whet not the edge, then must we put to more strength; but wisdom is profitable to direct.'"

Let us make that preparation for the fight which common sense teaches us is desirable: with wisdom *and* strength there need be no fear as to the result.

HOW TO DETERMINE THE BEVELS IN THE QUOINS OF AN OBLIQUE CIRCULAR SEGMENTAL ARCH, THE COURSES RUNNING IN THE DIRECTION OF ABUTMENTS.

In No. 493 of this journal, there is given a method of assigning the moulds for the bevels when the arch is semicircular, and the same method, under certain modifications, is applicable when the arch is segmental, with the courses running in the direction of the abutments: hence the solution of the following question can be effected by the rules previously given.*

* See page 460, *ante*.

Question. — What are the bevels of the quoins, and the forms of the coursing joints, in an oblique circular segmental arch of nineteen equal courses, the span being 35 feet 4 inches, and the versed sine or rise 12 feet, the obliquity or deviation from the square being 45 degrees?

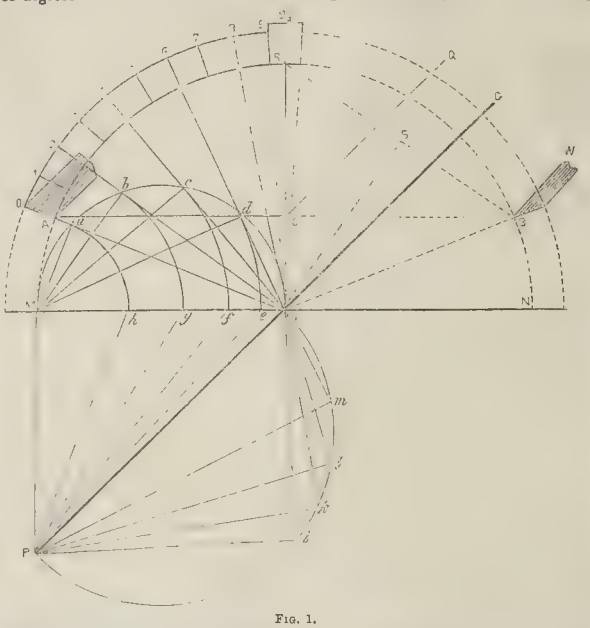


Fig. 1.

35⅓ feet, taken from a scale of equal parts of any convenient dimensions, to represent the span of the arch: bisect the span AB, perpendicularly in C, and make CR equal to 12 feet, the given rise or versed sine, and draw the chord RB. Bisect RB perpendicularly in S, and let SV meet RC produced in V; then is V the centre of the circle, of which the proposed arch is a segment. Describe the semicircle MARBN, and divide the semi-arch AR, into 9½ parts, the number of courses between the crown and the abutment, and draw the several radii to represent the direction of the beds or joints of the courses, which would all meet in the point V, if extended down to that plane; but to avoid confusion in the figure, it will be sufficient to draw only every other radius, beginning at the abutment.

Upon the straight line MV as a diameter, describe the semicircle M*abcd*V, intersecting the radii 0V, 2V, 4V, and 6V in the points *a*, *b*, *c*, and *d*; then with the distances M*a*, M*b*, M*c*, and M*d*, describe arcs to meet the semi-diameter MV, in the points *h*, *g*, *f*, and *e*. At the point M erect the perpendicular MP, and through the centre, V, draw the straight line CVP, making with the diameter MN an angle of 45 degrees, the given obliquity, and meeting MP in P; then is the straight line PVG parallel to CQ, the central line of the arch, and in the direction of the abutment BW: it is therefore manifest, that the planes of all the beds or coursing joints, would pass through the line PVG.

Draw the straight lines P*h*, P*g*, P*f*, and P*e*, and on PV as a diameter, describe the semicircle P*iklm*V, in which inflect the straight lines P*i*, P*k*, P*l*, and P*m*, respectively equal to P*h*, P*g*, P*f*, and P*e*, and draw V*i*, V*k*, V*l*, and V*m*; then are the angles P*h*M, P*g*M, P*f*M, P*e*M, and their supplements P*h*V, P*g*V, P*f*V, and P*e*V, the bevils of the quoins for both sides of the arch; and in like manner the angles P*Vi*, P*Vk*, P*Vl*, P*Vm*, with their supplements G*Vi*, G*Vk*, G*Vl*, and G*Vm*, are the angles between the joints in the face of the arch and the joints along the soffit for both semi-arches, and by these angles respectively the moulds for voussoirs of the whole arch are constructed.

In order to render the solution of this question intelligible, it becomes necessary in the first place to delineate the arch, and to show how the bevels are obtained geometrically, as this will be the means of leading to the mode of calculation; for which purpose, draw the straight line AB, fig. 1, and make it equal to

THE COMPUTATION OF THE ANGLES.

In order to compute the angles of bevel, it is necessary in the first place, to ascertain how much of the arch is occupied by a single course; and for that purpose, we have given the semi-span AC=17 feet 8 inches, and the rise or versed sine CR=12 feet, and by these the whole angle AVR can be determined, and hence the angle subtended by each course becomes known.

It is a well-known principle in geometry, that the square of half the chord of an arc of a circle, *is equal to the rectangle or product of the two segments of the diameter which bisects the chord*; therefore, if to the square of half the chord CA, we add the square of the versed sine CR, and divide the sum by twice the versed sine, we shall obtain the radius VA; then in the right-angled triangle ACV, there are known, the hypothenuse AV and the side AC, by which the angle AVC can easily be found. Thus we have,—

Half of chord CA=17 ft. 8 in.=17·6 ft. its square...		312·1
Versed sine CR.....	= 12 ft. its square...	144·0
		456·1
Sum of the squares	456·1, log. 2·659070	
Twice the versed sine CR...	24 ft. log. 1·380211	
Radius AV	19 ft. log. 1·278859 subtract.	
Semichord AC.....	17·6 ft. log. 1·247238	
Required angle AVC 68° 24′	log. sin. 9 968379	

Now, since there are to be 9½ courses between the abutment and the crown of the arch, if we divide the angle 68° 24′ by 9½, we shall get 68° 24′÷9½=7° 12′, the space of the arch occupied by each course.

If from the quadrant MVR we subtract the computed angle AVR, we have 90°−68° 24′ =21° 36′ for the angle AVM, the portion of the quadrant which brings us to the springing joint; therefore, by adding 7° 12′ continually, we shall obtain the angles for each joint from the abutment to the crown of the arch. The angles are therefore as follow:—

1. Angle AVM.... 90°−68° 24′=21° 36′
2. Angle MV1 .... 21 36+7 12=28 48
3. Angle MV2 .... 28 48+7 12=36 0
4. Angle MV3 .... 36 0+7 12=43 12
5. Angle MV4 .... 43 12+7 12=50 24
6. Angle MV5 .... 50 24+7 12=57 36
7. Angle MV6 .... 57 36+7 12=64 48

8. Angle MV7 ....64 48+7 12=72 0
9. Angle MV8 ....72 0+7 12=79 12
10. Angle MV9 ....79 12+7 12=86 24
11. Angle MVR....86 24+3 36=90 0

Now, with these angles taken in order, and he constant obliquity 45°, we calculate the inlination of the face of each quoin to its bed or oursing joint, and the rule by which the calulations are made, is given on page 460 of his volume of the *Builder*; but to avoid he trouble of reference, we think proper here o repeat it. The rule is as follows:—

RULE.—*To the logarithmic tangent of the onstant obliquity, add the logarithmic cosecant f that portion of the quadrant for which the ngle of bevel is wanted, and the sum, less* 10 *in he index, will be the logarithmic tangent of he required angle of bevel.*

Now, beginning at the first course on the eft of the figure, the angle between the springng joint and the face of the first quoin is 9° 47′, and the mode of calculating it is as ollows:—

iven obliquity	45° 0′	log. tan.	10·000000
iven angle AVM	21° 36′	log. cosec.	10·434005
equired angle of bevel PfM	69° 47′	log. tan.	10·434005

The angle here computed is the inclination etween the face of the first quoin and the pringing joint; but the inclination between he bed of the quoin and the face of the abutnent on which it rests, is the supplement of he angle just found, or 110° 13′.

Again, the bevel or angle between the face of he first quoin or arch-stone, and the bed of he second, is found as follows:—

iven obliquity,	45° 0′	log. tan.	10·000000
iven angle MV1	28° 43′	log. cosec.	10·317175
equired angle of bevel PgM	64° 17′	log. tan.	10·317175

But the angle between the face of the second uoin and its bed, is the supplement of the ngle just computed, viz. 90°—64° 17′ = 15° 43′, and in precisely the same way are he bevels for the other quoins computed, and he bevels for the whole arch will therefore, and as in the following tablet:—

Table of Bevels at the several Coursing Joints.

No.	Central Angles.	Face Bevels.	Supplements.
1	AVM = 21° 36′	69° 47′	110° 13′
2	MV 1 = 28 48	64 17	115 43
3	MV 2 = 36 0	59 23	120 27
4	MV 3 = 43 12	55 36	124 24
5	MV 4 = 50 24	52 23	127 37
6	MV 5 = 57 36	49 49	130 11
7	MV 6 = 64 48	47 52	132 8
8	MV 7 = 72 0	46 26	133 34
9	MV 8 = 79 12	45 31	134 29
10	MV 9 = 86 24	45 3	134 57

Now, it is manifest that the several moulds onstructed from these angles will answer also or the courses in the other semi-arch, beginning at the abutment BW, on the reverse ide of the arch from that at which the above eries begins: in fact, the same set of moulds nswers for both semi-arches by applying them n a contrary order.

It would be superfluous to show the mode f constructing the moulds for each of the ourses, as the principle is the same in all hen the several angles of bevel are known: will therefore suffice to construct one nould, as all the others are constructed in a imilar manner, and for this purpose we shall nake choice of that numbered 4 in the diagram, hich corresponds to No. 5 in the above table, or which the angles are 52° 23′ and 127° 37′ espectively.

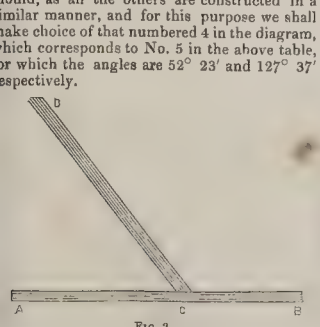


FIG. 2.

Draw the straight line AB, fig. 2, which will apply to the faces of the two quoins contiguous to the joint numbered 4 in the diagram fig. 1, or to the face of the arch generally; then, in AB take any point C, and make the angle ACD equal to 52° 23′, or equal to the angle PfM in the diagram; then will the straight line CD lie in the direction of the joint or bed between the two contiguous quoins; and in the same way may the moulds be constructed for any other quoin in the arch, which moulds being duly applied to the stones, will enable the workmen to give them the proper bevel.

We have next to determine the form of the beds, or the inclination of the joints in the face of the arch, to the corresponding joints along the soffit, and, for that purpose, we repeat the rule given at page 460 in a preceding number of the *Builder*.

RULE.—*Add together the logarithmic cosine of the constant obliquity, and the logarithmic cosines of the several central angles, and the sums less* 10 *in the index will be the logarithmic cosines of the required inclinations.*

Therefore, by taking the central angles as given in the preceding table, and applying the above rule, the several inclinations will be as tabulated below:—

Table of Inclinations of the several Face and Soffit Joints.

No.	Central Angles.	Inclinations.	Supplements.
1	AVM = 21° 36′	48° 54′	131° 6′
2	MV 1 = 28 48	51 43	128 17
3	MV 2 = 36 0	55 6	124 54
4	MV 3 = 43 12	58 58	121 2
5	MV 4 = 50 24	63 12	116 48
6	MV 5 = 57 36	67 44	112 16
7	MV 6 = 64 48	72 29	107 31
8	MV 7 = 72 0	77 23	102 37
9	MV 8 = 79 12	82 23	97 37
10	MV 9 = 86 24	87 27	92 33

It will here be seen, that as the central angle increases, the inclinations between the face and soffit joints decrease for the first semi-arch, and increase for the second, and form a right angle at the crown. The following is the mode of constructing the mould:—

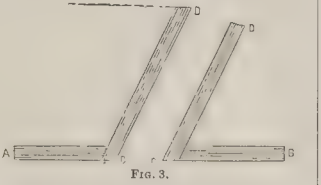


FIG. 3.

Draw the straight lines AC and CB, fig. 3, to represent the joint in the face of the arch, and at any point C therein, make the angles ACD and BCD, equal to 116° 48′ and 63° 12′ respectively; then will CD be the corresponding joint along the soffit, at the fourth joint from the springing in the first semi-arch; and at the same joint in the second semi-arch, CB will represent the joint in the face, and CD the joint along the soffit, and this is only the mould ACDE reversed; for the beds of the courses in the opposite semi-arches reverse each other in form, so the same mould that answers for any particular joint in one semi-arch, will by reversion, equally answer for the corresponding joint in the other semi-arch. And in this way may the arch stones be formed for an oblique arch of any size whatever.

THE VALUE OF DRINK IN MANCHESTER.—It has been shown, says the Leeds *Mercury*, that in the 2,074 public-houses and beer-houses of Manchester and Salford, 4,074*l.* is spent every Saturday night in liquor, which would amount to 211,848*l.* a-year. That is, SEVEN TIMES *as much* as was lately estimated to be necessary *to educate all the children in Manchester*. Wicked and horrible waste! Waste! Nay, rather the purchase-money of degradation and misery. So dear do men buy their own ruin.

THE WELLINGTON CAR.

WE looked quietly the other day at the car prepared for the funeral of the Duke of Wellington, as it reposes, shorn of its symbols, beneath a shed in the yard of Marlborough-house, and take the liberty of saying that it ought not to be sent to Chelsea Hospital for exhibition without considerable alteration. It was got up in an incredibly short space of time, and there are many points about it which entitle the parties concerned in it to great commendation. Those, however, who examine a formation in bronze look for a perfect work: the material does not consort with haste and a temporary purpose, and the body of the car is so bad, both in modelling and execution, that we hope the Department of Practical Art will set some of the students to work to chase it all up, and set it right, certain radical defects having been first corrected, the leading lines made parallel and square, and the wheels centred and brought forward. Mr. Robinson, by whom the parts in question were executed, has turned out some good castings, so that we wonder the more he should have allowed such work to go out of his hands. Messrs. Tylor have been much more successful with the wheels, and deserve great praise for the manner in which these are executed. The bronze facings are put upon strong wooden wheels, 5 inches thick, with eight spokes each. Each wheel is 4 ft. 2 in. in diameter, and 6 ft. from centre to centre. The full dimensions of the car are, length 20 ft. 4 ins.; width, 10 ft.; and height, 6 ft. 4 ins. The axles are about 4 ins. square. The mode of connecting the wheels and locking them,—indeed, the whole arrangement of the carriage as a machine, reflects great credit on Messrs. Barker and Co. who had but a few days for the invention. The figures at the angles, modelled by Mr. Whittaker, a young student in the school, in eight days, ought to secure his advancement.

SLAUGHTERING IN THE METROPOLIS.

IN bye-places, the resort of the working population, where streets are narrow, ill-ventilated, and most probably worse drained, the hideous orgies of slaughter have long been carried on, without any inquiry whether the residents were incommoded by the driving of flocks and herds through narrow lanes, or even whether, in a sanitary point of view, the "*salus populi*" were endangered by the custom. Still, with respect to these localities, but little improvement has been effected through the mediation of sanitary boards: the markets and their approaches are as filthy, the kennels as full, and the particular yards of operation as feculent as ever!

Those who pass by must of course see the obvious neglect of propriety, such as regular scavenging and sweeping, and not being conversant in the neighbourhood, may remark, as a Frenchman did, "*Oh, c'est mal soigné.*" He takes it for granted, and, in fact, as a necessity, that the causeways of the poor *cannot be clean*; but there never was a greater mistake: if Portland-place, 100 feet wide, can be regularly swept, why not alleys of 16 feet? Although the mechanical sweeping-carts were never intended for lanes in Bermondsey or Clerkenwell, they would be admirably adapted to the expurgation of closes. But few, however, take the trouble to inspect the recesses of swarming poverty: the outer approaches are repulsive enough, but the *cul de sacs*, the *penetralia*, are absolutely intolerable for stench and all sorts of abominations.

Cosmopolitan principles have happily turned public attention to the sanitary question, and the alarm for spreading contagion has slipped in to the aid of more humane motives; therefore all that concerns health amongst the masses is only secondary to a due regard towards the easements, such as sewage, water supply, and ventilation of the more fashionable quarters; for, as in cases of infections by a scratch in the extremest joint of the human system, so the virus of contagion, when once implanted in the remotest quarter will permeate a whole population.

It was shown in a recent number of the

Builder that the most aristocratic district of London was little better off as to cleanliness than many more obscure slums; that in Belgravia, close to the square, pressing upon handsome and costly abodes, all the abominations of slaughter-houses were in full swing; and to make the matter more palpable a visit this day to a stable lane called Kinnerton-street, out of Motcombe-street, running direct from the square, discovered no less than *three slaughter-houses* within the scope of thirty yards at the end of the *cul de sac!* two of them are in juxta-position, and *occupy together about* 30 feet by 35 feet! In these two were twenty-six sheep and two oxen reprieved from the morning's slaughter: oftentimes six oxen and a score of sheep are driven on a market morning into each and every of these receptacles, and these are reserved with scarce room to lie down, through night and day, until required for the stalls. Maddened with driving and cribbed up together, their bellowings and bleatings are of a most unearthly character, and so horribly distressing that the residents within 50 yards can hardly sleep o' nights; the healthy and strong are distressed to have their ears riven by plaintive lowings which in imagination are often pictured as the agonised struggle for life; but what must be the sensations of invalids and nervous persons to whom sleep even in quietude is a balm and solace difficult of attainment.

One of the householders in the vicinage lately made a modest application on the subject to the Board of Health, Whitehall, and on the 15th October received a reply from the highest authority, stating that the statute 11 & 12 Vict. c. 123, gave a remedy by application to the parochial Board of Guardians, whose duty it should be "to take such steps as to them may appear necessary for the abatement of the nuisance;" but the chief of the sanitary commission alleged that his board had no power to interfere!

Now, what the Board of Guardians may be that is so referred to, is matter of doubt. Is it the Board of Guardians for the poor? If so, that board has been applied to; or is it the Trust Board for the Grosvenor estate? For a builder has already applied to them, without success. Or is the Act effective only to appoint commissioners of health, and inoperative, inasmuch as these functionaries have only power to consult and to receive salaries, but none to redress the *crying* evil complained of!

Christmas is coming, and with it whole hecatombs of oxen to supply the shambles loaded with British and foreign beef. Spring (the season) is in prospect, and with it the lengthening day, brightening sun, and the equally sure return of pestilential vapours from the charnel-houses, heaps of offal, blood, and refuse, the cartage whereof beyond the sphere of annoyance is in itself a grievance. Still nothing has been done, nor will be until the press exposes and cries down the nuisance.

A memorial has been sent to the Poor-law Guardians by the inhabitants *who dare complain*. The poor still nearer have suffered yet more, but complain not: they affirm all the horrors of the infliction, and only add, "but *we* must say nothing."

Paris is a century before us in this particular: in that capital not one beast is slaughtered within the precincts: they have abattoirs (four of them) outside the walls. No complaint is ever made of the meat sold in their markets: it is supplied in carcase, as indeed it is to most of the small butchers of London. In a city so overgrown as ours, there might be exceptions made by licence to such butchers as Mr. Slater, of Kensington, who sends his beasts to his own pastures *from market*, in order to freshen them; but certainly there should be no exception in favour of such as slaughter within the densely populated city and town. Much of the London supply comes by rail, and comes in good condition: all the rest should be provided under legislative care by abattoirs, at four or more great suburban stations: by such a regulation the quality of animal food must be much improved, the trade itself much accommodated, the atmosphere would be less vitiated, and the health of the masses improved.

QUONDAM.

OUR HOUSE FRONTS.

YOUR correspondent Mr. Sullivan's suggestions for representing the construction (of floors, &c.) on the exterior of buildings, has many points which recommend it. In the first place it would afford great facilities for ventilation, by the introduction of cast-iron, or, better still, of perforated wrought-iron panels in the metopes. Or, where this is not required, a very nice effect would be produced by the use of Minton's ornamental tiles, which might be made as thick as ordinary bricks, and seem particularly well adapted for external chromatic decoration.

The principle is, undoubtedly, a sound one, but would require considerable discrimination in applying it. It would appear highly ridiculous, for instance, to have triglyphs or a dentil course at the level of the ground floor. But in lieu thereof, the depth of the band could be increased so as to form a good solid plinth for the base mouldings of the piers. The spaces below the windows could be filled up with a flat geometrical pattern slightly in relief, which might also be in brick, or a thick facing tile, which would be a simple, and, to my mind, much more satisfactory style of ornamentation than sticking up a number of meaningless cement ornaments, such, for instance, as the sham trusses to some of the windows in New Cannon-street.

From his remarks on the use of timber externally, it is clear that he alludes to buildings without the range of the Metropolitan Buildings Act, for that entirely precludes the use of timber in façades, and necessitates such follies as slate or iron barge-boards, and thus at once closes a vast field for the display of constructive decoration, such as one occasionally sees and admires in the old parts of London, and more often in provincial towns, —timber quartering filled in with brick-work—spacious, hospitable-looking, projecting windows—a profusion of cantilevers, mouldings, ends of girders, &c. grotesquely carved. But this grotesqueness we could well dispense with, introducing in its place designs and execution of a higher character than those old works possess, and which, doubtless, were the best they could then command,—retaining, in short, the picturesqueness of mass, and combining therewith, why may I not say? the delicate beauty of Greek details and the constructive truth of Greek designs. For so long as we continue to copy in the shameless Chinese manner, which is now the fashion, so long will architecture remain in the degraded position it now holds. Why cannot architects, like modern landscape-painters, form a new school on the old foundation? surely there is as much scope for the one as the other. Another of the chief causes of failure in modern street architecture, is the want of a spirit of independence in the architects themselves, for while they, in spite of their own opinion, succumb to the dictates of some pennywise tradesman, who stands out for two or three inches more plate glass, we shall continue to meet with pantomimic tricks of houses suspended in the air; and they themselves will continue to grovel,—for as professors of a degraded art, they are themselves degraded. Surely, Sir, our worthy shopkeepers might, without injuring their trade, have their windows somewhat smaller, and handsome piers or pilasters, which, if of stone, would produce a much richer effect than the unmeaning blankness which characterises the generality of shops, as, indeed, two or three instances you have noted amply testify.

There have been some premises recently erected, not half a mile from the Royal Exchange. Where the piers of the two lower stories are carried up a height perhaps of 25 feet, not more than 20 inches wide, they are surmounted with a cornice (disfigured, by-the-by, with a zinc ventilating-tube), and the piers above are perhaps 3 feet 6 inches wide. The openings, with the exception of a transom, the thickness of the entresol floor, are filled with plate glass. Now, there are many points in the composition, and particularly some of the details, which are good. But the work, as a whole, looks stilted and unsatisfactory, and any one who considers carefully the reason, cannot fail to perceive that the architect has not used his own free will, but has made the best of a bad job: he has, in fact, allowed his opinion to be overruled.

W. L.

THE NAVAL DRY DOCK AND HYDRAULIC LIFT AT PHILADELPHIA.

THE United States Dry Dock at this port has recently been completed and successfully tested. An account of it appears in the Journal of the Franklin Institute for June last, from which we gather the following details:—The dock and appendages are described as being the largest in the world. The lifting power consists of nine sections, six of which are 105 feet long inside, and 148 feet over all, by 32 feet wide, and 11½ feet deep. Three of them are of the same length and depth as the others, but 2 feet less in width. The gross displacement of the nine sections is 10·037 tons, gross weight 4,145 tons, leaving a lifting power of 5,892 tons, which far exceeds the weight of any vessel yet contemplated. The machinery for pumping out the sections consists of two engines of 20, and two of 12 horse-power. In connection with the sections (which form the lifting power of the dock), is a large stone basin, 350 feet long, 226 feet wide, and 12 feet 9 inches deep, with a depth of water of 10 feet 9 inches at mean high tide. At the head of this basin are two sets of ways, each being 350 feet long, and 26 feet wide. These ways are level, and consist of the bed pieces, which are three in number, and firmly secured to a stone foundation. The central way supports the keel, while the side ways receive the weight of the bilge. These ways are of oak, and are finished off to a smooth surface. On the top of the bed pieces or fixed ways, come the sliding ways or cradle, which are also 350 feet long and 26 feet wide, so constructed as to admit of being adjusted to the length of any vessel. The power directly applied in hauling up and pushing down ships is hydraulic, with a cylinder having a ram 15 inches in diameter and 8 feet stroke and a power of 800 tons, and hydraulic pumping engines attached. A steamship of 2,800 tons burthen was started by a power of 250 tons, and drawn thereafter by a power of 150 tons, 260 feet in six hours. "It will at once be seen," adds our authority, "that the capacity of this dock exceeds that of the stone docks at New York, Boston, and Norfolk combined; for united they can take but three vessels, while here, two of our longest war steamers may be hauled out on the ways, and two frigates lifted on the sections. The advantages that must result from the facilities of repairing a vessel elevated into light and air over one sunk in a stone dock, are very great, and have only to be seen to be appreciated."

PREVENTION OF COLLISIONS ON RAILWAYS.

"Salus populi, suprema est lex."

OBSERVING in your number of the 20th of November last, an article headed "Prevention of Railway Collisions," and having recently suffered from one of these disgraceful occurrences, I proceeded to read it with some avidity. I was much disappointed to find the object of the writer was not to *prevent* collisions, but to diminish their awful consequences, by the use of fenders composed of powerful steel springs. So, honour to the humane! Now, as the great object is to endeavour to *prevent collisions on railways*, I will proceed with my remarks.

I will first ask this pertinent question. Has any one of the numerous collisions which have occurred been proved to have happened, on investigation, from pure accident? The answer is distinctly, No; not one. Then, their recurrence must be remediable,—within the power of human provision to prevent them. Secondly, What is the cause of these frequent collisions? Solely, parsimony, in order to create the greater dividends to be paid to

shareholders. This has been often demonstrated before coroners' juries and local magistrates,—1. In the non-provision of an efficient staff of working servants *to do* what is required, and a still worse inefficiency, of intelligent superintendents, to see that all that is required *is done*, and for the prevention of all that ought *not* to be done; 2. In the deficiency of "sidings" at stations, for the placement of all trucks and carriages, off the rails, which are not in actual *time employ*; and it is imperative that adequate sidings should be on both sides the railway;* 3. By the crowding of lines, from distant railways running on to one terminating rail. All these evils, Sir, are to be amended: but how? Simply, by making their continuance more expensive than their rectification. Thus,—let a fine of 1,000*l.* be imposed and summarily levied, on conviction, for each and every collision or catastrophe occurring on any line; it being proved to have been caused from the neglect or dereliction of the duty of any servant or servants of the company, or the nonprovision of requisite means for safety; and a further fine of 50*l.* to be paid to each and every individual receiving an injury, the consequence of such collision or catastrophe; and in case of death ensuing, a fine of 1,000*l.* These fines to be no bar to compensation for medical attendance, loss of time, &c. Then, Sir, to endeavour to insure the proper distances between trains: for every five minutes a train may start after the stipulated time for its so doing, a fine of 20*l.*; and for every five minutes a train shall arrive too late at its ultimate destination, the sum of 5*l.*; unless it be shown to have been caused by accidental circumstances over which the companys' servants could have no control. Let these, Sir, be put strictly into force, and depend on it, we shall hear no more of these infamous railway collisions. I do not haggle about the amount of the penalties, the object being to make it *more expensive* to companies to destroy the lives and mutilate the limbs of their customers than to preserve them; in fact, Sir, just to reverse the present state. Do this, and the end will soon be accomplished; for with railway directors it is quite a matter of commerce. Cupidity has no conscience; avarice no humanity! The travelling community of England have no choice as to the mode of travelling. Acts of Parliament have ordained it shall be by railways; and yet the present Government has refused to issue any decree, or to institute any inquiry as to a means to enforce due provision for their safe conveyance; and this is a Government rejoicing in the appellation of "Protectionist."

AN INHABITANT OF MAY-FAIR.

THE NORMAN TOWER, BURY ST. EDMUND'S.

THE restoration of this interesting Norman gateway is now completed, and the committee have terminated their labours by voting a testimonial to Mr. S. Tymms, who has acted from the commencement as honorary secretary. The first report of the late Mr. Cottingham, from whose design the works have been done, is dated 1842. This showed the eminently dangerous state of the fabric, and, but for the precautionary measures which were soon afterwards taken, it is probable that the tower would have become a heap of ruin. The writer of a historical notice of the tower published in aid of the restoration, in 1846, thinks it probable that the tower was erected by Abbot Baldwin, who built the Abbey Church there, consecrated in 1095. William the Conqueror gave Baldwin permission to take as much stone as he needed from the quarries at Barnack, in Northamptonshire, and exempted it from toll or duty.

"The poet Lydgate, a monk of Bury, in 1440, says the new Church was built with

> 'Ston brought from Kane out of Normandye,
> By the se, and set up on the strande
> At Rattlysdene, thenne carried forth be lande.'

But the existence of the royal permission, and the certainty that the remaining old masonry is not of Caen stone, contradict the poet. The quarries at Barnack are still open; and the stone used for the restoration of the Tower has been obtained, probably, from the identical pit whence the stone was originally procured."

The west view of the monastery, comprising the two fine churches of St. Mary and St. James, the noble Gate-Tower, and the beautiful Abbey Gateway, connected, as they were, by a high embattled wall, must have been unrivalled by any collection of ecclesiastical buildings in the kingdom, if not in Europe.

"Leland, who lived when the Abbey had reached its highest splendour, thus rapturously exclaims:—'The sun hath not shone on a town more delightfully situated, on a gradual and easy descent, with a small river flowing on the eastern part; or monastery more illustrious, whether we consider its wealth, its extent, or its incomparable magnificence: you might indeed say that the monastery itself is a town; so many gates there are, some of them of brass; so many towers; and a church than which none can be more magnificent, and subservient to which are three others, also splendidly adorned with admirable workmanship, and standing in one and the same churchyard.' Sir Henry Spelman, too, in a Latin poem, written in 1621, speaks of this assemblage of buildings with no less warmth; asking, 'Why should I recount the walls terminated with battlements? Why should I extol the towers with folding doors, and, in their turn, the many interior buildings, rearing, with united roofs, their pinnacles to the clouds? You might call it a beautiful city within a small space.'"

The sum that has been spent is 3,470*l.*

NORMAN TOWER, BURY ST. EDMUND'S.



WATERLOO BRIDGE COMPANY.—The half-yearly meeting of shareholders was held last week. The report stated that the tolls received during half-year ending 23rd August last, amounted to 9,318*l.* 16s. 10d. while in 1851, during same time, they were 5,546*l.* 7s. 1d.; the horse-tolls also showed a diminution of 298*l.* 11s. 6d. This decrease was accounted for by the unusual traffic during the Great Exhibition. The committee reports that, after all usual deductions and payment of the half-yearly dividend of 3s. 6d. a balance in reserve of 3,786*l.* 14s. 11d. remains.

THE SOUTHPORT STRANGERS' CHARITY COMPETITION.

THE Building Committee of the Southport Strangers' Charity, at their meeting in September last, resolved that the plans for the proposed new building should be open to competition, the conditions being, that the best unsuccessful candidate should receive 20*l.* and the second best 10*l.*, the plans to be prepared and delivered by the 1st of October. The building, when completed, will accommodate 160 in-patients, and will contain kitchens for the use of each sex, board and consulting rooms, surgery, bath rooms, laundry, &c. The supposed cost will be about 5,000*l.* At a special meeting of the committee, held on Friday, the 26th ult. the plans were examined; and those sent in by Mr. Thomas Withnell, of Southport (the architect of the Town-hall there now in course of erection), were approved of; and he, of course, assumes the direction of the works. The money prizes were awarded to Mr. Porter, of London, and Mr. Greggan, of Manchester, architects. The building will be of brick, with stone and cement dressings, and will be in the plain Tudor style of architecture. The site of the building is a plot of land near the Roman Catholic church, erected from the designs of the late Mr. Pugin, fronting the sea shore and Sea-bank road.

BOXING-DAY.

THAT day of misery approaches, and I am led to ask my brother tradesmen how long we are to submit to its infliction? How long will it be before masters give positive orders to those in their employ that they shall not pursue this degrading system of begging? and better still, desire those with whom they deal not to encourage it.

To effect the removal of this abuse there must be a combined movement, and I heartily wish that some of the influential firms in the building and building-material trade would commence it:—unless they do, the little men like myself have no chance of breaking through the custom of giving Christmas-boxes.

I feel sure you would lend the object your aid. No one can walk along the water-side upon Boxing-day without witnessing the drunkenness that results from the system, and no one can stop in his counting-house without being subjected to insult or imposition.

* *Vide* collision on Brighton Railway.—*Times*, Nov. 3, 1852. Ditto at Bullo Pill, Gloucestershire.—*Times*, Nov. 22, 1852. Ditto at Heyford, Great Western.—*Times*, Nov. 29, 1852.

For my own part, nothing would sooner awaken my suspicion against a tradesman than to find he gave persons in my employment either beer or money gifts; and sure I am that these douceurs, like charity, cover a multitude of sins of the donor's. I give you my name, and with it a promise to hand, through you, 20*l.* to some hospital or benevolent society connected with the building trade, upon such an effort being made by the building trades generally as shall warrant my discontinuance of this hateful abuse; or should a meeting be called upon the subject, I will at once, through you, subscribe 5*l.* towards necessary expenses, such as printing, &c. I believe there is not a single person in the building-material trade that would not heartily rejoice at the discontinuance of the custom, and that the respectable portion of our working people have no desire for its continuance.

A Lover of a cheerful Christmas.

NOTES IN THE PROVINCES.

Woolpit, Suffolk.—It may be in the recollection of some of our readers, that the tower of this church was almost entirely demolished by lightning on the 16th July last. Through the praiseworthy efforts of the rector, the Rev. L. F. Page, sufficient funds have now been raised to rebuild it on a much more extensive scale. The new tower and spire—which is to be erected in the same style as the old one, viz. the Decorated, and of which period a greater portion of the church is,—will be nearly 140 feet high, whilst the former was barely 110 feet. It is to be built in rubble-work, with Bath-stone dressings.

Halsted.—A new town-hall has been erected here at a cost of about 2,000*l.* affording accommodation for a Corn Exchange on the ground floor 78 feet by 33 feet; on the upper floor in front an apartment 26 feet by 20 feet used for the Mechanics' Institution, with a committee-room adjoining; and behind these an assembly-room, 60 feet by 33 feet and 22 feet high. The designs for the building were furnished by Mr. E. Horner, and the building contract carried out by Mr. Sudbury.

Witchford.—On Tuesday in last week the parish church was re-opened for Divine service, after having been partially rebuilt, re-roofed, and wholly reseated. The walls and roof have been put into thorough order, and the accommodation greatly increased by the uniform introduction of open seats throughout the whole area. The restoration was carried out by Mr. Freeman, of Ely.

Mansfield.—It has been finally resolved to erect public baths at Mansfield, and the approval of the Home Secretary of State has been obtained, conformably to the Act of Parliament.

Swindon.—The recent catastrophe at Holmfirth, says a Wilts paper, has created some apprehension that a similar disaster may be feared in this neighbourhood. About a mile and a half from the town, on the Marlborough-road, is a large reservoir used as a feeder to the Wilts and Berks Canal. This covers a space of about 75 acres, and is at present much swollen by the heavy rains. Fears are therefore entertained that some portion of the embankment at the north end may give way. Should the embankment be forced, the most disastrous consequences would result to the neighbourhood, and especially to the little hamlet of Coate, which is situate not more than 100 or 150 yards from the spot.

Reading.—The closing of various churchyards in this town is recommended in a report to the General Board of Health by Mr. Lee, superintending inspector. Vaults and brick graves are excepted, as not yet filled up. There is already a cemetery here, which is reported sufficient as a substitute for the graveyards to be closed.

Kidderminster.—It has been resolved to erect public rooms here so soon as a sufficient sum has been collected. At a preliminary meeting lately held 1,100*l.* were collected on the spot.

Plymouth.—A house in course of erection, forming one of a range of buildings running parallel with the South Devon Railway terminus at Millbay, suddenly fell on Saturday week, carrying with it four men who were on the scaffolding of the building. The house was not covered in, and the constant rains had full play on the walls, and are said to have occasioned their fall.——On Monday week, the roof of an old mine adit under the Plymouth Leat, near Sheepstor-bridge, fell in, and diverted the stream into the river. The chasm caused by this accident is about 25 feet square, and 20 feet in depth, there being nearly 500 tons of ground washed away. Under the direction of the engineer, Mr. Bampton, operations were commenced as soon as possible to form a new channel for the water; pending which operations the inhabitants of Plymouth have been supplied with water from the Devonport Leat.

Devonport.—The new dock in Devonport yard is now complete within the entrance, and the gates, to be iron, are to be received from the contractors shortly, so that in the course of a few months there will be some accommodation at Devonport for ships of the largest class.

Cardiff.—The late heavy floods, according to the local *Guardian*, have carried away a portion of the original framework of Cardiff bridge, and a great deal of the work lately put up to protect the abutments. It is said by practical men, that unless a weir be erected below the bridge, it will not long resist the action of land floods.

Chester.—The following scraps are gleaned from the *Chester Chronicle*: — The Watch Lighting Committee have directed that Curzon Park be lighted with gas. The lamps will be erected immediately.——A sepulchral memorial has of late been placed in Chester Cemetery, consisting of a series of stone slabs resting upon four pillars, which enclose a marble tablet, whereon a suitable inscription will be engraved. —— The proprietors of the Grand Stand have commenced alterations in that building. It is their intention to make square the south end of the stand, filling up what has hitherto been an open space. This will afford accommodation for from 300 to 400 individuals, and add another room to the structure. ——A contract has been entered into with Mr. Hughes, builder, Aldford, for the total repair and restoration of the Exchange. Scaffoldings have been erected against the south front, where the repairs will be commenced. The ornamental panels at the north and south ends are to be restored in Bath or Caen stone, wrought or sculptured, and the statue of Queen Anne is to be restored, painted, and regilt.

Leigh.—Contracts for the erection of a new church have been let, and the first stone will shortly be laid. The church is to be built of Yorkshire stone. A tower will be erected at the west end, the principal entrance being at the south end. The edifice is to be called "Christ's Church."

Manchester.—Notice has been given of an intention to apply to Parliament for the purchase of additional property for improvement purposes; further powers for sewering and draining dwelling-houses; for regulating cellar dwellings; for preventing the slaughtering of cattle; and for regulating interments. Power is sought to form a new street from Hyde's-cross to Ducie-bridge; a new street from the junction of Portland-street with David-street, to Oxford-street, opposite Chepstow-street; to widen Mill-street, and to form a street to commence at the south-west end of Mill-street, and terminate in Oxford-street, near Esdaile's-buildings, all in the Manchester township: also to widen Brunswick-street from Oxford-street to Upper Brook-street, and to make a new street to commence opposite the north-east end of Brunswick-street, in Upper Brook-street, and to terminate at the junction of Hyde-road with the Stockport-road, in the township of Chorlton-upon-Medlock and borough of Manchester.

Burnley.—A waterworks company has been formed at Padiham; capital, 5,000*l.* to be raised in 500 shares of 10*l.* each. Mr. Humphrey Waddington, is the company's engineer.

Swinton.—The foundation stone of the Swinton National Schools was laid on 22nd ult. by Earl Fitzwilliam, who granted a site and 100*l.* The necessity of erecting a new school arose from the insufficiency of the present school accommodation, and from the rapid increase of the already large population, in consequence of the railways, collieries, potteries, ironworks, and glassworks of the parish. The designs are by Mr. Blackmore, architect. The expense will be about 1,000*l.*, 100*l.* of which remains to be collected.

Southport.—It has been resolved to "obtain a survey of the town by a competent engineer, shewing the different levels, and the situations of the existing sewerage and gas-pipes," with the view of carrying out a system of sewerage for the town. The committee, however, empowered to obtain the survey, are restricted to an expenditure of 50*l.* for that purpose.

Wigan.—At a public meeting here it was lately resolved to request the town council to inquire as to the probable cost of a new market-house and town-hall, and to report to the ratepayers preparatory to an application to Parliament for an Act to build. The meeting subscribed 661*l.* towards expenses.

Grimsby.—The dome of the lantern of Grimsby lighthouse has just left the foundry, Hull. It is in the form of an ornamental cap, about six feet high, and three feet wide at the base, where the form is octagonal, but which changes into a series of semi-globes, and terminates with a ball at the summit. It is entirely of copper—in one piece (but cast at several times), and although little more than half an inch in thickness, contains nearly a ton of metal. It forms also the head of an improved lightning conductor, recently patented by Mr. Samuel Brown, of Sheffield. The lighthouse is 105 yards high.

Shields.—A graving dock, formed at the Limekiln-shore, North Shields, was opened last week. The extreme length of the main dock, for two vessels, is 222 feet; that on the wet side, for the accommodation of one vessel, 120 feet. There were 15 feet of water in the dock. In ordinary springs there will be from 17 to 18 feet.

Sunderland.—St. Paul's Church, Bishopwearmouth, was consecrated on Monday week.

Edinburgh.—At a recent meeting of the City council, some conversation took place with reference to charges made upon visitors to Holyrood Palace. Dr. Sibbald characterised it as a most discreditable state of affairs for parties to be making 800*l.* and 1,000*l.* a-year by the exhibition of the palace, when the clergy of the Canongate were working at porters' wages. The Lord Provost said the only way to put down the evil was by the regular sale of tickets, the proceeds of which might subsequently be divided among those interested, as was now done at the Glasgow Cathedral. He added, that when the Duchess of Kent was lately in Edinburgh, she paid a sovereign to be allowed to inspect her daughter's palace. The Lord Provost's Committee are now in correspondence with the Treasury, and with Lord John Manners on the subject.——At a recent county meeting of justices of peace, it was reported that the model of the Melville statue is in progress, and that in a week or two it will be put into plaster of Paris preparatory to being cast in bronze: before casting, however, Mr. Steell is to submit the model to the inspection of the committee for their approval.

Dingwall.—The *John O'Groat Journal* states that a block of stone computed to weigh 30 tons was lately separated at the Dingwall quarry by a single pound of gunpowder.

Ventnor (*Isle of Wight*).—The New Independent Chapel, which is to be a Gothic structure, from designs furnished by Mr. Raffles Brown, of Liverpool, was tendered for on Monday in last week, when the following estimates were received:—

Mr. H. Ingram	£2,196 0 0
Mr. B. Ball	2,135 0 0
Mr. H. Hendy (Portsmouth)	2,119 0 0
Mr. J. Newnham	2,110 0 0
Mr. J. Spary	1,914 10 0
Messrs. R. Beavis and Sons	1,840 0 0
Mr. J. Cumming	1,830 0 0
Mr. Yates (Liverpool)	1,478 0 0

The quantities were supplied to each contractor!

St. Helier's (Jersey).—Four streets, King-street, Queen-street, Halkett-place, and Beresford-street, erected four or five years since, according to the *Jersey Times*, are still unpaved, owing to a dispute, or difference of opinion as to whether the States or the Vingtaine were liable to pay the cost. A meeting of house proprietors and other inhabitants of the town has been held for the purpose of endeavouring to have the matter settled, and the streets paved.

THE WINTER EXHIBITION OF SKETCHES AND DRAWINGS.

The Winter Exhibition may now be considered as established, and the public are indebted to the founders of it for a pleasant resort at a period of the year when the other galleries are closed, and moreover, for showing our artists in a different capacity from that in which they are usually seen. There was a full room at the private view last Saturday, and though the weather was bad for seeing pictures, twenty-three works were sold. The present collection consists of 280 drawings, and includes specimens by Armitage, Bennett, Branwhite, Cattermole, Callow, Clint, Miss Mary Ann Cole, E. W. Cooke, Davidson, Duncan, Elmore, Copley Fielding, Glass, Haag, Hannah, Hart, Hunt, Jutsum, Lee, Knell, Linnell, John Martin, Penley, Lake Price, G. Stanfield, F. Taylor, the late Mr. Turner, Uwins, Vacher, Williams, and many others.

Elmore's sketch for his picture of "Hotspur and the Fop" (17) (the fop too energetic); Linnell's "Forest Skirts" (53), Davidson's "Corn Field" (74), Middleton's "Buckhurst Park" (137), John Wilson's "Mount Orgueil Castle" (154), Vacher's "Interior" (195), Penley's "View of Sidon" (228), Intsum's "Fishing Huts" (263), Glass's "Finette" (276), have marks against them in our catalogue. No. 110, by the last named artist, is interesting as showing the present bad condition of the celebrated painting in the refectory at the Convent of Delle Grazie, Milan.

THE ROMAN BATHS DISCOVERED AT SAINTES, ON THE CHARENTE.

At a meeting of the *Société libre des Beaux Arts*, Paris, on the 16th of November, M. Bourla gave a description of Roman *Balnea* discovered in 1851 and 1852, within the site of the ancient *Mediolanum*. These baths included an *atrium*, or entrance vestibule, paved with small red bricks; an *apodyterium*, where the bathers undressed; and a *tepidarium*. The latter was paved with black and white marble in geometrical figures. On the left side there was a fourth apartment, the *laconicum*, particularly interesting because of the means of heating which it exhibited. A fifth apartment, the *frigidarium* (the only one which has been preserved), contains a bath large enough for several persons to bathe at once. The walls were decorated with paintings, in parts still fresh and perfect.

SUPER-WAYS FOR LONDON.

Having read an article in the last number of the *Builder*, headed "Calculations for the City Railway Terminus," I beg to trouble you with a plan I conceived some time ago of a railroad conveyance from the Bank (or more eastward, if desired) to the top of Oxford-street, which idea may not be impracticable. Instead of a railroad on the ground, I beg to propose one composed of solid iron, to pass over the houses, to be supported by iron pillars at proper distances, wide enough apart where they cross the streets, to allow omnibuses, &c. to pass through, and placed against the sides of houses, to seem to obstruct the street-openings as little as possible, where circumstances allow them so to stand.

In descending or ascending an inclined plane on the ground it would only be necessary to lengthen the supporters, while at certain distances flights of steps might be put up for passengers to ascend; and by this plan a rapid conveyance might be obtained, enabling the public to be conveyed from one end of London to the other in ten minutes or a quarter of an hour.

Whether my plan would be more or less expensive than purchasing houses to pull down, remains for some one who has more time and facility in calculating the outlay required for such an undertaking than myself to determine. H. Wilson.

*** A similar suggestion was made some time ago in our pages.

THE VENTILATION QUESTION.

Many thanks to "J. E. D."* for calling attention to the aqueous vapour, which certainly should *not* have been omitted in my consideration of the breath. Its steam, being by far the lightest ingredient, the increase thereof, compared with that in fresh air, will go far to counteract the effect of the increase of carbonic acid, and make the breath retain its levity the longer, so that the temperature at which self-ventilation ceases will, on this account, be a few degrees higher than I had put it, perhaps as high as 90°.

Further than this I see nothing in his last letter calling for public comment. As for such questions as how much he knew, and how much I did not know about gaseous diffusion, and how much I thought he did not know, and how loose my expressions were, and what a conceited fellow I am, and how injured he is, and how wickedly I tried to misrepresent his plan, and how much we are indebted to him for it;—I really cannot ask your time, much less your readers', to matters so purely private and foreign to the subjects in hand.

My original position, the necessity—moral *necessity*—of an upwardly draining ceiling, seems, as far as I can see, unassailed.

On the second and far less important question of the desirableness of descending ducts from the space over such a ceiling, the purpose of my interference is answered: your readers have seen my reasons against, and his reasons for them; and I have washed my hands of any failure that may arise from the carrying out of my plans with this addition.

Any attentive reader will detect the fallacies of the supposed contradictions in my argument. I did not suppose the foul air above the ceiling to cool so as to become heavier than the common atmosphere,—only heavier than that immediately below the same ceiling, or just flowing out of the vents. Neither did I call the foul air "carbonic acid," when implying that it could be separated by vegetation, and (as I must still maintain) by *no other available* power. Men cannot quite afford to use as much "hydrate of lime" as they do oxygen, even in the palace of Westminster; so I fear that ingenious mode of enabling Sir Charles Barry's fancy to luxuriate *ad libitum* in ceilings, would be too costly.

A word of "J. E. D.'s" chief fallacies, though it is hardly necessary:—1. Chemists do not call water, containing a little prussic acid, "prussic acid," or beer "alcohol," or the metal of a sovereign "copper," in an argument respecting *specific gravity*,—whatever they may call it at other times. 2. He has poured carbonic acid from one vessel into another, while warm from combustion; but that was combustion under a close covering, without *upward* drainage. If he had made a hole in the *top* of his receiver, how many pounds of candles does he think he must have burnt in it, before getting carbonic acid enough collected for his experiment? I expressly said it drained downward when prevented draining upward, and instanced our theatres, where, in the pit, we have the carbonic acid "still warm from combustion" in the gallery lamps. 3. If he can make the "kind of mechanical separation of gases," described by Professor Graham, available as a substitute for self-ventilation, he will do a great public service; and I will admit that our architects may retain their darling ceilings unchanged.

E. L. G.

* See p. 749, ante.

ADHESION OF FLUIDS IN PIPES AND DRAINS.

The following is a practical example of the force required to drive water through small pipes:—

I had a public building in hand which required the water from a 9-inch main water pipe passing this building (that 9-inch main previously about 100 yards came from a larger main, and still farther back, from a larger main still). To raise the water 60 feet the water company was applied to to know if they could supply to that height.

Their waterworks were off, as the crow flies, 2 miles: their main pipes they thought were 2½ miles: the water at the waterworks was raised 110 feet high: the ground at waterworks was ascertained to be 12 feet below the building ground, leaving the rise of water 92 feet out of the 110 feet: they therefore concluded that they could supply at nights and Sundays, when all other supplies were off their mains.

I told the architect that they could not supply,—that in 2½ miles of piping they would lose at least 50 feet of rise by the attraction of the pipes, and when we came to prove it I was found quite right.

From long experience in these matters, I would never lay a drain that was likely at any time to be more than one-third filled.

An Old Practitioner.

BRICKMAKERS' DISPUTES.

For some time past the County Courts of Marylebone and Brompton have been much occupied in determining the claims of brickmakers upon master brickmakers, and of labourers upon moulders. The plaints against the moulders were of the ordinary £ s. d. description, but against the master brickmakers they assumed a somewhat novel and important feature to employers and employed, the actions coming under the operation of the Act of 9 Geo. 4, commonly called the "Labourers' and Artificers' Act." So vital to the interests of operatives was the question thought to be, that it appears funds have been supplied to the operative brickmakers from various trade societies in support of the men's cause. One action in the Marylebone County Court ruling the whole, it is unnecessary to enter upon others, or to detail the evidence of either. In the case of George *v.* Bowler, the defendant was sued for what is termed "back pence." It appears it is a custom in the brick-making trade, and has been from time immemorial, for the masters to keep back, from the earnings of the brickmakers, one penny for every thousand bricks made, and which pence were at the end of the brick-making season handed over to the men. The moulders and other men engaged in the brick-fields gave it as their opinion that these pence were kept back by the masters from a kindly feeling, and formed a sort of provident fund for them to fall back upon when the season prevented the making of bricks, and they severally deposed that until the present time they never knew a master to retain it, nor did they for an instant imagine their "thousands' pence" were kept back as a "fund in *terrorem*," for security of their good behaviour. This impression and conviction upon the minds of the men, there is no question was sincere, for by the evidence adduced they gave the master brickmakers no little trouble in the brickfields contiguous to the metropolis, by striking for higher wages, absenting themselves from work, and getting drunk at the most busy time of the year, reckoning, no doubt, upon the fall back upon their "pence bank." In the present defendant, however, they found a man not to be trifled with; for in return for their asserted injury to his business, he at the first convenient opportunity discharged them for neglect of work and bad conduct, and to their surprise informed them, that the back pence were his, and not theirs, and that they had better apply to the County Court if they felt aggrieved.

The Judge (J. P. Maude, esq.) said he was satisfied the conduct of the brickmakers had been such as to bring them under the restric-

tive penalties of the 9th of Geo. 4, and that they had become defaulters, and the master was justified in summarily dismissing them, and retaining the money termed "back pence." His judgment would therefore be for the defendant.

By this decision it seems to be established that men engaged in the brickmaking for the season, cannot recover for the "back pence," if discharged from any reasonable cause by their employers.

WILLESDEN CHURCH, MIDDLESEX.

This ancient edifice, situate in a rural suburb of London, long neglected, and almost ruinous, has by the exertions of the vicar and churchwardens, after many years of parish disputes and litigations, been substantially repaired, enlarged, and made appropriate for divine worship, and was on Sunday last, the 5th inst. re-opened by the Bishop of London. It is a church containing a nave, a deep chancel, and a south aisle. The tower is at the south-western corner. The structure is evidently of ancient date, the foundations and walls being built with chalk. The font is Norman; the nave, piers, and arches, Early English: the chancel appears to have been rebuilt during the 15th century, when late Perpendicular windows were inserted throughout the church, but which were subsequently replaced by wooden lights. The Perpendicular period has been adopted for the style of the restorations, but all the original features of the building, we understand, have been preserved.

The south aisle has been rebuilt, a picturesque oak porch added, the nave extended about 18 feet in length, windows and doorways of Bath stone inserted throughout, and the flooring, seats, chancel fittings, &c. renewed.

There are several good brasses, and the remains of a wall tomb were found and preserved in the south aisle.

The restorations have been executed from the designs and under the direction of Mr. Thomas Little, by Messrs. Furnivall, builders, of Whitechapel; and Thomas Julian was clerk of the works.

VENTILATION OF THE NATIONAL GALLERY.

If pictures in their present position require to be washed every few years to get rid of the dust and soot, surely, sooner or later, they must become injured and the surface of the paint destroyed.

Can the present existing thoroughfare through the building be got rid of, which destroys the communication throughout? If otherwise it would be a waste of money to attempt any satisfactory alterations.

In regard to *lighting galleries*, it surely would not be required to expend thousands in experiments, when many of the artists of the present day have erected picture-galleries for themselves, and are therefore capable of expressing an opinion as to their merits or defects. I believe, with humble submission, there is not a more satisfactory gallery anywhere erected than the one at Dulwich: there the rooms are neither too wide nor too lofty to interfere with the light,—indeed, you appear to see every picture in a satisfactory manner, but ventilation is defective.

Now, in regard to ventilation, the observations of Mr. Faraday appear invaluable, for there arises, in my humble opinion, all the mischief, both as regards the present National Gallery, Royal Academy, &c. &c.

Pictures are seriously damaged by the ammonia deposited upon them by the perspirations, &c. of the immense multitudes. If you cannot limit the numbers of admission to galleries, then under any circumstance have ample ventilation from the upper part of the room. Let any person visit either of our public exhibitions and see the state of the atmosphere and the pictures, the former so bad as to be beyond endurance, and the latter covered with a film such as to render it difficult at times to see the pictures. This has been pointed out over and over again, but nothing done to remedy the evil, either in the National Gallery or Royal Academy. The sweeping of the galleries alone is serious.

In conclusion, as I believe all argument in favour of retaining the present building as a national gallery is time thrown away, the next point to be considered in regard to the new building would be, the best and most simple mode of *lighting*, and above all, the *ventilation* of the building from the upper part of the room, keeping in mind the valuable observations of Mr. Faraday. I believe fire-places very essential.

The article following the National Gallery in your paper, by "J. E. D." (p. 749) is *à propos* to the subject. A. B.

IRISH BUILDING AND OTHER WORKS.

The eight lunatic asylums authorised by Government to be erected in Ireland under the Board of Public Works, will, when completed, cost 300,000*l*.

A spacious building for the purpose of holding Protestant meetings is proposed to be erected at Belfast. Lord Dungannon is a principal contributor.

The Moore testimonial committee have now about 1,300*l*. available funds, and as a general meeting will be called shortly to consider the nature and site of the structure, it is to be hoped that the proceedings of *this* committee in the matter will leave no room for reproach by the profession.

An extensive military hospital is to be erected at Renmore, Galway, by her Majesty's Board of Ordnance, on the ground recently laid out for the erection of the new barracks. It will be used as a barrack until the buildings for that purpose are completed. The plans are in course of preparation by Captain Dill, R.E.

Upwards of 300 men are employed in drainage operations on Mr. Barton's property at Salt-hill, Galway.

It is proposed to connect Sligo and Enniskillen by a junction line. The Londonderry and Enniskillen Railway Company have applied for power to construct a line from Coleraine to Castledawson.

The county gaol at Philipstown has been altered and fitted for the reception of convicts.

The Fermoy workhouse is to be converted into a cavalry barracks (its original destination). A sum of 7,000*l*. is agreed on. A new workhouse for the accommodation of paupers must be built instead.

The Ecclesiastical Commissioners state in their report that the funds have been provided for twenty-four cases of enlarging churches, sixty-nine of painting, and fifteen of enclosing and fencing. The sum of 7,139*l*. 10s. 10d. has been appropriated for rebuilding, also to the finishing of back contracts; and the total amount allotted to church works this year was 27,459*l*. 11s. 7d.

The church of Kilconriola, in the diocese of Connor, has been rebuilt at an expense of 4,159*l*.

The extensive gas-works at Cookstown have been opened. A new bank is building there.

The new lunatic asylum at Mullingar is progressing. Mr. John Smith, contractor.

The enlargement of St. Stephen's Church, Dublin, has cost 2,500*l*. mostly contributed by the Hon. Sidney Herbert. St. Thomas's Church will shortly be re-opened for divine worship, having undergone a series of repairs.

We hear that the Commissioners of National Education purpose erecting a large building in connection with the metropolitan schools, at an outlay of about 40,000*l*. We are not aware that this is officially announced.

Churches have been built at Loughmore, Killelogh, Ardara, and Templecorran.

The Royal Irish Beet Sugar Company are expected to commence their new factories in or about spring. That at Mountmellick has been remodelled, and operations are being renewed.

The church of St. Paul's, Portarlington, has been considerably enlarged, at an outlay of 1,700*l*.

Additional market accommodation is to be built at the Queen's-yard, Londonderry, according to plans by the town surveyor.

A church in the parish of Balrathbayne, county Meath, is in progress.

Sundry works in connection with the railway terminus at Kingstown are in progress, and we are informed that the company intend building a new range of offices off the departure platform, at the Dublin end, and facing Great Brunswick-street.

The first stone of the new belfry at Trinity College, Dublin, was to have been laid on Thursday, 1st inst. by his Grace the Lord Primate, Chancellor of the University. Mr. Lanyon, county surveyor of Belfast, furnished the designs.

The Dublin Exhibition building is daily developing its features. Nearly all the columns and metal girders of the southern aisle are fixed, together with a large quantity of the wooden framework. Two of the trellis girders of 100 feet span for nave have been hoisted to their destination. The galleries are in progress, and the site presents a busy scene.

Additions have been made to the Roman Catholic church of St. Francis Xavier, at Dublin, by which an increased amount of accommodation is obtained. Mr. Keane was the architect.

FOUNTAIN ON THE ESPLANADE AT NISMES.

On the first of June in last year a fountain of considerable elegance was inaugurated at Nismes, and here we give a view of it.* In the centre of an octagon basin, on an eight-sided pedestal, and of which the base is flanked by four counter-forts, stands the personification of the city, crowned as with a diadem, with a temple which recals the *Maison Carrée*. At the foot of the principal figure are seated four other figures, representing rivers. It has been objected that there is in these figures a want of repose, and that they do not accord with the calm of the architecture. This is made more obvious by the contrast of the material of which they are composed, namely Carrara marble, with the body of the fountains, which is of stone. M. Questel was the architect: the design was selected in competition. The sculpture was entrusted to M. Pradier. The total cost was 8,800*l*. of which the five statues cost 4,000*l*. and the iron railing and lamps which surround it, 440*l*. The height of the basins from the ground is about 8 feet, and the diameter of the large basin in which the whole stands about 38 feet.

THE PRESERVATION OF STONE.

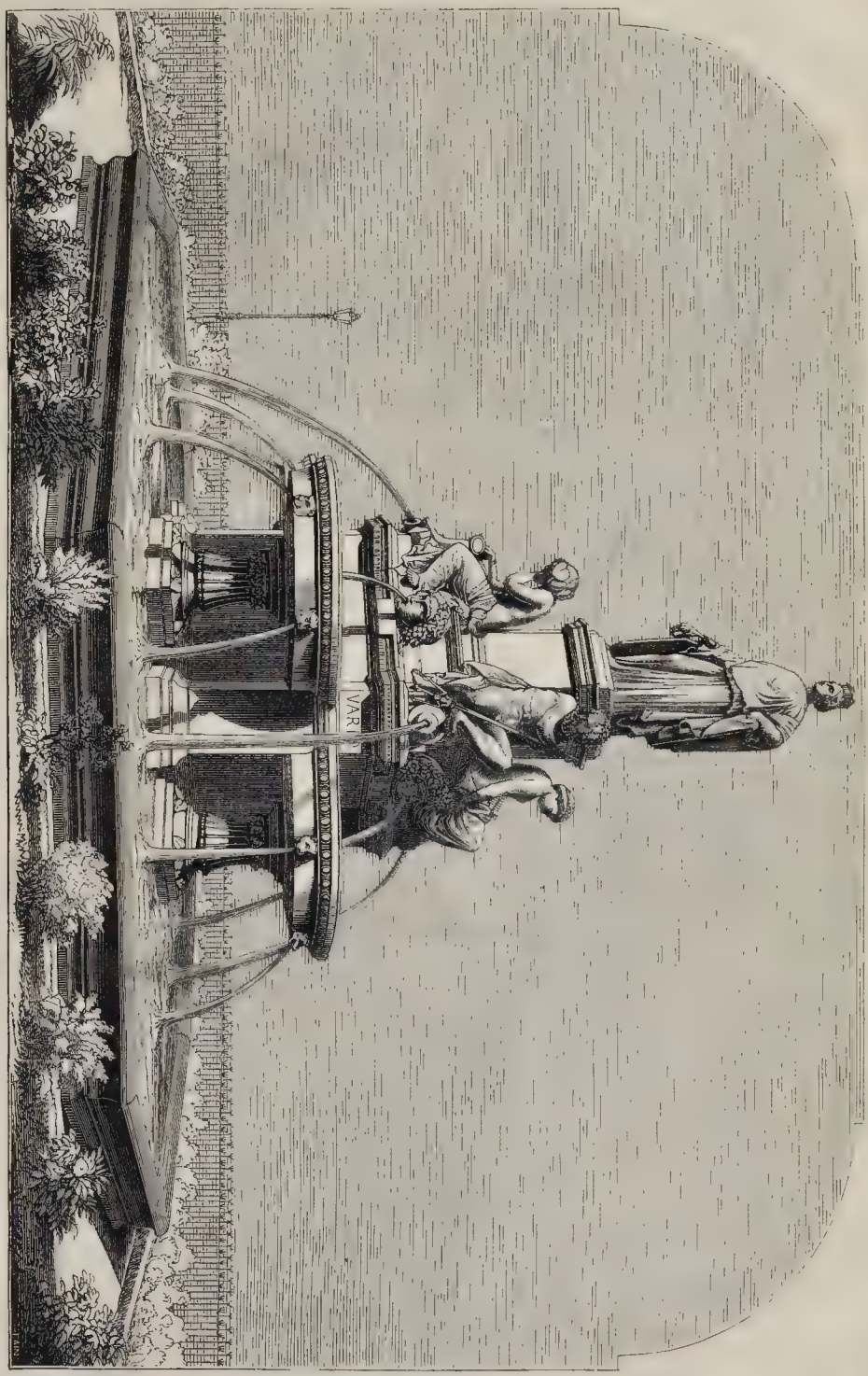
It has often occurred to me that the Royal Institute of British Architects or the Society of Arts would do great service by offering rewards for the best mode of preserving stone-work in London from rapid decay. From some condition of the London atmosphere this decay seems to be of late greater in a short space of time than at any former period. The restoration of the transept of St. Saviour's Church, or the pinnacles on the south side of Westminster Abbey, are now no longer restorations. The Ionic screen at Hyde-park-corner, with its costly bas-reliefs, is mouldering; and many of the new churches in the most healthy parts of St. Pancras and St. Marylebone parishes exhibit this same cankerous disease on the surface of the stone-work.

It is of no use decrying cements and other materials as "shams" and imitations, while the real thing is so expensive and fragile; and it will become more serviceable to the public to encourage the correct and careful appliance of other materials than to condemn them,—unless stone can be more economically recommended as a lasting material.

J. M. B.

Coinage.—The copper coinage of the new French empire has been contracted for by six manufacturers, one of whom is the head of a Birmingham house. The coins to be manufactured are of one, two, five, and ten centimes, and five thousand tons of copper will be required for the first issue of the metallic currency, nearly seven hundred tons of which will be used by the Birmingham firm: the work will probably take four years to complete.

* Engraved from M. Daly's excellent "Revue Générale de l'Architecture."



FOUNTAIN ON THE ESPLANADE AT NISMES.—M. Questel, Architect.

SIGHTS AND SCENERY.

The Adelphi Theatre.—The version of Mrs. Stowe's world-famous tale which has been produced here under the title of "Slave Life, or Uncle Tom's Cabin," is the best as a drama that has been done, although in none is poor Uncle Tom himself worse treated, or made less of. It has happened that we have seen them all,—at the far-distant *Grecian*, the obeliscal *Surrey*, the trans-pontine *Victoria* where every third lady visitor has a blessed infant in her maternal arms, the equine *Astley's*, and the little theatre in Wych-street, to say nothing of "Bower Saloons" and divers provincial resting-places of Thespis where it has proved a good card. After such a noviciate such a laceration of English ears, and pain to eyes used to white faces, we are surely in a condition to pronounce a judgment, and this we do in favour of the Adelphi. The make-up and acting of Emery, Wigan, Madame Celeste, Miss Woolgar, and Mrs. Keeley (the "dreffull" wicked "Topsy") are admirable, and throughout there is an air of truthfulness, notwithstanding exaggeration of some national peculiarities, which those who know the country will bear witness to. The first scene, Shelby's plantation, with steps up to the living rooms in the house at the back; a double scene, showing a boudoir and a bedroom, in which the floor and sides of both shift so as to remove the first with the actor in it, and leave the whole stage for the bed-room; and the passage of the Ohio in the second Act, are very cleverly contrived.

Jullien's Concerts. — The "Mendelsohn night" was a great treat to the lovers of fine music; and the earnest attention of a crowded house told that the majority present were such. Beethoven afforded the staple for Thursday night. On Monday night M. Jullien will bid farewell to his English friends, for a time, in one of those glittering "masqued balls" which he has contrived, for many seasons past, to divest of, at all events, any external impropriety. We wish him a good reception in America.

The Marionettes, kept out of their own little theatre by the well-deserved success of Mr. Woodin's eccentric entertainment, "The Carpet-bag and Sketch-book," have taken refuge in the *St. James's Theatre*, where they are playing as cleverly as ever, improved rather than otherwise by age and their country trip.

A WORD TO CHURCH RESTORERS.

GRAVE-YARDS.

It is the usual practice of all Christians to view with feelings of reverence and antiquarian pride the timeworn temple of their ancestors, and, whenever extensive repairs are needed, and the necessary funds obtained to restore it without delay to its pristine beauty, scarcely any regard is ever paid to the crowded or sanitary state of the neighbourhood, the confined approaches to the church, or the vast accumulation of corpses in the burying-ground.

As one proof, amongst the many I could adduce, of the necessity of drawing attention to this subject, I will instance a church in a large market-town in Suffolk, in a very dilapidated state, about to be nearly rebuilt and enlarged on its present site, under the advice of a well-qualified architect. This church is situated on the lowest ground in the parish: the burying-ground surrounds it, the surface of which is now from 3 feet to 4 feet above the level of the floor-line of the edifice, caused by the gradual accumulation of about 1,600 tons of human bodies, and in the interior are many well-filled vaults.

The whole site is most unhealthy, reeking with putrid gases, and traces are visible of the percolating influence of liquified corpses from without exuding through the walls of the edifice. A portion of the congregation on Sabbath days are often affected with nausea to such an extent as to cause them to leave the church before service is concluded. To the consumptive and delicate, and, indeed, to all, the inhalation of such noxious upas-like vapours holds out, at least, the germs of death; and it can be nothing short of madness or ignorance of the common laws of nature to expend money in nearly rebuilding, and enlarging even a sacred edifice on such a malarian site.

J. F. CLARK.

RAILWAY IN THE THAMES.

AMONG the various schemes proposed to be submitted to Parliament in the ensuing session, is one to incorporate a company to make a railway, with a footpath alongside, from London-bridge to Westminster-bridge. The line is to be carried along a viaduct composed of a series of iron girders, supported by cast-iron piles driven into the bed of the river at a certain distance from the north bank of the Thames.

A correspondent has favoured us with the "outlines of a similar idea which occurred to him some years ago," but we are scarcely prepared to advocate it.

The writer says,—It is frankly admitted, then, that the proposed pier would interfere with the vagaries of the barges; but, on the other hand, certain arrangements will now be described, which would leave the navigation more clear than before, and materially facilitate the transit of merchandise both up and down the river.

To accomplish this, it is proposed that steam engines should be erected; and, if a railway was made part of the plan, it is intended that these engines should perform a twofold duty; first, give motion to the trains; and, second, drive one, or if necessary two, endless ropes, one on each side of the terrace. Now, these ropes would always be made to move in the direction in which the tide was flowing for the time being, and at a velocity of two or three miles per hour above that of the water; then, as the barges arrived at either terminus, say at London-bridge, to proceed with the flood-tide, they would be attached to the rope, and so towed up the river, sailing in a line, and close to the pier. The object in communicating a higher velocity than that of the water, would be to give the vessels steerage-way, which would be required, not only to keep them in a line alongside the pier, but more especially that they might shoot rapidly across to their respective wharfs on arriving opposite thereto.

THE LIGHTING OF STREETS.

ANTIOCH, in the beginning of the fourth century, discovered the importance, as a matter of police, of lighting the streets. But the discovery lapsed, and it was only in the middle of the sixteenth century that Paris lighted up her streets by fires made of pitch rosin. Slowly did this matter of primary police creep on till the end of the last century, when it was started forward with extraordinary vigour. Chemists had long observed that coal on being distilled produced a combustible gas, and the means of collecting and distributing various kinds of gas were among the common experiments of a lecture table. But it was not till 1792 that Murdoch employed coal gas to light up his offices at Redruth. Now, gas has entirely substituted oil in the lighting of the streets, but simply as a question of cost, the coals from which it is produced being cheaper than the corn necessary to form tallow. It by no means follows that gas is always the most convenient form of using a combustible. "It would certainly (says Liebig) be one of the greatest discoveries of the age if any one could succeed in condensing coal gas into a white, dry, solid, odourless substance, portable, and capable of being placed upon a candlestick, or burned in a lamp." A want is rarely expressed by man that science does not administer to it; and already is the desire of Liebig accomplished. A mineral oil flowed out of coal in Derbyshire, and was obviously produced by a slow process of distillation from the coal. It contained solid paraffine dissolved in a liquid oil. Mr. Young, of Manchester, in examining the mode of its formation, found that paraffine, a solid waxy substance, hitherto never produced from coal, could in reality be readily formed in commercial quantities by a slow and regular distillation. This, in fact, is "condensed coal gas:" or, rather, it might be considered as a solid form of olefiant gas. It is, therefore, the want of Liebig supplied. In forming coke, this product, dissolved in an oil of a similar composition, may readily be obtained; and useful products are made instead of those waste gases now thrown uselessly into the atmosphere. It might appear chimerical to you if I were to state many of the consequences which must follow if this discovery in its maturity be found as successful as it promises to be in its dawn; but it is not difficult to see that a cheaper and less carbonized coke could be burned in our domestic fires, and thus we might see a sun which now refuses to penetrate the sooty canopy of our cities.—*Dr. Lyon Playfair.*

HIGH BRIDGE ACROSS THE GENESEE RIVER AT PORTAGE, NEW YORK.

ON the Buffalo and New York City Railroad, which is 423 miles long, with a continuous track of 6 feet gauge, there is a singular piece of carpentry, in the shape of what is known as the "High-bridge," across the Genesee river, at Portage, Wyoming county, N. Y. This bridge is 800 feet long, and 234 feet high from the bed of the river to the rail. The masonry in the river is 30 feet high; the trestles, 190 feet; and the truss, 14 feet. It contains 1,602,000 feet B.M. timber; 108,862 lbs. iron in bolts, &c.; and 9,200 cubic yards cement masonry. It was commenced 1st July, 1851, and completed—so as to be crossed with an engine—August 14th, 1852. It is estimated that one of the trestles, or bents, will sustain a weight of 3,109 tons in addition to its own weight and that of the truss above it. The general plan was designed by Mr. Silas Seymour, chief engineer of the road. Mr. S. M. Seymour was superintending engineer. Messrs. Lauman, Rockafellow, and Moore, were the contractors.

CONTRACTORS' LAWS.

[Where a builder contracts with a mechanic to perform a certain quantity of work, and dismisses him without a just cause, the mechanic can recover the prospective profits upon the unfinished work.]

LAMBETH COUNTY COURT. — AUGER *v.* SILVERSIDES.—This action, brought to recover 4*l.* 10s. on contract, is one deserving of notice by builders departing from good faith, and to mechanics contracting with them. The plaintiff is a carpenter, and the defendant is a master builder of Walworth, who contracted with the plaintiff to make the staircases of sixteen houses, in Thornton-street, Walworth, for the sum of 24*l.* When the plaintiff had completed the stairs of eight houses, the defendant summarily dismissed him, on the ground of being able to finish the remaining houses himself. The plaintiff had at various times drawn upon the defendant to the amount of 12*l.* being precisely one half of the contract, and the money just sufficient to pay for what work had been done. Mr. Auger, it appeared, informed the defendant that unless he allowed him to complete his contract, he would charge him for his (plaintiff's) prospective profit upon the unfinished houses, and taking as a datum the profit he had obtained upon the first eight houses, he now sued him for the sum of that profit, 4*l.* 10s. The defendant had paid the sum of five shillings into Court, as the *amende*, for plaintiff's disappointment. It further transpired from Mr. Auger's evidence, that it was the practice of persons like the defendant, to get carpenters to take a contract like this, when hands were scarce, and hardly to be obtained, and as soon as work got slack, to dismiss the contractor, upon some pretence or other, and finish the job themselves. The specification being put in, and the defendant being unable to prove any tangible charge against the plaintiff's work, the learned judge (J. P. Taylor, esq.) observed it was a clear breach of faith as well as contract, on the part of the defendant, and far from reputable to any tradesman, and gave a verdict for the whole amount, with costs. It may not be amiss to observe, that the expenses attending this breach of contract amount to very nearly the sum the plaintiff would have completed the contract for.

WARMING STUDIO.—I should recommend "C. P. S." who asks as to "warming studio," to ascertain the capabilities of the boiler at the back of his kitchen-range. This may be an easy method of warming his apartment on the hot water plan. Should this fail, he could have a stove with a boiler in his fire-place, which could be applied, as he says, the night before.—T. G.

Notices of Books.

Baths and Washhouses; Statement of the Proceedings of the Committee appointed to promote their Establishment for the Labouring Classes. London: Effingham Wilson.

This "statement" includes a report which has been drawn up by Mr. P. Baly, the engineer to the committee, upon the buildings erected and erecting, with plans, &c. and is intended to supply information to such as wish to establish baths and washhouses. The committee show, as the result of their exertions, that "above 2,800,000 baths have been given at the various metropolitan establishments, at a cost of from 1d. to 6d. each, in five years (the number in 1847 having been 143,744, and in 1851, having been 742,026); that accommodation, sufficient to give more than 2,000,000 baths in a year, at these prices, is now provided in London; that the linen of above 2,000,000 persons has been washed, dried, and partially ironed at these establishments; and that baths and washhouses are now built or building in almost every large town in England."

The good they have done we are quite willing to admit and praise them for; but when they refer to the "high testimony" paid to the *economical* arrangement of their establishment by the French and Belgian engineers, who were sent to this country to report upon them by their respective governments, they must surely have felt the satire. Mr. Baly alludes to the impression that a "needlessly profuse expenditure" has been indulged in by the committee, "for the sake of correcting it;" but does not make good this promise. It is no reply whatever to the charge to say that their plans have received general approval.* We are quite willing, however, to give the committee the advantage of the fact that when they "undertook the erection of the Model Establishment, the whole plan of the building, its apparatus and fittings, was entirely to be invented."

The illustrations comprise, plan and elevation of an establishment to cost 8,500*l.*; plan of one to cost 4,000*l.*; and of another, 2,000*l.*; with a drawing showing the arrangement of a washing and drying compartment.

Directions for introducing the first Steps of Elementary Drawing in Schools and among Workmen; with Lists of Materials, Objects, and Models. By the Author of "Drawing for Young Children," &c. Chapman and Hall, 193, Piccadilly. 1852.

This little book has been prepared and published at the request of the Council of the Society of Arts. It points out the errors of the usual mode of teaching children and workmen how to draw, and the methods which the author thinks ought to be adopted, together with other information necessary to enable teachers or schoolmasters who have not learnt drawing themselves to superintend the lessons of pupils. Besides a chapter on materials and on simple objects for drawing models in elementary instruction, the book also contains specimens of drawing papers of various colours and qualities, and some remarks on drawing copies.

Use the Minutes. — Is it asked, says Channing, how can the labouring man find time for self-culture? I answer that an earnest purpose finds time, or makes time. It seizes on spare moments, and turns fragments to golden account. A man who follows his calling with industry and spirit, and uses his earnings economically, will always have some portion of the day at command. And it is astonishing how fruitful of improvement a short season becomes, when eagerly seized and faithfully used. It has often been observed, that those who have the most time at their disposal profit by it the least. A single hour in the day, steadily given to the study of some interesting subject, brings unexpected accumulations of knowledge.

* Shown, as they say, amongst other things, by the unscrupulous adoption of their plans by others without acknowledgment. The committee gibbet Mr. Newland, of Liverpool, as an example.

Miscellanea.

ENGLAND'S WANT.

England! thou art not yet full free!
Thy people's cry is heard from thee:
A moral cry,—a social wail,
Is borne along the silent gale.

Physical ills, till purged away,
Darken the noontide of thy day.
Reform in temporal ills ye need,
'Ere Nature's ground is fit for seed.

Thy people's courts must have thy care,
Immoral nature lingers there;
Fever, crime, disease, and woe,
Handmaids of filth, in hand they go.

Housed in filth, the soul is cursed;
In filth the mind is foully nursed;
In filth the moral nature's tilled;
From filth, thy justice courts are filled.

Can we then wonder Nature's sway
Is hidden from the light of day?
The light of Nature in the mind,
Lost in half the human kind?

Strange contrast! Though strange 'tis true;
Luxury and woe together grew,—
Under one shade; beneath one sun,
Their race began, their course was run.

* * * * *

Then say not yet that England's free,
Though mistress o'en of land and sea.
The Plague that lately left our shore,
May swallow yet ten thousand more.

But Heaven grant that warnings past,
May rouse our energies at last;
And evils not beyond our sway,
Oh! give us heart to purge away.

W. W.

Railway Matters.—A "Great Western and City Junction Railway Company" has been projected, for the purpose of giving the Great Western Company a City terminus. Two of the Great Western directors have been placed upon the board. It is proposed that the line should commence at the Great Western Railway station, at Paddington, then through certain meadows to Kilburn, passing over the Edgeware-road at that place, and thence stretching across to the Finchley-road, and in the direction of Haverstock-hill, effecting a junction ultimately with the East and West India Dock Railway at Kentish-town.——The library of the "London and North-Western Railway Library and Literary Association," to the support of which the London and North-Western board of directors have subscribed one hundred guineas, will be opened for the circulation of books on 31st instant. —— On Wednesday fortnight, a bridge over the Bolton and Blackburn section of the Lancashire and Yorkshire lines of railway fell in, after sixteen head of cattle had just passed.

The Bomerang Propeller.—A trial of this propeller has been made by its inventor, Sir Thomas Mitchell, at Sydney; and the local *Herald* thus reports the result:—"So soon as the *Keera* got into her direct course, it was found that her speed surpassed any which she had hitherto attained on this coast. Between Pinchgut and Bradley's Head, the distance, 2,099 yards, was performed in 6m. 10s. Greater speed, however, was soon afterwards attained; and a scientific gentleman, who has recently arrived from England, drew our attention to the appearance of the water near the propeller; which, instead of flowing in towards the stern to be disturbed there as in other screws, allowed the propeller to work through it very quietly. About this time the strokes of the piston were sixty-two per minute, and we must particularly direct attention to the fact, that with the English screw in, the engines of the *Keera* have very seldom, indeed, been got to work up to fifty. This serves to prove the freedom of the Bomerang Propeller from lateral resistance; whilst the greater speed attained with a surface some 268 inches less than the English one proves, we submit, beyond doubt, the efficiency of the Bomerang form as an instrument of propulsion. We must further observe that the pressure on the boiler never exceeded ten pounds to the square inch. In returning to Sydney, great care was taken to observe the time. The *Keera's* speed was fully equal to *twelve knots an hour;* and this against a rather strong head-wind and tide. The slip was only 2½ per cent. supposing the strokes of the piston to have averaged 60 per minute." It is a remarkable circumstance, pointed out by Sir Thomas Mitchell, that the Bomerang was used in ancient Egypt for the main purpose for which the aborigines of Australia use it; namely, to kill ducks. This, he remarks, was plainly shown in some of the paintings in the tombs of Thebes, especially in one engraved in Wilkinson's Egypt; and also that Egyptian Bomerangs made of hard wood, about 1½ or 2 inches broad, curved, and about two feet long, are still to be seen in museums in Europe, having been found by explorers among the tombs of Thebes. Sir Thomas also observes that the 'throwing stick' of the ancient Irish was a missile of the same nature as the Bomerang.

The Staffordshire Potteries Waterworks.—From a discursive article on the rapid progress, and proposed extensions of these works in the *Staffordshire Advertiser*, we extract the following particulars. The works have been in operation for three years, and now supply a population of 85,000, scattered over an area of nearly twenty square miles. The company started with a paid-up capital of 60,000*l.* afterwards increased to 70,000*l.* and already pays a dividend of six per cent. Originally only thirty-five miles of mains were contemplated, yet their actual length is now seventy miles; and by the proposed extensions there will be ten miles more. Four years ago the quantity of water supplied by the old waterworks at Hanley and Longton was about 400,000 gallons per day. Now, two millions of gallons are supplied daily to the entire district of the potteries and Newcastle with Norton and Smallthorn, being at the rate of twenty-two gallons per head per day for all purposes, for a population of 85,000—the average cost per house being only about twopence farthing per week. Although the capital of the company has been increased, the several portions of the work have been executed for nearly 14,000*l.* less than the original estimates, the additional capital having been devoted to extending the public accommodation. A further augmentation of capital is now intended, for the purpose of enabling the company to put down another engine, cover in the reservoirs, and include in the area of supply all the new suburbs of the Potteries called into existence by the amazing increase of building, with the villages of Bucknall, Sandyford, Goldenhill, Kidsgrove, Chesterton, and Knutton, and the intermediate places; so that whatever quantity of water may be required for domestic, sanitary, or manufacturing purposes for generations to come, all may be ready by merely putting down additional service pipes. When the works now in contemplation are fully completed, the company will be able to supply above four and a half millions of gallons daily, of pure, soft, spring water, of only nine degrees of hardness, equal to a supply of twenty gallons per head daily to a population of 225,000.

Value of Land in the Environs of the Metropolis.—The Putney College Estate, comprising eighteen acres of freehold land fronting the river, close to Putney-bridge, has been purchased by the new land society, the "Conservative," for the purposes of allotment to members. It may be expected, therefore, in the course of a short time, that the town of Putney will be extended in this direction, which will render still more necessary the carrying out the proposed new bridge and steam-boat pier in connection with it. The price the society have paid for this site is, we understand, 11,900*l.* which, with the amounts realised by Messrs. Chinnock and Galsworthy (the auctioneers) from the sales of the materials of the two mansions pulled down, makes upwards of 15,000*l.* for the entire property, being considerably more than the sum for which it might have been purchased at the late auction.

Regent's Canal.—At the half-yearly meeting of the Regent's Canal Company, held on Wednesday in last week, a dividend of 8s. 6d. per share was declared. A proposal to raise 430,000*l.* for new works was carried by a majority of only one.

Immense Boiler-plates.—At Leeds, some plates weighing each, when finished, upwards of 1 ton 10 cwt. were lately rolled.

The Mediæval Secret at the Institute.—I was one of the disappointed auditory who attended at the Institute of Architects on Monday to hear Dr. Henzlemann "explain a series of drawings illustrative of his alleged discovery of the principles of mediæval architecture." What this announcement means I will not decide, but it is strange such an unanimity of opinion as to its meaning should have prevailed, and that nobody knew, until informed by the chairman, that the meeting had been convened merely to hear some introductory remarks which threw no light whatever on the subjects to be investigated. Whether designed or not, to me this proceeding looks very like a *ruse*, for I am sure but few gentlemen would have attended unless, as Mr. I'Anson said, they had expected the whole mystery would have been unfolded. What does the Doctor want? Does he intend to recreate the architecture of the Middle Ages, or does he intend publishing a work on his discovery, and would to get it endorsed by the Institute. It is very necessary something more definite should be known, for if the latter is his sole object, the time of the Institute was expended in vain.—Palladio.

Ecclesiological Society.—At a committee meeting held on November 23rd, Mr. Hope in the chair, a letter and books were received from the Danish Church History Society. A conditional grant of 5*l.* was made to the restoration of Dorchester church. A vote of thanks was received from the council of the School of Art and Museum, for the casts, &c. presented by this society; and it was agreed to deposit at the museum the books and plates of the society, on condition that members of the Ecclesiological Society might have free access to them, and that members of the committee might have the right of removing them for use. An offer of rooms at a building about to be engaged by the committee of the Architectural Exhibition was considered. It was resolved that the next part of the *Instrumenta Ecclesiastica* should contain school fittings. Sir Charles Anderson exhibited some sketches, architectural and others, made by himself on a recent tour in Norway.

The Ruins at Tinian, in the Pacific.—We observe in the New York *Literary World*, with reference to the subject of our recent paragraph on these ruins, that they cannot be said to have been newly discovered, inasmuch as they were described by Anson, M. I. Arago, and probably others. All, however, unite in ascribing to them an extreme antiquity. It is said, that throughout the whole island (now almost deserted) a great number of these singular ruins were found. Anson describes them as composed of "sand and stone cemented together and plastered over;" and Arago says, many of the pilasters are surmounted by hemispheres of stucco.

Gas and Water.—From communications by Mr. Charles Carus Wilson, in the *Jersey Sun* newspaper, it appears that a scheme for the proper supply of gas to St. Helier's, St. Aubin's, and ultimately the whole island, is now on foot, the inhabitants having long been dissatisfied with both the price and the quality of the gas for some years supplied to them—at least to the shopkeepers, for no endeavour appears to have been made as yet to extend the use of gas into private dwellings, the principal field of profit, one would think, in such a place as Jersy; and even the shops have been very sparingly supplied, the price being one great obstacle to the extension and the manufacturer's profit in both cases.——Mr. George R. Booth, of Wandsworth, has patented some improvements in the production of gas, which consist in manufacturing it from seeds, leaves, and stems of plants, &c. instead of the oils, gums, or resins obtained therefrom in such process. The form of apparatus or retort employed, it is said, may be very much varied: the patentee prefers, however, to project the oily seeds on to a highly-heated surface, as being in practice an effectual mode of working, and enabling the gas to be made in small quantities, as required for use. A portion of oil, it is added, will be found to be condensed in the pipes leading from the retort, which may be economically employed in the generation of gas.——Mr. John Swarbrick, of Blackburn, has patented a method of manufacturing clay retorts, for gas and other purposes, dry enough to be at once removed to the oven, and, when baked, free from cracks or fissures. ——Notice has been given that application is to be made to Parliament for leave to bring in a Bill to incorporate a company for the purpose of supplying with water the town and parish of Great Yarmouth, and also the parishes of Ormesby, Little Yarmouth, &c.

Athens.—A storm on the 26th of October threw down one of the columns of the temple of Jupiter Olympius. A letter says: "No one can have any idea of the majestic proportions of this fallen column, though accustomed (as you are) to see it standing. This is the observation of all who flock to look at it, for all Athens has assembled to-day to view this exhibition of Almighty power. The effect is truly sublime. The column was thrown down by the pressure of the wind causing the base to leewards to sink into soft ground. Thus it toppled over, and lies like a pile of bricks or cards, one layer behind the other, exactly in a line due north and south: the capital, split exactly in two pieces, horizontally, lies upon its upper side, the tambours on their respective sides detached from each other, and separated at almost equal distances of about three or four inches. There are seventeen pieces, including the capital, but exclusive of the base, which is not uprooted, but inclined at an angle of seventy degrees, from which the remaining part of the column slipped and toppled off. Two of the columns of the Erectheum on the west side have also fallen, and are broken in pieces."

Appold's Centrifugal Pump: Alleged Infringement of Patent.—In the Court of Exchequer, an action was last week brought by Mr. Charles Tetley, of Bradford, against Messrs. Easton and Amos, of Southwark, engineers, for the infringement of a patent obtained in February, 1846. A similar machine was placed in the Great Exhibition of 1851 by Mr. Appold, for whom the defendants manufactured it, and for which a gold medal was awarded to Mr. Appold. The plaintiff had allowed this invention, for which he held a patent, to lie dormant until that period, when he claimed Mr. Appold's machine as his discovery, and brought the present action to establish his alleged right. The plaintiff's machine had, on one occasion, emptied 3,000 gallons of water per minute out of a coffer-dam, and had been otherwise tested. For the defence it was endeavoured to prove that the principle of the alleged invention was substantially the same as that specified in the patent of a Mr. Hale, obtained in 1832. The Chief Baron left it to the jury to say whether the principle of the plaintiff's patent was the same as that of Hale's; or, in other words, was Mr. Appold working on Hale's discovery, or upon a different invention, subsequent in point of date, of which the plaintiff claimed to be the author? The jury found a verdict for the defendants.

Alleged Remarkable Discovery in Egypt.—At the New York Historical Society, on 2nd ult. according to an American paper, Dr. Abbott, who had been twenty years in Egypt, exhibited a gold ring, weighing about three sovereigns, found in a tomb on the south side of the great pyramid of Loupou (the Cheops of Herodotus, and the second Pharaoh of the fourth dynasty), and having the inscription "Loupou," in its inner side, within an oval (the hieroglyphic mark of sovereignty). Its age, adds the writer, is upwards of three thousand years before Christ, and the beauty of the engraving of the hieroglyphic could only be seen by means of a microscope, and could not now be surpassed.

Mechanics' Institutes: — Earl of Zetland.—On Saturday, the Earl of Zetland invited the inhabitants of the village of Marske, near Newcastle-upon-Tyne, and the ironstone miners of the neighbourhood, to meet him at the National School in the evening, to propose to them the establishing of a Mechanics' Institute.

Nailworks at Gateshead. — Within the last year nine nail-cutting machines have been set to work at a new establishment, called "The North of England Nailworks," at Gateshead, by Mr. Thomas Andrews, the proprietor. Four more of these machines are now in course of erection; and the *Newcastle Journal* gives an account of the whole establishment, from which the following particulars are gathered:—The iron used is in sheets 9 feet long and 24 to 30 in. broad. The first process is to cut these sheets crossways into slips, the width of such slips being regulated by the length which it is intended to make the nails to be cut from them. It is no longer heating and hammering, but *cutting*, without the iron being heated at all; and this is done at one of the largest and most powerful machines, by a man inserting the end of the sheet below a blade or cutter, which, descending, cuts the slip away; and, as the cutter rises, the end of the sheet is reinserted and cut until the whole is done. The slips are then cut into nails by machines the same in principle, but with modifications adapting them to nail cutting. Thus, one end of the slip of metal is fastened in a pair of pliers, having a round wooden handle, which handle is made to rest loosely in the groove of an upright in front of the machine, and is placed at a slight angle to the other end, which is then held forward; and, as one nail is cut off by the rapidly-descending cutter, the person in charge reverses the sides of the slip for the other. The tapering of the nail towards the point is effected by the iron being held towards the cutter at the required angle, and the slip of iron placed under the cutter is reversed, in order that the part of it whence the slender part of the nail was cut away may form the thick part of the next. Quick as thought the cutter descends, cutting off a nail at each stroke, the iron being prevented from going too far under the cutter by a regulating gauge behind; and the nails, as they drop one after the other below the cutter, are caught by a forward movement of what may be called a vice, and, while each is momentarily held fast, a lateral movement drives forward a die, by which is impressed the form of the head, and then the nail is released to make way for another, which is being cut while the one that preceded it was being headed. The process goes on at the rate, for each machine, of 15,000 an hour for tacks, and 6,000 an hour for the larger nails, with only a boy to feed each machine, and one or two men in charge as overseers. One shoe-bill machine will cut twelve nails at one stroke; and as 200 strokes may be made in one minute, about 150,000 nails may be cut in an hour at one machine. Nails are here also made by the original process; and nothing, perhaps, is more striking than the contrast of speed between the different processes of making nails by hand-labour and by machinery, going on in the same manufactory.

The Iron Trade.—The artificial excitement in this trade, which, according to the Birmingham, Wolverhampton, and other papers, not only continues but increases, is now further complicated by the deluging of coal-mines, added to the previous rise of colliers' wages, and their comparative idleness in consequence. The minimum price of bar-iron is now declared to be 10*l.* a ton (previously to 8th September, 5*l.* 7*s.* 6*d.* was the selling price), and pig-iron is rising from 3*l.* 15*s.* and 4*l.* a ton. The colliers are giving notices of a demand for a farther rise in wages. The supply by these checks is at least likely to be kept down, as the price rises, till the grand crash comes. The increase of demand, however, has already led to the formation of many new works, which of course will tend to increase the supply demanded by the speculators and the legitimate trade. As for exports,—from the precipitate and blindfold rise in prices, it appears as if it were intended to *cut* that branch of the trade at once and altogether.

Baths and Washhouses for Shrewsbury.—At a public meeting convened by the mayor, in course of last week, and held at the Guildhall, Shrewsbury, it has been resolved to adopt measures for the establishment of baths and washhouses in this borough.

Important to Builders.—At the Bradford Borough Court, on Monday week, the proprietor of a new building in the Bolton-road was fined 20s. and expenses for refusing to place a proper fence and platform in front of the hoarding erected for the building.

The Late Sir John Guest.—This gentleman, who was proprietor of the Dowlais Ironworks, and member for the adjoining borough of Merthyr, died on 26th ult. Sir John latterly resided chiefly at Canford Manor, which had been recently adorned with many very fine Ninevite sculptures; Mr. Layard, M.P. the discoverer of them, being nearly related to Lady Charlotte Guest, the wife of Sir John.

Cambridge Antiquarian Society.—On 29th ult. the Master of Jesus College in the chair, several additions made to the library and museum of the society since last Easter Term were announced, and Mr. C. C. Babington, of St. John's College, the treasurer, read an account of some remains of the time of Queen Elizabeth, recently found in the course of repairs in the old court of Corpus Christi College. The meeting was held in the Combination Room of St. Catharine's Hall, by permission of that society.

Society of Antiquaries of Newcastle-upon-Tyne.—At the last monthly meeting of this society, Mr. William Kell, townclerk of Gateshead, in the chair, the Newcastle volume, now in progress, of the Archæological Institute, formed the subject of a brief conversation, and it was resolved that the society's woodcuts and copperplates should be placed at the command of the Institute. Mr. H. G. Potter read a paper on recent excavations by him at Burdoswald, where a fourth gateway, surpassing the others in finish and style, has been discovered, and of which some account is given in the *Gateshead Observer's* report of this meeting.

Paris.—M. Huvé, architect, a member of the French Institute, recently died suddenly, in his 69th year. M. Huvé was the architect under whose direction the *Madeleine*, in Paris, was completed.

Wages in South Australia.—Return showing the average wages of mechanics and others in South Australia, for three months ended 30th June, 1852:—Blacksmiths, 8s. to 10s. per day; bricklayers, 7s. to 8s.; brickmakers per 1,000, (making) 7s. to 8s. ditto; carpenters, 8s. to 9s. per day; cabinet-makers, 8s. to 10s.; carriage-makers, 10s.; coopers, 7s. to 8s.; day labourers, 4s. to 5s.; masons, 7s. to 8s.; painters and glaziers, 7s. to 8s.; plasterers, 7s.; sawyers, 7s. per 100 feet; wheelwrights, 8s. to 9s. per day: all without board or lodging.—*Australian and New Zealand Gazette.*

Projected Works.—The advertised notices of "intention to apply to Parliament" are very numerous, and promise a busy session. We find, amongst the matters proposed, the Railway City Terminus; the Regent's Canal Company, Limehouse Dock; the Kingroad Harbour, Docks, and Railway of the Port of Bristol; project to improve supply of the East London Waterworks Company; the London, Liverpool, and North American Screw Steam-ship Company; the Central India Railway; and a new bridge between Putney and Fulham: the old bridge here has long been a nuisance and a disgrace.

[ADVERTISEMENT.]

Street Architecture.—We noticed the other day the gorgeous yet artistic effect produced by the judicious employment of colours in the *façade* of Messrs. Futvoye's establishment in Regent and Beak streets. This elegant Museum of Art has since been opened to the public, and the interior will be found equally worthy the admiration of the man of taste for the perfect bijou-like character of its design and decoration. But perhaps it is when lit up at night by numerous gas reflectors from the exterior that its exquisite display of art and *vertu* attracts the greatest attention. It would seem that the whole of this vast frontage, which used to occupy more than an hour in closing, is now thoroughly secured by one of Clark and Co.'s patent iron shutters, the largest in the world, working horizontally and passing over an area of 378 feet in less than forty seconds.—*Globe.*

TENDERS

For the erection of sundry buildings at Cockside, Plymouth, for the Plymouth and Stonehouse Gas Company. Mr. Oswald C. Arthur, Architect. Quantities supplied.

Bovey and Matcham	£4,495	11	2
Ogalbe	4,291	0	0
J. Marshall	4,275	0	0
Harvey	4,125	0	0
Wilcox	3,894	15	0
T. Marshall	3,728	0	0

TO CORRESPONDENTS.

"S. T." (shall be glad to hear from him), "G. E. P." (ditto), "C. W." "G. N. R.," "W. P. G." "T. B. S.," "J. F. C.," "H. McG." "T. G." "E. S. R." "E. B.," "R. L. S." "T. B. W." "D. M." (under our mark), "F. P." (ditto), "W. G.," "Alpha," "Oliver" (not our province), "G. C." (Truro), "W. A." (we cannot advise removal of National Gallery to *Smithfield*), "S. W." (evidence seems in favour of its use), "A Freemason," "G. M. H." (shall hear), "C. P. R." "J. B." "R. T. W." (shall appear), "Ross Church" (ditto), "H. K." (ditto), "R. J." (means of admission were not sent).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

TO PARENTS AND GUARDIANS.

THERE is an OPENING in an Old-established Cabinet and Furnishing Ironmonger's, in London, for an active, respectable, well-educated YOUTH, as an APPRENTICE. Premium small. Address X. C. care of James Allan, sen. 4, Upper Thames-street, London.

WANTED, by an Architect in good practice, resident in Liverpool, a well-educated, gentlemanly YOUTH, as Articled Pupil. First-class references given and required.—Address, Mr. C. SHERLOCK, King-street, Liverpool.

WANTED, by an Architect, in London, of good practice, an OUT-DOOR PUPIL. A premium will be expected, and reference given if required.—Address, by letter, post-paid, or personally, between the hours of Twelve and Five o'clock, to B. Z. at the office of Mr. John Johnson, 9, John-street, Adelphi.

WANTED, in a Shop, a few miles from London, a WORKING FOREMAN of CARPENTERS.—Apply by letter (post-paid), stating age, terms, and reference, to D. S. Office of "The Builder," 1, York-street, Covent-garden, London.

TO BUILDERS' FOREMEN.

WANTED, a competent FOREMAN, who has been accustomed to superintend the erection and finishing of first-rate dwelling-houses.—Apply, personally or by letter, to the PORTER, at No. 24, Hanover-square.

WANTED, by an Engineering Surveyor, an experienced ASSISTANT, who has been accustomed to office work as well as Levelling and Surveying. References required.—Address, stating terms, to C. E. PRINGS, Optician, Reading, Berks.

WANTED, in the Office of a London Builder, a CLERK, who thoroughly understands the Measuring, Estimating, and making up Accounts of the Plumbing, Painting, and Glazing departments.—Apply, by letter only, stating late occupation, to G. H. Office of "The Builder," 1, York-street, Covent Garden.

WANTED, an Educated Practical ENGINEER, to go to the East Indies immediately, to act for an old-established respectable firm in this country. It is requisite that he should be a man of some experience, and if well acquainted with millers as applied to sugar-making, he would be preferred. Unexceptionable references will be required as to character and qualifications.—Apply, by letter only, post-paid, to B. C. care of Messrs. Waterlow and Sons 65, London wall.

TO CARPENTERS.

WANTED, to place a respectable YOUTH, aged fourteen, as IN-DOOR APPRENTICE to a CARPENTER; if living a short distance from London preferred. A moderate premium would be given.—Direct W. M. care of Mr. Berry, 8, Motcombe-street, Belgrave-square.

TO ARCHITECTS.

A GENTLEMAN, who has been some years in the profession wishes to enter as JUNIOR PARTNER in a good practice. Address, C. A. 12, Belgrave-terrace, Pimlico.

TO ARCHITECTS AND SURVEYORS.

A GENTLEMAN, who is a competent practical and detail DRAUGHTSMAN, and thoroughly used to measure up works, takeing out quantities &c wishes for an ENGAGEMENT in either of the above. Has been about twelve years in the profession, and can give first-rate testimonials. Address, J. M. Office of "The Builder," 1, York street, Covent-garden.

A BUILDER'S CLERK (in the prime of life) is open to an ENGAGEMENT. Is well acquainted with the Valuing and Measuring London and Provincial Timber can take out quantities measure work, and is a fair draught-man. Unexceptionable references.—Address, Z. X. Z. Office of "The Builder," 1, York street, Covent-garden.

TO DECORATORS, PAINTERS, GILDERS, &c.

A YOUNG MAN wishes for a PERMANENT SITUATION in the above line; he well understands gilding, painting, &c. and would make himself generally useful. Address, 29, Hornsey-street, Mount street, Walworth-road.

TO ARCHITECTS, BUILDERS, &c.

A YOUNG MAN, aged 23, about leaving his present employer, is wishful of an ENGAGEMENT of any description in either of the above offices; he is a good draughtsman, capable of making out detail or highly finished drawings, competent to take out quantities, and has a knowledge of surveying. Good references. Salary 30l. per annum.—Address, A. B. M. Taylor, 1, Prospect place, De Beauvoir-square.

TO ARCHITECTS AND SURVEYORS.

THE Advertiser, who has been four years in the Office of a Builder, writes a good hand, is quick at figures, and has some knowledge of drawing, is desirous of an ENGAGEMENT at a moderate salary with the advantage of improvement in Architecture and Surveying. References unexceptionable.—Address, ALPHA, 27, De Beauvoir-square.

PATENT VULCANISED INDIA-RUBBER TUBING, for Gas Fittings, Chemical Purposes, Fire Engines, Manure Pumps, &c. JAMES LANE HANCOCK Sole Manufacturer (and Licensee), Goswell mews, Goswell-road, London, begs to invite the attention of Architects, Builders, Engineers, and the trade generally to the Vulcanised India Rubber Tubing, which is now manufactured from 1/8 inch bore and upwards, in lengths from 50 ft. 100 feet, and of any gas strength, suitable to the purposes for which it is applied. VULCANIZED HOSE for FIRE ENGINES LIQUID MANURE and for conveying HOT WATER to BATHS in DWELLING-HOUSES and BREWERIES, manufactured to resist great pressure of any length and size to order.

*** Testimonials may be had on application at the Manufactory.

N.B. VULCANIZED WASHERS and SHEET RUBBER or Steam and Hot Water Pipes and Packings for Pistons and Glands Boxes of Steam Engines, cut to any size to order.

MARBLE.—Mr. J. FABBRICOTTI, of Carrara, Italy, Proprietor of Marble Quarries, and the only person in the United Kingdom selling Italian Marble the produce of his own quarries, begs to inform the gentlemen connected with the marble trade that he has established in London, the most extensive Depôt of Statuary, Veined, Sicilian, Dove, and Black and Gold Marbles, at CARRARA WHARF, THAMES BANK, PIMLICO, the foot of Vauxhall-bridge.—Office, 8, Crescent-terrace, Millbank. Mr. THOS. THOMPSON, Agent.

MARBLES, THIRTY-SIX VARIETIES.—Messrs. SANG, GOGEL, and Co. have the honour to announce that they are enabled to execute, with unusual facilities, any works with which they may be favoured in the above beautiful materials, introduced into this country for the first time from their own Quarries, at a much moderate and hitherto unprecedented low cost. With these Marbles the most brilliant and artistic effects can be produced, and many of the veneers for the lining of walls in variegated colours can be supplied at scagliola prices. Estimates given for veneered walls, inlaid artists' work, coat of arms, monuments, ornaments, reproductions of sculpture, bases and columns, fountains, entablatures, floors (inlaid and plain), baths, tazzas, mosaics, and skirtings.—Address to Messrs. SANG, GOGEL, and Co. Marble Works, Eaton-lane South, Pimlico, London.

Medieval Works, Memorials, Fonts, Screens, etc.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave-place, Pimlico.

MARBLE CHIMNEY-PIECES manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price.

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MARBLE WORK in all its branches, at a remarkably cheap rate, for HALLS, DAIRIES, LARDERS, &c. &c.

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Great Western Railway Station....	PADDINGTON.
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Hope-street, Mount-pleasant	LIVERPOOL.
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List of prices at the quarries and depots, also cost for transit to any part of the kingdom, furnished on application to Bath Stone Office, Corsham, Wilts.

MARKET WHARF, REGENT'S-PARK BASIN.—MARTIN and WOOD solicit the attention of Builders, Masons, and others, to their stock of Portland, York, and Derby Stone; also Bangor Slates, Lime, Cement, Plaster, Bricks, Tiles, Bath, Fire-goods, Fire-stone, &c. sold at the lowest possible prices for Cash. Portland Head-stones, Ledgers, Steps, Landings, &c. cut to order on the shortest notice. Tarpaulins let on hire. A Stock of Northen's Drain Pipes, Syphons, &c. always on hand. Mortar, Lime, and Hair, Fine Stuff, &c. Prompt attention paid to country orders.

CORSHAM-DOWN, and other BATH and PAINSWICK STONE.—MARTIN and WOOD beg to inform their Friends and the Building Trade generally, that all Orders and Inquiries for the above Stone will be promptly attended to by being addressed to MARKET-WHARF, REGENT'S-PARK-BASIN.

PAVING.—CHEAP TOOLED PAVING.—NO ADVANCE in PRICES by R. and W. STURGE.—Builders and others are particularly invited to inspect.—Sinks reduced to 1s. 8d. per foot; Coping Sills, Steps &c.; Selfaced Paving and Slab. Country builders supplied with a priced list, free, on application. The quality and prices must receive general approval. N.B.—Cash prices on the wharf.—E. and W. STURGE, Bridge-wharf, City-road. Established 1821.

PAVING, 2s. 9d. per SQUARE YARD.—Basements, Foot-walks, Malt-houses, Corn Stores, Floors of Warehouses, and every description of Pavement laid down at the above low price, and the work guaranteed. Apply to JOHN PILKINGTON, PORTUGUESE BITUMEN PAVEMENT OFFICE, MONUMENT CHAMBERS, 14, FISH-STREET-HILL.—N.B. Country Agents and Railway Engineers and Contractors supplied with the best bitumen for covering bridges and arches.

VICTORIA WHARF, PIMLICO.—Tooled Paving, 30s. 28s. and 25s. per 100 feet; Self-paving, 22s. and 20s.; Sinks from 1s. 6d. per foot; Coping from 8d.; Harehill Slab, 4½d.; Potternewton Slab, 5d.; Portland Blocks, 1s. 6d. and 2s. per foot; Landing Steps, Sills, Headings, Lewers, Squared Paving, Kerb, Sports, and Harehill Blocks, Marble Slabs, &c. &c. at the very lowest cash and credit prices. Carters very low to all parts of London and the neighbourhood.—JOHN DANIEL and SON, Worm-Stone Wharf, Pimlico.

ASPHALTE.—GERVASE FOOTTIT, Trinidad Asphalte Works, Rotherhithe; established 1834. Every description of Flooring laid with the above durable material in the best manner. Asphalte for Railway Arches, 40s. per ton. Importer of Trinidad Asphalte.

THE BEST MATTING and MATS, of Cocoanut Fibre.—The Jury of Class 28, Great Exhibition awarded the Prize Medal to T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate-hill, London.

TERRA COTTA.—Vases, Figures, Capitals, Coats of Arms, Friezes, Consoles, Chimney Shafts, Flower Trays, &c. &c. manufactured by J. M. BLASHFIELD, Mill Wall, Isle of Dogs (near the West India Docks), and sold at No. 1, Praed-street, Edgware-road, Paddington.

CHURCH DECORATIONS.—Altar and Communion Cloths, General Church Furniture, Robes, &c. at very reduced prices.

An Illustrated Priced Catalogue may be had by application of the Clergy or Churchwardens.

HARRISON, Church Decorator and Robe Maker, 63, Chancery-land. Contracts for Church Cushions, &c.

CHEAP GAS FITTING ESTABLISHMENT.—F. P. MCARTHY, 7, Beech-street Barbican, begs to inform the gas trade in general that he is now selling gas tubes, brackets, pendants, chandeliers, &c. at the wholesale Birmingham manufacturers' prices. A list sent on receipt of postage stamps. Old metals bought or taken in exchange. Best lacquer, 1s. per gill.—7, Beech-street, Barbican. N.B. Goddard's patent Gas Stove on sale.

TO RAILWAY AND GAS COMPANIES, BUILDERS AND CONTRACTORS, IRON MERCHANTS, IRONMONGERS, AND OTHERS.

FOR SALE, 300 Yards of 8-inch Socket Pipes, in 9 feet lengths, one Hydraulic Press and Pumps, 14-inch piston 3 feet lift, equal to 300 tons pressure. Contractor for cast-iron girders, columns and joists, railway and gas-work, castings, tanks, cranes, and all sorts of heavy machinery. Has on hand steam-engines of from 4 to 40 horse-power.—Particulars may be had on application to JOHN SCOTT, Inverkeithing Foundry, N.B; or at 38, Upper Thames-street, London.

TRAFALGAR LIFE ASSURANCE ASSOCIATION,

CHIEF OFFICES, 40, PALL MALL.

THE second annual meeting of this Assurance Company was held on Tuesday, at Twelve o'clock, at the Offices, Pall-mall. George Bermingham, esq. the chairman of the board, presided. The meeting was very fully attended.

The CHAIRMAN, in introducing the business of the day, observed that it was at all times highly interesting to watch the progress of a young society, particularly one which, like the Trafalgar, had been established under certain difficulties, and at a period when, perhaps, some degree of doubt was thrown upon institutions of that description. He would, without further preface, call upon the secretary to read the report. He was sure that they would be much gratified with the statements contained in the document.

Mr. T. H. BAYLIS (the manager) then read the following report:—

POLICIES COMPLETED.

Comparison of the First with the Second Year's Business.	No. of policies issued	Amount assured.	Producing in annual premiums.
		£	£ s. d.
First year — from 24th Nov. 1850 to 24th Nov 1851	325	95,783	3,092 15 9
Second year — from 24th Nov. 1851 to 24th Nov. 1852	567	196,863	6,331 1 7
Excess of second year's operations over first	242	101,080	3,238 5 10

"By this it is shown that new premiums amounting to £3,31l. 1s. 7d. have been added, during the last twelve months, to the former income of the Association, the total of which is now in this, the second year of its existence, 9,473l. 17s. 4d. arising from 892 policies, assuring 292,646l.—a circumstance in itself so encouraging, that the directors abstain from making any comment upon it. In reference to their numerous agents, the directors are gratified in being enabled to report how deeply they are indebted for the very great zeal and ability with which the principles and objects of the Association have been by them asserted and defended, in opposition to the vigorous and unjust attacks levelled at the reputation of young life-assurance companies generally, by those of older date. Indeed, to their respectability and indefatigable exertions may, in a great measure, be attributed the present enviable and unprecedented position of the Association. The directors cannot leave this subject without expressing their conviction that by means of experienced and energetic agents alone, aided by public advocacy, can the operations of a life assurance institution be materially and permanently extended and maintained. They have on all occasions endeavored to eradicate the very best feeling and confidence of those acting on their behalf; and, now, thatanding the insidious attempts of some of the older institutions to destroy their faith in the Trafalgar, and press them into their own service, they are not aware that to this date any such attempts have been successful; but, on the contrary, the most satisfactory feeling continues to distinguish their correspondence, which is better and more substantially illustrated by the large amount of business furnished through their exertions.

"In order to make known the principles and capabilities of the Association, and to afford the public opportunities of becoming familiar with their practicability and necessity, meetings have been held, and lectures delivered, in various parts of England, accompanied with the best results; and the directors have been especially called upon to express their high approval of a lecture delivered by John Smith, esq. of Liverpool, a gentleman of great research and ability in matters connected with assurance, at a meeting in the important town of Sheffield. The directors were enabled, at the last annual meeting, to announce to the shareholders that the whole interest of the deposit, £5,000, remained untouched, but it is at all times available for the purpose of the Association, should occasion require it being withdrawn at the expiration of twelve months, by a most extensive and influential proprietary; and the confidence entertained by the shareholders and public generally will be best understood from the fact, that the deposit could not be obtained, except at a large premium. The number of policies lapsed by death is six, assuring, in the aggregate, 3,300l. which sum, being deducted from the premiums received, leaves a large balance in favour of the Association. The Directors recommend a dividend, at the rate of five per cent. per annum, to be paid on the paid-up capital, and which they propose to be declared at a public meeting, and after the 15th of December next ensuing. In conformity with the provisions of the deed of settlement, two directors retire by rotation. The directors now retiring are Mr. George Bermingham and Mr. Robert Garland, who, being eligible, offer themselves for re-election, and are recommended by the Board accordingly. The auditors who now act are Mr. Thomas Cooper and Mr. Alfred S. Tathem. They being again eligible, are recommended by the Board for re-election.

"The directors refer with peculiar satisfaction to the formation of the Unity Fire Insurance Association—a company which combines the interests, influence, connections, and co-operation of the three kindred life offices—namely, the Provincial, Trafalgar, and Waterloo; three offices already possessing in the aggregate a constituency composed of more than ten thousand persons, the power and extent of which are beyond calculation. Here, then, is a new enterprise in which they may cordially engage, must be apparent to every one. The directors of the Trafalgar Life Assurance Association are gratified to state that the profits which have already accrued from this connection; for, by the Unity undertaking a share of the expenditure—the two offices being carried on under one roof—that is spread of rent, taxes, and other incidental outgoings are mutually divided between them. Further, the establishment of the Unity has added vastly to the energies and efficiency of the several agencies, by stimulating them into new channels of usefulness and advantages, necessarily enlarging the sphere of operations of the Trafalgar.

"Finally, in reviewing the prospects, present and future, of the Association—in estimating the important and manifest influence, strength, and stability which it unquestionably possesses and commands in its connections and subsisting proprietary—in appreciating the effects and progress of the new and valuable principles which guide and distinguish its transactions; and, in perfect reliance upon the determination of every one, however connected with it—whether as shareholders, assurers, agents, or medical referees—to contribute to and insure its imperishable usefulness and success, the directors entertain a confidence, in which all must share, that the Trafalgar is destined not only to realise profit or advantage to its shareholders and assurers, but in due time to confer inestimable benefits upon the community at large.

"By order of the Board,

"GEORGE BERMINGHAM, Chairman."

The CHAIRMAN, in proposing the adoption of the report, said the position he was now occupying was so gratifying as almost to overpower him. He added that the report in itself would carry conviction, and when it became the public property it could be arrived at than one of confidence in the honour and integrity of the Company, and of the certain success it must acquire, and the position it was destined to occupy among the institutions of the country. They had not spoken of facts referred to by other companies, and told them of the number of policies accepted, which formed a fallacy from which they were deceived daily, and which would serve to swell the gross number of policies. The Board had 725 policies before them for consideration, which would be a business in itself for any office, but for one in the second year of its existence it was most encouraging. The Board did not like to transact business at random, and every one of these policies, embracing in all 273,813l. would receive that scrutiny to which every individual would give to any bond which came before him, and they were anxious to guard the interest of the Company, and not to transact their business in a slovenly manner. When these 725 policies were completed, it might be relied upon that they were judged to documents as firm and as sure as human documents could be. He had been told by eminent actuaries that 350,000l. was the amount necessary to secure an insurance company, and it would be per cived that they had nearly arrived at that amount which secured them from every possible contingency. (Hear.) The amount of their policies assured was now 292,646l. (Hear.) The balance sheet had stated what it had cost to acquire this large amount of business, which was now 10,000l. a year, and it had certainly required enormous exertions on the part of their agents and their staff, and on the part of their executive, who had determined to exercise all their powers to increase the income of the Association. To secure this income of 10,000l. they had sunk 14,000l. and it did not matter what might be said about extravagance which was only well-timed liberality. He fully expected that next year their income would be 20,000l. (Hear.) Now, would not any man of business consider this a lucky hit? But many persons were intimidated at the expense, and took a short-sighted view of the matter. He then continued—they would see that they had an income far exceeding some of the old societies, and one which fully justified the outlay. With regard to the attacks made upon them, he considered that Mr. Baylis, in his pamphlet in reply, had taken a moderate position. There was a vast difference between the three united institutions the Trafalgar, the Profes-ional, and the Waterloo—and the older established societies, with respect to the principles upon which they were embodied, and in defending those institutions he (the Chairman) in principle would have been to strike in return, for he (he said that) attacks deserved a hard repulse. Now, they were all implicated in these changes, which were unnecessary and perfectly absurd, and to state that an actuary of Mr. Baylis's experience was ignorant of the right construction of his tables was a childish assertion, and could only mislead children. (Hear.) They could not think they would give them a certain time to live; but they meant to be in such a sturdy position that they could not make them cease to exist. In conclusion, he appealed to the proprietors of the Association to refute these attacks, which he considered most unbecoming. He appealed to the amount of business already done, and drew a forcible picture of the benefit life assurance was capable of, on improved principles would confer upon the public; and finally exhorted all the proprietors—of whom he stated that only 100 out of 676 were insured—to lend every assistance in their power to promote the objects of the Association.

Captain J. W. DOMETT, of Poole, as the representative of upwards of 100 shareholders, holding 2,000 shares, had much pleasure in seconding the adoption of the report.

Mr. JOHN SMITH, of Liverpool, felt happy at having the opportunity of supporting the motion for adopting the report, which he had read through with the greatest attention and care—a care which he had exercised in other cases—and had arrived at the conclusion that it ought to be unanimously adopted. In a very long and intelligent speech Mr Smith expressed his high opinion of the company, and his contempt at the means used to destroy the prospects of the new association. He believed that the public would appreciate the attacks made upon the new companies at their proper value, and he now told them that the whole of their conduct, during the attacks made upon them, proved their company (the Trafalgar) to be the true "Amicable;" all their proceedings showed that they were the true "Equitable;" the liberality of their arrangements, combined with the care which they took of their profits, showed them to be entitled to the name—and, by the union of the three life assurance offices (the Professional, Trafalgar, and Waterloo) to establish the "Unity," they showed that they were the true "United" also. (Great cheering and laughter.) Furthermore, they would show, by their integrity, their candour, and the regularity of their annual path, that they were as loyally, as clearly, and as legally entitled to the "Sun," and were determined to carry their operations—mark the word—over the "Globe." (Cheers.)

Mr. E. BAYLIS, after the able and convincing speech of Mr. Smith, felt that he had very little to say, and, indeed, not being the manager, but only the consulting actuary of the company, he would not have ventured to address them on that occasion had he had not been requested to do so. (Hear.) The whole of his life had, for the last few years, been devoted to an extension of the knowledge of the principles of life assurance, and he had had every existence of the new principles depended on the energy and enthusiasm displayed to make them take root in the public mind. They had to do battle with the old system, and with the new offices, were many eloquent supporters and propagators of the principle. Mr. Baylis had not exaggerated in the slightest degree the best purpose to which the principles of assurance might be applied, and concluded by saying that he advised them not to be content with five per cent. profits, but to look for ten per year, feeling assured that they were fully entitled to receive and a half per cent. As an actuary he could prove that their income ought to be fairly spread over the whole year, and that charging would fairly pay double and treble the dividends they are now receiving. (Cheers.) He said that, as a shareholder, and though under peculiar circumstances in the shape of a large deposit to the amount, he had said they would not fail to do so next year. (Cheers)

Mr. HENRY LAKE, before the question was put, wished to say a few words in regard to the position of the Trafalgar and its kindred offices. They talked of theirs being a young office, and yet he found that the Marquis of Dalhousie, on the 26th of September, 1850, spoke of one of the Scotch offices which was then (except upon investments) as commencing business in 1815 with 40 funds. Mr. Lake then proved, by comparison of the Trafalgar accounts with those of companies with which he was acquainted, that it was doing a good and fair business. He gave all honour to the old companies; but, while they imitated their virtues they would not follow their vices. He had no doubt that this institution must reach large profits for the shareholders, and confer benefits on the community at large.

The Report was then put and unanimously adopted, amidst loud cheers.

Mr. TEULON rose to move the re-election of the retiring directors—Mr. Bermingham and Mr. Garland.

The Rev. G. HENSLOW seconded the motion.

The resolution having been carried by acclamation, the CHAIRMAN said Mr Garland was several times returned thanks and assured the proprietors that no exertions should be wanting on their parts to ensure the continued prosperity of the Company.

Mr. HARDY moved the re-election of the auditors.

Mr. BAYLIS, of Sheffield, seconded the motion, which was unanimously carried.

Mr. TATHAM returned thanks.

The Rev E. JOHNSON, in moving a vote of thanks to the directors, remarked on the satisfactory nature of the supplemental report, which agencies, by stimulating them into new channels of usefulness and advantages, necessarily enlarging the sphere of operations of the Trafalgar.

Mr. EDWARDS, of Bath, seconded the motion, which was carried unanimously.

The CHAIRMAN returned thanks, and assured the proprietors that the directors would ever endeavour to do their utmost to promote the interests of the company.

Mr. BRADLEY had great pleasure in moving a vote of thanks to their medical officer, Dr. Lloyd.

Mr. WILSON seconded the resolution, which was passed unanimously.

Dr. LLOYD returned thanks, and assured the proprietors that the greater the number of parties he had to examine the more he would be satisfied.

The Rev. E. JOHNSON had a proposition to make which he was sure would meet with the approbation of every gentleman present—it being a vote of thanks to their friend Mr. Thomas Baylis, the manager of the institution, to whose zeal and ability they were most deeply indebted. He had various opportunities of witnessing the exertions of Mr Baylis, and he could truly say that the prosperity of the Trafalgar was wholly due to the exertions of that gentleman, and to the ability and spirit with which he carried on the business of the company in man being better enabled to carry out the principles of life assurance than Mr. Thomas Baylis. (Cheers.)

Mr. THOMAS H. BAYLIS, who was very warmly received, said he felt he could not express his sense of gratitude as he wished to do, for the very kind manner in which his name had been mentioned; and that it was a source of the utmost gratification to him to know that the exertions which it was only his duty to bring to bear upon the promotion of the interests of the Company had met with their approval. (Cheers.) He was de ighted beyond measure that the results that they had that day been enabled to present to the shareholders and the public who had served them their support, had met with their unanimous and cordial approbation, and which was a sufficient return to him for any anxiety or labour which he had brought to bear in the development of the principles on which the Trafalgar was founded. (Cheers.) He assured them he was not insensible to the responsibility that devolved upon him as their manager, nor to the position of others similarly situated. He strove to the best of his ability to discharge his duties effectively and conscientiously, and in such a way as to merit their approbation. (Cheers.) The speeche delivered that day in praise of the Trafalgar, and generally upon the importance and necessity of life assurance would, he was certain, animate every gentleman present to add them in the g eat work in which they were all engaged. They would, he believed, carry home with them feelings of a more exalted kind upon the nature of life assurance than those with which they entered the room. They were met abroad, and could afford to despise the attacks of Mr. Christie and others, for he considered no true man who wished well to his fellow creatures, and who yet spoke against life assurance based upon principles like those offered to the public by the Trafalgar, deserving of a name else than condemnation. (Hear.) The old offices were established for life assurance only, offering no collateral advantages; and, moreover, imposed restrictions upon their customers which tended to retard and confine, within a narrow circle, the practice of life assurance. The difference between the old offices and the Trafalgar was this, that whereas the former gave but one advantage for the premium of 1l. 1s or 2l. 10s. whatever the sum might be, the latter gave five advantages. (Cheers.) He hoped they would all take a copy of the Report with them, and show it to their friends. He assured them and any director, clerk, or other person employed at the office would bear him out in what he said—that there was not one item that had been incurred in the whole course of their transactions, whether favourable or unfavourable, that was not to be found in the financial statement that had been furnished. (Hear.) In the first place, they gave an account of the business transacted during the first year, against which they set the losses sustained during the second; and he need not direct their attention to the large margin exhibited, denoting the great progress that they had made in the second year as compared with the first. Their business was more than doubled their income in the second year. That they had gratifying to all who had heard the statement. They went, however, further, and gave the exact amount of their losses; and he would venture to assert that the directors of very few of the old offices would furnish the full amount of their losses in each year, unless called upon to do so by the voice of their shareholders. (Hear.) They had also furnished a financial statement from the time of the closing of the year's accounts to the 30th of September last; but they must bear in mind that the whole of the 3,300l. set down as the amount of the losses was actual made known up to that date; in fact, up to that period they had only received official information of losses to the extent of 1,500l. (Hear.) As, however, they happened to learn of these losses from the obituary of the *Times*, they had deemed it well to mention in the report the whole amount which they were liable to pay, and ready to discharge. (Hear.) There was nothing then behind the scenes in the Report with or unfavourable, the balance sheets contained every habit ty; all had been seen by every person present. They would, doubtless, preserve copies of the report and balance sheet for purposes of comparison with those of future years, and from all he knew, and having a firm reliance in the integrity of the company, he considered he could confidently believed that next year they would have an improvement, not only in the business, but in their financial position. The directors could not, however, avoid alluding in the report to the attacks made on the new system of life assurance, because they had been attacked and cast upon the directors and himself a good deal of correspondence in consequence of the form in which it had attempted to create in the minds of those connected with the offices. Some few had been engaged, or had rather engaged themselves to traduce them, and these parties had, indeed, succeeded, with a plausible manner, but unsuccessfully, to undermine the interest of the Society. They were going to their connections and calumniating it. He declared that perhaps he had been more severe upon the friends and supporters, than upon the enemies of the institution, in dealing in the report to the attacks made on the new offices, because he considered that they were connected with the trade. These people said further, that that society contributions of this kind. Nothing could be more calculated to bring more calumnies. In order that their friends and the public generally, for the future, might have a statement of their affairs laid before them, they had determined to publish a balance sheet at the most unfavorable financial statement they should ever be able to furnish. He said they never could be enabled to ask questions, which would be freely answered. He had been pronounced that their income next year would be 20,000l. He was doubtless a little premature in stating that he hoped it would be realised. He did not think, however, but he considered that in the tenth year did a greater amount of business than the old offices had done in the second year. (Hear.) Certainly new business they had done, and if they intended to stop in Pall Mall, for they felt they were entitled to do so from Parliament, the principles were such that they in every part of England. (Cheers.) And as they advanced in this new route, the more they would go from Birmingham to Leeds, then on to Newcastle, and finally to Edinburgh, for which they would challenge Mr. Christie to a fair stand up fight of principles in this new town. (Loud cheers.) His brother, the founder of the Trafalgar, had recently produced a pamphlet which for its philosophical arrangement, and as showing the great capabilities of life assurance, must be read by every one. The statistics and arithmetic contained therein had been drawn up by him (Mr. Baylis) unwillingly, but the institutions he had defended would live as long as the sun might endure, the name alone would be a benefit to them elses and their kindred. He, therefore, felt he better occupation than to serve them, to provide for the welfare of the shareholders, and that in the days to come, the good wishes of shareholders and policyholders, but to enlist the sympathies of thousands of whom were yet unborn, in its behalf, by extending to their parents, and of which they could become participators. Take the Equitable, the main item of the company would not be dividends by 6d were included, and at future periods 1s. But in the Trafalgar the money appreciated at the divisions for the quinquennial purposes specified in the deed would remain for ever as a fund for these great ends; if they could afford to attend to the fire children at the first division, at the next they could elect another after year policies on the same principle as the first. (Hear.) He then referred to the vast numbers who would be elected, appointed, and relieved. This "Equitable" was little more than an ordinary man's object yet it was terminated in the grave, it had not attracted of life years much public attention; the new office was to be one so, and hence they had excited their envy, and they were spending their money in trying to stop the onbalance of the public with respect to them. But they could not do it; they had to create a dissatisfied shareholder every one had received notice to attend, but one had uttered a complaint or pronounced a censure. (Hear.) He wished they had all come, so that they might have heard all the good things that had been said. (Loud cheers.) Why, they had even taken the door off the hinges so as to afford them all the room possible. They had not introduce any mystery into their proceedings they had no desire to screen as the old offices (Hear) They invited the public to attend, and the Trafalgar would become like an inverted sugar-loaf, expanding from its base to the top, and that year after year they should be enabled to report the transactions of a vastly increased amount of business, as compared with its predecessor. (Loud cheers.)

Votes of thanks were next given to the agents, and acknowledged by Mr. MARSHALL and other gentlemen; to Mr. Wieland and the junior officers, responded to by Mr. WIELAND, in a very able and eloquent speech, in which he stated that the example set by their principal induced activity among the clerks, and that gentleman's kindness and willingness rendered their labour one of love; to Mr. Smith, for his lecture in Sheffield; to Mr. Taylor, the solicitor; and to the Chairman.

The meeting then separated.

LONDON (WATFORD) SPRING WATER COMPANY,

to be incorporated by Act of Parliament, which will limit the liability of the shareholders, and in re-pect of which the plans, sections, and books of reference have been duly deposited in compliance with the Standing Orders of Parliament. (Provisionally registered under the Act 7 & 8 Victoria, cap. 110.)

CAPITAL, 400,000*l.* in 16,000 shares of 25*l.* each.

Of which 1*l.* 7*s.* 6*d.* per share will be payable on signing the Parliamentary Contract, and no further call will be made until the Act has been obtained.

AUDITORS.

Haukes Currie, esq. M.P. 29, Cornhill, and Hyde-park Terrace.
Henry Thomas Hope, esq. 118, Piccadilly; and Deepdeene, Dorking, Surrey.

DIRECTORS.

Colonel Michael Edward Bagnold, 38, Hamilton-terrace, St. John's Wood.
George Hinton Bovill, esq. 19, Abchurch-lane; and Wimbledon, Surrey.
Thomas Dakin, esq. 33, Abchurch-lane, and Hornsey
Walpole Eyre, esq. 23, Bryanston-square
James Lawrie, esq. Cousin-lane, Upper Thames-street; and Cambrian Villa, Hackney
Thomas Hayter Longden, esq. Tokeahouse-yard, and Eanismore-place, Princes gate, Hyde-park
Benjamin Oliveira, esq. M.P. F.R.S. 8, Upper Hyde-park-street
James Pounsford, esq. 34, Palace-gardens, Kensington; and Hackwood-park, Hants
Sir Robert Price, bart. M.P. 11, Stratton-street, Piccadilly; and Foxley, Herefordshire
William R. Robinson, esq. 21, Austin-friars, and Hill House, Acton
James Warren, esq. 96, Houndsditch; and Capel House, Enfield
(With power to add to their number.)

ENGINEER.

Samuel Collett Homersham, esq. 19, Buckingham-street, Adelphi.

SOLICITORS.

Messrs Maltby, Robinson, and Jackson, 7, Bank buildings, Lothbury.

PARLIAMENTARY AGENTS.

Messrs. Law, Holmes, Anton, and Turnbull, 18, Finsbury-street, Westminster.

BANKERS.

Sir Samuel Scott, bart. and Co. 1, Cavendish-square; Messrs. Currie and Co. 29, Cornhill.

SECRETARY.

Benjamin Rankin, esq.

TEMPORARY OFFICES,
39, Moorgate-street.

PROSPECTUS.

Application was made to the Legislature in the last session of Parliament for an Act to incorporate a company under the above title, and the Bill was carried through the second reading of the House of Commons by a majority of three to one; 196 members voting in favour of the Bill, and 65 against it.

Subsequently the Bill with ten other Bills relating to the supply of water to the metropolis were all referred to the same committee of the House of Commons; but owing to the Bill being taken up the very last in order, it was not until Tuesday, the 14th of June last, that the proceedings upon it could be commenced before the committee. In consequence of this delay the proceedings could not be complete before the House of Commons was dissolved.

It is therefore now requisite to renew the application to the Legislature in the next session of Parliament, but the valuable evidence given before the committee in the last session in favour of the undertaking and the Bill, although from want of time it could not be completed, was published by order of the House of Commons in a blue book, for the use of Parliament and the public, and cannot fail materially to facilitate the early obtaining of the powers sought by the present application.

The object of this company is to supply, at a cheap rate, the inhabitants of the cities of London and Westminster, and the boroughs of St. Marylebone and Finsbury, and the following places intermediate between those and the source of supply,—namely, Barnet, Bushey, Edgware, Elstree, Finchley, Hadley, Hampstead, Harrow-on-the-Hill, Harrow Weald, Hendon, Kingsbury, Mill-hill, Pinner, Stanmore, Sudbury, Totteridge Watford, Whetstone, Willesden, with pure soft spring water, distributed through pipes constructed so as to act upon the mere turning of a tap it may be got fresh from the mains, without the intervention of a cistern, even in the top stories of the highest houses

The water will be procured at Bushey-meadows, near Watford, from the foot of a vast range of chalk hills through which an enormous volume of subterranean spring water at present escapes in underground currents to the sea. In 1840, Mr. Robert Stephenson, the eminent engineer, having made a series of experiments and observations on a shaft and borings that had been sunk in the chalk in this locality by Mr. Robert Paten, for the purpose of demonstrating how copious a spring water could be obtained for the supply of the metropolis, reported, as his conclusion, "I am perfectly convinced of the feasibility of the proposed plan, as far as regards quantity," a conclusion that subsequent experience and investigation have confirmed.

Professors Graham, Miller, and Hoffman, the eminent chemists, appointed in 1851 by Government, as a commission, to consider the chemical quality of the supply of water by the metropolis, when alluding to water from the chalk intended to be supplied from Bushey meadows, thus express themselves in a report addressed to the then Home Secretary of State, and dated the 17th of June last year: "The inhabitants of London appear to have within their reach, in these chalk strata, a supply of water, which is asserted, on good authority, to be inexhaustible, and which may be considered as everywhere of an uniform composition and quality. * * * It contains absolutely nothing of organic origin wholly unobjectionable, on the ground of organic constituents. Its clearness and brilliancy also appear perfect, from the complete absence of suspended matter, and are highly attractive. Possessing at all seasons the mean temperature of the year, the rain-water has an agreeable coolness and freshness, which might certainly be preserved in a great degree by proper means of conveyance and distribution. The only other quality desired in a source of supply was softness. * * * The softening operation, by the use of lime" (proposed by Professor Clark of Aberdeen, which frees the water from grains of chalk per pint, or 1 in 70 per million gallons), "without leaving anything else in the water in the place of the chalk," is applicable in all seasons to the spring water, which indeed adapts itself with singular felicity to that process. * * * The chalk spring waters can thus be communicated with certainly under three degrees of hardness, which is probably the extreme limit attainable in any where in England for a great supply." The water of the present companies is reported by the same authority to be about forty degrees of hardness. "The chalk-spring water, after being softened," resumes the learned Commissioners, "is an extremely pure water. It appears to be considerably superior even to the soft water from the streams of the sandy sand. The chalk water also is uniform in its excellence at all times, the quality of it, in its softened state, continuing alike in summer and winter. In the judgment of the Commissioners, thus softened chalk water is entitled, from its chemical quality, to a preference over all others for the future supply of the metropolis."

At Bushey Meadows the spring-water spring waters on the banks of the Thames in London. This water, after being softened, would be pumped through pipes buried in the green turf in a gravelly bed covered as to maintain the uniform temperature of the water at all seasons, and carried on 3 miles to a reservoir at a sufficient elevation to cause it to flow through pipes into the district named, and to rise to all the highest grounds and buildings.

At a charge of from one-third to one-half less than the charges of the Grand Junction and West Middlesex Waterworks companies, a clear profit of 11 per cent. would be returned upon the capital expended in the undertaking.

The well-attested superiority of the quality of the water, the equally unrivalled quantity at command, and the simple and cheap manner in which it is required to be procured and distributed, unite to recommend the undertaking to the public, and especially for making a new and permanent supply for the metropolis, which plans already named engage to furnish.

The whole capital of the Company, 400,000*l.*, is only asked for at present, and that exists in the Metropolis for a more safe investment than can now be proposed to be supplied to shareholders. The full flow, and, after filtration, and when required, under pressure from the pipes of the companies before supplying any others, has been proved to contain much less than 1 part of organic and animal matter in a million of parts; and that small proportion of vegetable matter, besides nearly the same number of vegetable and animal other plants and organisms in every half gallon of such water, to say nothing here of the number that there is of each species. The spring water from Watford, after most careful examination, has been found to be quite free from these contaminations; and while the placing at a cheap rate a constant supply of so pure a water within the reach of the inhabitants of the districts of the Metropolis, and the unsupplied places before named, cannot fail to confer an important and lasting benefit upon them, at the same time it must tend to stimulate in the most effective manner the improvements so much required in the water supply of the other districts. Thus the undertaking has a claim to the support of every inhabitant of this great Metropolis.

39, Moorgate-street, December, 1852.

Applications for shares to be made in the annexed form, addressed to the Secretary of the Company, on or before Saturday, the 18th of December instant, at the Offices, 39, Moorgate-street, or to Messrs. JOHNSON, LONGDEN, and CO. Stockbrokers, Tokehouse-yard, where prospectuses and forms of application for shares may be obtained.

FORM OF APPLICATION FOR SHARES.

To the Directors of the London (Watford) Spring Water Company.

GENTLEMEN,—I request that you will allot me shares of 25*l.* each in the above undertaking, and I agree to accept the same or such less number as you may allot me, and I undertake to pay the deposit of 1*l.* 7*s.* 6*d.* per share thereon, and to execute the Parliamentary Contract and Subscribers' Agreement when required so to do.

Dated this day of ,185 .

Name and Surname in full .....
Residence .....
Description .....
Reference .....

INDISPUTABLE LIFE POLICY COMPANY,

73, Lombard-street, and 34, Connaught-terrace.

TRUSTEES.

Richard Malins, esq. Q.C. M.P. | Richard Spooner, esq. M.P.
J. Campbell Renton, esq. | James Fuller Madox, esq.
William Wilberforce, esq.

Whether as Family Provisions, or to be used for Loans and other pecuniary transactions, Indisputable Policies are the only certain and available Life Assurance Securities.

ALEX. ROBERTSON, Manager.

PROVIDENT LIFE OFFICE, 50, REGENT-STREET; CITY BRANCH: 2, ROYAL EXCHANGE BUILDINGS. Established 1806

Invested Capital, £1,311,761.
Annual Income, £153,000. Bonuses Declared, £743,000.
Claims paid since the establishment of the Office, £2,087,738.

PRESIDENT.

The Right Honourable Earl GREY.

DIRECTORS

William Henry Stone, esq. Chairman.
Henry R. Alexander, esq. Deputy Chairman.

Henry Blencoe Churchill, esq.
George Dacre, esq.
William Judd, esq.
Sir Richard P. Kyng, bart.
The Hon. Arthur Kinnaird, M.P.
Thomas Maugham, esq.
Benj. Oliviera, esq. M.P., F.R.S.
William Ostler, esq.
Apsley Pellatt, esq. M.P.
George Round, esq.
The Rev. James Sherman.
Frederick Squire, esq.

J. A. Beaumont, esq. Managing Director.

PHYSICIAN—John Maclean, M.D. F.S.S. 29, Upper Montague-street, Montague-square.

Nineteen-twentieths of the profits are divided among the insured.

EXAMPLES OF THE EXTINCTION OF PREMIUMS BY THE SURRENDER OF BONUSES.

Date of Policy	Sum Insured.	Original Premium.	Bonuses added subsequently, to be further increased annually.
	£	£. s. d.	£ s. d.
1806	2,500	79 10 10 extinguished	1,222 2 0
1811	1,000	34 16 10 ditto	511 17 8
1818	1,000	34 16 10 ditto	114 15 10

EXAMPLES OF BONUSES ADDED TO OTHER POLICIES.

Policy No.	Date.	Sum Insured.	Bonuses added.	Total with additions to be further increased.
		£	£ s. d.	£ s. d.
521	1807	900	982 12 1	1,883 12 1
1174	1810	1,000	1,160 5 6	2,260 5 6
3892	1830	5,000	3,558 17 8	8,558 17 8

Prospectuses and full particulars may be obtained upon application to the Agents of the Office in all the principal towns of the United Kingdom; at the City Branch; and at the head Office, No. 50, Regent-street.

CLERICAL, MEDICAL, and GENERAL LIFE ASSURANCE SOCIETY.

ADVANTAGES OFFERED

EXTENSION OF LIMITS OF RESIDENCE.—The assured may reside in most parts of the world, without extra charge, and in all parts by payment of a small extra premium.

MUTUAL SYSTEM WITHOUT THE RISK OF PARTNERSHIP.

The small share of Profit distributable in future among the Shareholders being now provided for, with an unbroken fund on the amount made by the recent business, the Assured will hereafter derive all the benefits obtainable from a Mutual Office, with at the same time, complete freedom from liability, secured by means of an ample Proprietary Capital—thus combining in the same office all the advantages of both systems.

The Assurance Fund already invested amounts to 850,000*l.* and the Income exceeds 150,000*l.* per annum.

CREDIT SYSTEM.—On Policies for the whole of Life, one half of the Annual Premiums for the first five years may remain on credit, and may either continue as a debt on the Policy, or may be paid off at any time.

LOANS.—Loans are advanced on Policies which have been in existence five years and upwards, to the extent of nine-tenths of their value

BONUSES.—Five Bonuses have been declared; at the last in January 1852, the sum of 151,125*l.* was added to the Policies producing a Bonus varying on the different ages from 24*l.* to 5*l.* per cent. on the Premiums paid during the five years.

PARTICIPATION IN PROFITS.—Policies participate in the Profits in proportion to the number and amount of the Premiums paid between every division, so that if only one year's Premium be received prior to the books being closed for any division, the Policy on which it was paid will obtain its due share. The books close for the next division on 30th June, 1859, therefore those who effect Policies before the 30th June next, will be entitled to one year's addition to their share of Profits at that division.

APPLICATION OF BONUSES. The next and future Bonuses may be either received in cash, or applied at the option of the assured in any other way.

NON PARTICIPATING.—Assurances may be effected for a Fixed Sum at considerably reduced rates, and the Premiums for Term Policies are lower than at most other safe Offices

PROMPT SETTLEMENT OF CLAIMS.—Claims paid *thirty* days after proof of death, and all Policies are *Indisputable* except in case of fraud.

INVALID LIVES may be assured at rates proportioned to the increased risk

POLICIES are granted on the lives of persons in any station, and of every age, and for any sum on one life, from 50*l.* to 10,000*l.*

PREMIUMS may be paid yearly, half-yearly, or quarterly; but if a payment be omitted from any cause, the Policy can be revived within *fourteen* months.

The Accounts and Balance Sheets are at all times open to the inspection of the Assured, or of *persons desirous to assure.*

A copy of the last Report, with a Prospectus and Forms of Proposal, can be obtained of any of the Society's Agents, or will be forwarded free by addressing a line to

GEORGE H. PINCKARD, Resident Secretary.
99, Great Russell-street, Bloomsbury, London.

CALEDONIAN INSURANCE COMPANY

Established 1805.
London Offices, 27, Moorgate-street.

DIRECTORS.—John Rannie, esq. Chairman.

John Charles Conybeare, esq. | Joseph Dowson, esq.
John Earley Cook, esq. | George Scamell, esq.

The number of Policies issued annually has been nearly trebled during the last six years.

Five-sixths of the profits are divided amongst the assured. At the last Septennial Division a Bonus, amounting in many cases to half the premiums paid, was declared.

Policies may be made indisputable after five years.

Prospectuses, &c. forwarded, on application to

EDWARD F. SEALY, Manager.

IMPERIAL LIFE INSURANCE COMPANY,

1, Old Broad-street, London.
Thomas Newman Hunt, esq. Chairman.
John Horsley Palmer, esq. Deputy-Chairman.

A NEW SCALE OF PREMIUMS on Insurances for the whole term of life has recently been adopted, by which a material reduction has been made at all ages below 50 years.

FOUR-FIFTHS, or 80 per cent. of the Profits are assigned to Policies *every fifth year*, and may be applied to increase the sum insured, to an immediate payment in Cash, or to the reduction and ultimate extinction of future premiums.

ONE-THIRD of the Premium on Insurances of 500*l.* and upwards, for the whole term of life, may remain as a debt upon the policy, to be paid off at convenience, by which means 1,500*l.* may be insured for the present outlay otherwise required for 1,000*l.*

LOANS.—The Directors will lend sums of 50*l.* and upwards on the security of Policies effected with this Company, for the whole term of life, when they have acquired an adequate value.

SECURITY.—Those who effect Insurances with this Company are protected by its large Subscribed Capital from the risk incurred by Members of Mutual Societies

INSURANCES without participation in Profits may be effected at reduced rates. SAMUEL INGALL, Actuary.

MERCHANT'S & TRADESMAN'S MUTUAL LIFE ASSURANCE SOCIETY.

TRUSTEES

Jeffery Smith, esq. | David Ferguson, esq.
Thomas How, esq.

ADVANTAGES OFFERED BY THIS SOCIETY.

Policies indisputable, except in cases of fraud.
All the medical fees paid by the Society.
Assurances of every description effected.

NON-FORFEITURE OF POLICIES.

Assurers who find it inconvenient, to pay their premiums as they fall due, may have a credit on application to the board.

Loans granted on personal and other securities, in connection with life assurance. BONUS

The following table shows the Bonuses declared on Policies effected with this Society prior to 9th March last:—

No of prems.pd.	Age when assured.	Annual premium	Sum assured.	Bonus added.	Amount now assured.
		£ s. d.	£	£ s. d.	£ s. d.
5	55	35 19 2	1,000	24 13 0	1,024 13 0
4	40	32 19 2	1,000	65 0 0	1,065 0 0
3	30	34 15 0	1,000	43 14 5	1,043 14 5

GEORGE THOMSON, Manager.
5, Chatham-pl Blackfriars. THOS. MUSGRAVE, Secretary.

SCOTTISH EQUITABLE LIFE ASSURANCE SOCIETY, Incorporated by Special Act of Parliament,

10 Vict. c. 35. Head Office, 21, ST. ANDREW-SQUARE, EDINBURGH.

The Report by the Directors to the TWENTY-FIRST ANNUAL MEETING, held on 4th May, showed the following to be the position of this Society:—

The Sums Assured amounted to £3,737,360
The Annual Revenue 136,960
And the Accumulated Fund 668,531

Large Additions have been made to Policies. For example, a Policy for 1,000*l.* dated 1st March, 1833, becoming a claim after payment of that premium for the year, would receive 1,516*l.*; and policies of later date in proportion.

The next Triennial Allocation takes place on 1st March, 1853, when an additional Bonus will be declared.

POLICIES RENDERED INDISPUTABLE.—The Directors have arranged that Policies may, under certain conditions, be declared indisputable on any ground whatever, after being of five years' endurance, and the Assured be entitled to travel or reside beyond the limits of Europe, without payment of extra premium for such travelling or residence

ROBERT CHRISTIE, Manager.

*** Medical Referees paid by the Society.

Forms of Proposal, and all other information, can be had (free) on application at the Society's Office, 126, Bishopsgate-street, (corner of Cornhill), London. WILLIAM COOK, Agent.

NO ERROR WILL VITIATE A POLICY.

PELICAN LIFE INSURANCE COMPANY,

Established in 1797, 70, Lombard-street, City, and 57 Charing-cross, Westminster.

DIRECTORS.

Robert Gurney Barclay, esq.
William Cotton, esq. F.R.S.
William Davis, esq.
Richard Fuller, esq.
Jas. A. Gordon, M.D. F.R.S.
Henry Grace, esq.
Kirkman D. Hodgson, esq.
Thomas Hodgson, esq.
Henry L. Holland, esq.
J. Petty Muspratt, esq.
C. Hoppiler Turner, esq. F.R.S.
Matthew Whitaug, esq.

AUDITORS.

Emanuel Goodhart, esq. | John Davis, esq.
John Haggard, D.C.L.

BONUS

At a division of Profits declared up to 3rd July, 1847, the Bonus added to Policies, effected in the seven preceding years on the "Return System" averaged Thirty-four per Cent. on the premiums paid. Four-fifths or Eighty per Cent. of the Profits are divided amongst the Policy holders.

LOANS in connection with Life Assurance on approved security.

Annual Premium required for the Assurance of £100 for the whole term of life:—

Age.	Without Profits.	With Profits.	Age.	Without Profits.	With Profits.
	£. s. d.	£ s. d		£. s. d.	£. s. d.
16	1 11 0	1 15 0	40	2 18 10	3 8 5
20	1 14 10	2 0 9	50	4 0 9	4 10 7
30	2 4 0	2 10 4	60	6 1 0	6 7 4

ROBERT TUCKER, Secretary.

TARPAULINS FOR COVERING ROOFS

during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention. WILLIAM HIGGOTT, 115, Fore-street, City. Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

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The Builder.

SATURDAY, DECEMBER 18, 1852.

IT appears that we have unwittingly transgressed, by our report of the discussion on pipe drains and brick sewers at the Institution of Civil Engineers (see page 767, *ante*); the Council of the Institution objecting to the publication of any but "authorised" versions of what is said there, which are sent to a certain portion only of the press. We will not stop to consider now what is involved in this arrangement,—its expediency or otherwise,—nor would we willingly do anything that might be considered offensive by the Council of the Institution, for whom we entertain the greatest respect. The subject under discussion is one of such great and pressing interest at this moment, and we have received so many requests from various parts of the country to inform our readers of the opinions publicly expressed at the Institution, that we feel bound to communicate all we know about it, and feel certain that we shall be held excused by the Council, pending their reconsideration of the rule in question, if we complete our report of the proceedings. The more so, too, as we are assured that the majority of the speakers on the occasion, so far from wishing to disguise their opinions, are anxious that publicity should be given to them. We report to-day, and always, the discussion of such subjects brought before the Institute of Architects, (with the full concurrence of that distinguished body), as seem likely to interest or benefit the public, as other journals do in the case of other societies; and it seems difficult to find a good reason why what is said in the open meeting-room of the Institution of Civil Engineers should be viewed differently. There are indeed weighty reasons why speakers at such institutions should know that their observations *may* be reported. These, however, we pass by: we have not the slightest wish to be thought troublesome,—very far from it. Our only desire is to be useful at an important juncture. The time is gone by for mere generalities on the subject; nor will the public be satisfied in this particular matter with knowing only the inference drawn from the discussion by the officers of the society, ably as it may be done. They are looking for the actual opinions and experience of men whose reputation is known to them, and who, it may be supposed, are quite willing to assist those who are interested in the matter in arriving at a sound conclusion.

Without further preamble or apology, then, let us look to the resumption of the discussion on the 7th inst. when Mr. Rendel, the president, was in the chair, and the following remarks were, we believe, made:—

Mr. Toulmin Smith said,—in his opinion they had to consider the practical value of maxims and principles recently laid down by certain authorities in reference to house drainage. It had been laid down by Mr. Rawlinson, the reader of the paper, that it was unnecessary to construct a sewer large enough for a man to go up, unless required for the flow of sewage, &c.; also that sewers should not receive the suburban drainage. Upon these and other questions he was prepared to join issue; and being at present engaged superintending the drainage of some parishes in London, he had (though not an engineer) some practical information on the subject, which might entitle him to speak. Formerly the sewers were used exclusively to carry off the surface water: the system now advocated was to exclude the whole of such waters. This, he contended, would be an innovation, and erroneous. It was said Nature provided for the rain-fall, and also provided for its removal; but when man interfered with Nature's provisions, the removal should be otherwise provided for. At Highgate-hill he had, in a short length of sewer, provided nineteen gully-holes, to prevent flooding, which usually occurred after heavy rainfalls. This treatment, he stated, produced the desired effect. He said it was admitted by authorities, that the pipe system required perfection, not only in the pipes and material of which they are made, but also in the mode of laying. Perfection in all these points could not be attained, and therefore brick sewers were cheaper, as they provided for every contingency; and, if a stoppage occurred, a man could be sent up to examine and find out the cause. Every difficulty could be met by the brick sewers, without the increase of expense which must result from the other system. At Holloway a pipe drain had been laid down and removed. The health of a town population required that the subsoil should be well drained: this could not be done by impermeable pipes, but might be effected with brick sewers. Besides, the natural tendency of the pipes is to loosen and undermine their own foundations. He could not account for the public being led away without making inquiry on the subject.

Mr. Smith then proceeded to descant upon the General Board of Health, and the powers they exercise under the Act of Parliament, and asked whether engineers were to be regarded as clerks of works, under the authority of any bureaucratic body, but was reminded by

The Chairman that it was necessary to confine himself to the subject of drainage, which was the question before them.

Mr. Smith, in conclusion, said,—some time ago they were told that flushing was necessary. Now they were told the reverse. He thought that tubular drains might be useful for house drainage and short distances, but otherwise they should not be used. Engineers ought not to bow to any particular authority, but should listen to, and be guided by, science and practical experience.

Mr. P. Holland said they might as well try to convince Manchester men that calico was unfit for shirts, as to convince him that pipes were unfit for drainage. Admit a limit to the use of pipes: the question for their consideration was, whether the proper limit had been fixed in the paper before the Institution. He could not assent to the proposition that it is necessary to construct sewers larger than otherwise wanted, on purpose to allow men to enter them. The direction of the discussion appeared to be that brick sewers had no evils; but, in his opinion, they had all sorts of evils, which, if not obvious to sight, were at least so to the smell. It had been stated that the Richmond drainage was, to a great extent, a failure; but he could inform them that an inquiry had recently been made, 100 houses were taken indiscriminately, and the occupants of such were satisfied with the working of the drains.

Mr. G. Donaldson said the speaker referred to statements which had not been made by him.

Mr. Holland said that Mr. Donaldson had pointed to a drawing now on the walls before them, showing a pipe with a brick arch turned over it; and that, too, in such a manner, that the inference drawn from his observation could not be other than that this drawing represented the general system at Croydon; whereas the fact was, that out of seventeen miles of house and street drains, there had been but some 300 yards of failure, and this failure was readily accounted for. He did not consider the public had been led away without inquiry, and urged, as proof of the increasing public confidence (in the system of pipe drainage), the fact, that the manufacture of pipes, which a few years ago was very limited, had now become a branch of industry of national importance; so much so, that hundreds of miles of pipes were manufactured every year, and the demand is greatly on the increase.

In reference to a few observations by the chairman, Mr. Holland said he only wished to correct what had been stated as to the failure of pipes; and would conclude by one example showing the comparative cost of the two systems. At Rugby, the cost of the pipe drainage had been 3,600*l.* whereas if the usual sort and size of drains had been laid down, the cost would have been 15,000*l.* This statement he made on the authority of the engineer.

Mr. Bidder said it would have been more satisfactory had the engineer been present to give (personally) the result of his experience.

Mr. Plum said, in his opinion, the area of a town should be more perfectly underdrained than agricultural land; therefore, if pipes could be used with open joints, how much better to adopt that course than continue the use of close jointed glazed pipes. They ought to hesitate before acquiescing in the principle of mixing house drainage matters with the surface water drainage: they might as well put all dust and refuse of every kind down the drains as adopt such a system.

Mr. Lovick, in reference to the Kilburn failures (of pipes) said he considered it due to the late Mr. Frank Foster (who advised the adoption of those pipes) to state the cause of failure, namely, the improper removal of the timber shoring in a deep trench, which caused the sides of the trench to give way, so that the whole of the earth fell in and crushed the pipes.

The Chairman said, with reference to some desultory observations, that the discussion had certainly taken a very wide range, and it would be necessary to bring it back to the practical points which were really involved in the question. He hoped, therefore, that when the question was again brought before them, gentlemen would limit themselves to the results of their own practical experience on the subject.

When the subject was resumed on the 14th, the Chairman (Mr. Rendel) repeated this very proper advice, and said, though the question of the relative merit of the pipes made by different manufacturers was of importance (and a paper on the subject of the manufacture of pipes would, he was sure, be of great interest to the members), he begged that it might not be introduced that evening, as it was not relevant to the matter really before them.

Mr. May said, that the object of some of the schemes advocated by the Board of Health seemed to be the preservation of the sewage, for ultimate use; but he thought that in the drainage of any place, the object was to get the sewage removed as speedily as possible, and that the preservation of it was not in the first instance an important end to be gained. In some few places it (the sewage) might be applied with advantage; but they were only exceptions, and ought not to be adduced in support of a general system. He also alluded to the statements made in Mr. Rawlinson's paper as to the mortality at the Portland Prison, and contended that, if those statements were to be received for anything they would lead to the presumption that lives there would be extended to 150, 180, and even 200 years. That showed the caution with which such statements should be received.

Mr. Robert Stephenson said that, on such a question as this, honest facts fell with weight; but he regarded abstract principles and theoretical schemes as quite inapplicable in the drainage of towns. He had certainly seen much, and was therefore perhaps entitled to speak from experience on this matter. When he first joined the Sewers Commission he fancied that he understood the subject; but

the mass of communications constantly received there was so confusing, that at length he resolved to judge by personal inspection,—and he had spent much time in visiting the different localities and seeing the sewers for himself. As to pipes, he would not touch one. He hated the very name of them, and felt inclined never to mention the word again. Mr. Rawlinson had stated that he fully expected to see the Legislature ultimately pass an Act to forbid men going into sewers, just as they had already forbidden boys going up chimneys. Now, he thought that there was no comparing the two subjects. In the one instance, persons were prevented from making boys go up chimneys, whereas, in the other case, men who voluntarily followed the occupation were free agents, and were not compelled by any one to go into the sewers. Besides, there were numerous callings rendered necessary by the wants of society which were injurious to health, and far more injurious, it should be remembered, than going down into the sewers, and which it would be folly to suggest should be forbidden by statutory enactment. The danger, moreover, might be in most instances overcome or avoided by engineers, by means of ventilation, &c. He next called attention to the failure of pipes in the St. Giles's district, quoting a report thereon to the Sewers Commission, signed by their secretary, Mr. Woolrych; and proceeded to point out how inappropriate and ineffectual pipe drainage would be in Bermondsey, for example, where the sewers were below high-water mark, and were stopped sixteen hours out of the twenty-four. He would not, in fact, use pipes, for they do not afford any facilities for repair. No sewers ought to be constructed that men could not go up, to inspect and discover at once the spot where any cause of stoppage or other source of failure existed. No fallacy was greater than the delusion that the velocity was greater in small pipes than in sewers of greater size.

Mr. Bidder advocated the use of sound bricks for sewers, not hollow bricks. He quite agreed that the drainage of a town should be an enduring work; but he did not believe that pipes would prove lasting. There could be no question that the healthiness of a district was increased by drainage. That was no recent discovery; but the benefit was shown in young lives, and was almost inappreciable after sixty or seventy years of age. Mr. Roe's tables had been attacked during that discussion; but he had heard that the General Board of Health had paid a large sum of money to become possessed of these tables, and he thought it was much to their credit that they had done so, and published them for the benefit of the country.

Mr. Newland said that he had had considerable experience at Liverpool; and he had always regarded it as the first object to get rid of the sewage, and to have main sewers that admitted of inspection, in case of stoppages or accidents. It was also a great object to cut off the upper waters, and to prevent them from getting down into the lower levels. In the course of draining Liverpool he had laid down some forty miles of pipes as street sewers and yard and house drains, and he had found them work well.

Mr. Simpson said that sixteen years ago he had laid down a 2 feet iron pipe for drainage purposes, one mile in length, and he had never heard of any failure or stoppages in that sewer. He thought, however, that local circumstances must greatly guide the engineer in deciding upon the drainage of any district, and materially influence him in adopting the material of which the drains should be constructed. He thought also that there ought to be means of inspecting the drains to discover any causes of stoppage.

After some conversation, during which Mr. Haywood said that he had, for the sake of experiment, ceased flushing some pipe sewers and drains which had always previously been flushed, and he found that, since Midsummer, there had accumulated in them one inch of deposit,—

Mr. Rawlinson replied, and stated that floodings were not the result of pipe drains alone, but that they also took place where large sewers were laid. He denied that with pipe drainage there were no means of discovering where stoppages occurred, and how they arose. By a careful examination of the state of the house drains on either side of the sewer, the precise spot might easily and speedily be found where the obstruction arose. There had been few failures in the pipe drains laid on the Surrey side of the metropolis, and there the system he advocated had been carried to the greatest extent and worked well. Still, he repeated, local circumstances must always weigh powerfully with the engineer in deciding on any scheme of drains for a district. The advantages of improved drainage would, indeed, he contended, be immense. Improved drainage would give the advantages of equal for unequal and intermittent working of the sewers: it would give quick flow instead of a slow flow; it would substitute circulation for stagnation; it would give short lines and good falls for long lines and bad falls. Pipes for the purposes of drainage would present smooth surfaces instead of rough ones; impervious structures instead of permeable ones; few joints instead of many. In conclusion, he remarked that a gentleman who had opposed pipe drainage (Mr. Hawksley) had, however, recommended them for the drainage of the city of Durham—a curious contradiction to his arguments during the present discussion.

Mr. Hawksley said, that there were local circumstances in that place which admitted of their being used, when they would otherwise have been inapplicable. But even there, he had proposed to introduce them to a greater extent than he should otherwise have done, owing to his conviction that the General Board of Health would not, under other circumstances, have given the requisite sanction for obtaining the money required to carry out the works in question.

Mr. Rawlinson was surprised to hear such a reason given for an engineer departing from his own convictions, and recommending works in which he had not full confidence. Nothing should induce an engineer to yield his own opinions in such a matter; and he could not understand any one reconciling it to his conscience, to lay down in practice what was opposed to his convictions.

This is a brief and imperfect, but we have every reason to believe a faithful outline of this lengthened discussion, in which many of the speakers departed widely from the main question, and several showed a degree of "feeling" on the subject, which would have seemed extraordinary to any not acquainted with previous events.

Some who advocated the new views on drainage attacked, in the first instance, indiscriminately and unwisely, professional men: the professional men, when an opportunity offers, are anxious to return the compliment, and so poor Truth, whom both sides are really and seriously looking for, gets shuffled about, and hidden in the encounter,—hidden, however, we may be quite certain, only for a time, and to shorten that time is our earnest desire.

Rolling Metals Wedge Form.—A patent has been applied for, under the new Act, by Richard Prosser, C.E. Birmingham. The specification states, that the improvement consists in rolling bars of metal, of a wedge form,—that is, leaving one end thicker than the other, or one edge thicker than the other. Two wedge-shaped ingots are taken and superposed one on the other, the thick end of the one being against the thin end of the other, and thus placed they are submitted to the action of the rollers. When the bars are required to have all surfaces smooth, the two ingots or bars are to be withdrawn from contact, and placed so that what was the inner surface becomes the outer.

THE ALLEGED DISCOVERY OF THE CONSTRUCTIONAL LAWS OF MEDIÆVAL CHURCH ARCHITECTURE.

The following are the remarks made by Dr. Henszlmann, at a meeting of the Institute of British Architects, on the 6th inst.:—

There is a striking difference between the effect produced by a church or any other structure deriving its origin from the Middle Ages, and by the buildings of the same style erected in modern times; and as the details of the latter are, in most cases, nothing but strict imitations of mediæval ornaments, the cause of this difference must lie deeper than the ornamental surface: in fact, a somewhat experienced eye will, at least, guess, if not exactly ascertain the fact, from the delightful impression produced by every mediæval building, that there must be a strictly defined law upon which its harmony depends.

It is this harmony which was sought for as far back as the end of the fifteenth century by Mathias Roritzer, an architect of Nuremberg, who wrote a pamphlet on the construction of pinnacles,—"Von der Fialengerechtigkeit,"—translated several times into the English and French languages: it is this harmony, the search for which we meet in other books published in the sixteenth century and later,—it is this very harmony that was sought for by Boisserée, Steigliz, Hofstädt, Cockerell, Billing, Popp, Griffiths, Cesariano, Kallenbach, Heideloff, and other authors on mediæval architecture. Nevertheless, all these writers failed in the attempt, from not considering that the effect of harmony can never be produced in an arbitrary way, but that, on the contrary, it can only be derived by an organic process, in which every larger feature or system of construction engenders the dependant smaller features, and in consequence of which organic process every system (for instance, that of shafts or buttresses), is once more dependant, not only on the principal unity, but also on the relation in which the single systems stand to each other.

A similar law of harmony exists in music, the principles of it being called thorough bass: this latter is known, and (notwithstanding we do not adhere strictly to the natural musical system), has attained a high degree of perfection, whilst the science of architectural harmony flourishing in the middle ages is entirely lost, and for a long time only its former existence has been recorded by a latter product bearing testimony to its dark origin, I mean Freemasonry, which in course of time has taken an entirely different path than that indicated by its very name.

It is true that the human ear has a much more accurately discerning sense than the eye; nevertheless, it is ascertained by the laws of optics, and of linear perspective, and by the obvious harmony of buildings of ancient times, that there is and must be in the human eye a similar discerning power, and a similar mathematical basis, from which the delightful feeling to the mind arises, when it becomes aware of harmony through the medium of the eye. A striking proof of this coincidence or identity of the laws of hearing and seeing, is given in the works published upon these subjects by Mr. Hay, of Edinburgh.

Having become long ago firmly persuaded of the truth of the above statement, I applied myself to the study of the Constructional Laws of Ancient Church Architecture, and after having consecrated many a year to painful toil, had at length the good fortune to rediscover them in their full extent. And this I can assert with propriety, because these laws are founded on mathematics, and I am able to prove them to be correct with the same certainty as any mathematical truth can be proved.

This assertion may seem rather improbable to those who think that the architects of the middle ages cared little for numbers, and who are aware that algebra, in its higher branches, is a comparatively modern science. To these objections I reply, that the architects of old did not employ much reckoning in their constructions, but they used geometrical forms; and as geometrical forms can be resolved in numbers or mathematical forms, whoever

ws the geometrical method used by these
itects, will be able to find the correspond-
mathematical formula. However, the
ient masters supplied the deficiency of the
er by drawing their plans and elevations on
largest possible scale, as is proved by the
plan and elevation of the first planned
ers at Cologne, the "fac-simile" of which
published by Moller—by the yet existing
plans for the Minster at Strasburg—and
the tower of the Ulm-minster, the eleva-
of which we find in Kallenbach's
hronologie"—by many ancient plans and
vations for the Cathedral at Vienna, which
quoted as yet existing in Tschischka's
cription of that church. In all these
chment drawings the scale is so large that
are able to ascertain the measures to the
f, and even to the fourth part of an inch;
thus there can be hardly a mistake in the
asurement, and we must remember that all
se drawings are but general plans, and that
the details, most probably partial plans and
vations were made of the actual size.

In studying and comparing the churches of
middle ages, I became persuaded that out
a ground-line or sum, considered as basis,
re can be developed, either by a geometrical
algebraical method, between thirty and
ty sums or lines, corresponding to the size,
e, and importance of the building, and there
with very few exceptions, not a structural
mber, be it large or small, the proportions
which are not defined by one of these lines
sums, or exceptionally by their multiples
divisions. I say with a few exceptions,
cause there are parts which depend entirely,
t upon architectural rules, but upon the size
the human frame: for instance, a staircase
ust be proportioned to the steps of a man,
d they cannot depend upon the size of the
ructure: such an exception is also the width
the doors or windows, and in most cases
e width or opening of the bays. I have to
d, moreover, that, where a size defined in
integrity according to the principle has, as
bdivisions, smaller or equally strictly defined
zes, one of these smaller sizes always com-
nsates for the deficiency in the whole sum.
It is impossible for a single individual to
ace the above-mentioned laws in every old
ilding still remaining: I therefore confined
y investigations to churches and temples,
d. did not even extend my research to wood
nstruction or vaulting, so far as the latter
xceeds the material of hewn stone. And with
is restriction I was able to analyse the most
nowned Gothic churches in England, Ger-
any, and Hungary, as those of St. Albans,
loucester, Durham, Salisbury, Canterbury,
Worcester, York, Cologne, Friburg, Vienna,
leissen, Marburg, Oppenheim, Kaschau, and
uda. Besides, I traced back to the tenth
ntury the first dawning of the knowledge of
ese laws in Germany, and analysed eighteen
nurches and six crypts remaining in the cen-
al part of that country; moreover, I investi-
ated ten churches on the Rhine, all built in
ie Romanesque style, and six of the Transi-
on period, as those of Limburg, Gelnhausen,
t. Sebald, and Zsambek, the latter being a
ain in Hungary. Not content with the re-
lts obtained in that way, I tested also the
ncient Greek temples, and found the same
rinciple dominant even in the Parthenon, the
mple of Euleithya and some others, only
ifferently applied and less developed.

A sentence of Vitruvius, otherwise unin-
lligible, and the appearance of the same
rinciple in the ruin of the old Doric temple at
orinth, lead me to suppose that we have to
onour Pythagoras as the first discoverer of
nese laws of architectural harmony, which
ere brought from Byzantium to Germany,
robably in the time of Emperor Otto the
irst, and thence propagated through France,
England, and other European countries. But
f we acknowledge Pythagoras, or even any
ther Greek, to have been the first inventor of
he principle, the full development of it is due
o the architects of the thirteenth and four-
eenth centuries, and a Christian cathedral
stands in every respect as high above the finest
Greek temple, as Shakspeare's tragedies sur-
pass those of Sophocles.

The Romans built their temples and basilicas on a different method, which was not organic, but arbitrary: this is proved as well by the theories of Vitruvius as by the greatest part of the remaining ruins: nevertheless, we also find Roman temples constructed on the Greek principle, but then we are obliged to take those buildings for works of Greek masters initiated in the earlier organic method.

As the earliest Christian churches in the Romanesque style were commonly fashioned after the Roman basilica, the principle is the same in both, but even this more arbitrary principle is far different from the entirely arbitrary way used in modern times; for in those buildings a certain part is always regarded as a *unity*, from which, as a fundamental dimension, the proportion of each distinct architectural member is developed.

I am not of opinion that even the best architects of bygone times attained to the highest possible degree of harmony, but surely their best works are not behind the best productions in musical art. This leads me to the firm persuasion that their principle was that of natural harmony, the more so because this principle is at the same time a mathematical and an organic one, since the works constructed on it have a very similar effect upon the mind as harmony in music, and because, as I believe, the same principle will be found dominant wherever different sizes unite to produce a common effect. I therefore think the knowledge of this principle a highly valuable one, not only for architectural but also for many other purposes. Notwithstanding this persuasion I will here dwell merely on its application to architecture, and even slightly touch upon the point that true Gothic buildings cannot be erected without the exact knowledge of the Gothic proportions; that the bare imitation of Gothic ornaments and outlines cannot give a genuine Gothic character to a building; and that a modern work is therefore easily distinguished by an experienced eye from an old one, and indeed not to the advantage of the former. I am further of opinion that, from a knowledge of the true organic proportions, much time, material, labour, and cost would be spared in planning and building, and that whenever a good restoration is required, this knowledge of the principle on which the first plan was raised is almost indispensable. So much for the immediate practical use of my discovery, and that I think, too, that harmony is of practical moment in human life.

It is true that by the bare knowlege of the ancient principle of construction every one cannot at once become a great architect, for no art can be applied to practice without special talent; but, on the other hand, I am sure that, as in music, whoever respects the laws of thorough bass will never produce a piece of composition absolutely bad: so in architecture, whoever makes his works conform to the exigencies of the ancient laws, will, at least, not produce anything contrary to harmony, and that our so rarely meeting with a building of the middle ages, particularly of a religious destination, altogether displeasing, is a proof of the above statements, to which I may nevertheless add, that the knowledge of the master-law was not common to all workmen, even in the middle ages, but was eagerly watched as a deep secret possessed only by the most eminent of them, who were honoured as chief masters: indeed, Professor Kugler tells us, in his history of art, that a bishop was murdered at Utrecht by a master mason, because the son of the latter had revealed to him the architectural master-secret.

I am not as jealous of my secret as the ancient masters were of theirs: on the contrary, I wish to publish it for common use; but as I cannot expect a commensurate reward for the trouble and toil of many years from any bookseller, and as I wish to be enabled to accomplish the work under my hands, and to continue my studies respecting natural harmony, I appeal to you, gentlemen, requesting you to give attention to this matter, and to inquire into the truth of my discovery by appointing a committee, to whom I will lay open the whole economy as well as the details of my work. And in case the committee should be convinced of the correctness and importance of the principle, I would request the society to acknowledge it by a public document. This, and no more, is my request.

Dr. Henszlmann proceeded to read some remarks on the development of the ground plans of Mediæval Sacred Architecture in Germany and Hungary, which had guided him in the selection of his examples, as well as in making his researches into the laws of stone construction, which regulated the architecture of the middle ages.

At the close of the paper, Professor Donaldson said Dr. Henszlmann had developed some principles in the construction of foreign churches which he (Professor Donaldson) was not before acquainted with, and which had not been alluded to in the very able work by the Master of Trinity. The first point to which Dr. Henszlmann had referred was the supposed existence of some hidden principle in Mediæval church architecture, which it had been the anxious desire of architects of all ages to discover; and he had duly adverted to the works of the numerous English and foreign writers who had devoted their attention to that subject. Various theories, as the meeting knew, had been propounded by these writers, and, in fact, architects had been so distracted by a series of different systems, that they were puzzled which to select as a basis on which to proceed in designing new edifices. The particular buildings referred to by Dr. Henszlmann were exceedingly interesting, especially from the great antiquity of some Gothic churches on the continent, compared with which those of England might be regarded as of recent date. At Ravenna there were buildings of the sixth century; and others at Constantinople of the same, and even earlier date. The adoption in other countries of the form of the Byzantine church—that of the Greek cross, with four equal arms, surmounted by five cupolas—was a point to which he had hoped Dr. Henszlmann would have alluded. Of this there was a curious example in France, in the church of St. Frond, at Perigueux, erected in the eleventh century, when it was supposed that the Greek forms were entirely superseded by the adoption of the Latin cross. The originality and imagination displayed in the churches of Germany were especially remarkable; and it would be marvellous if Dr. Henszlmann's theory should be applicable to all the varieties which they presented at different periods.

After some conversation,

The Chairman (Mr. Inman) thought it right to state that Dr. Henszlmann had not proposed to submit his discovery to the present meeting: his proposition was (and it was for the meeting, if they approved it, to authorise the Council to accept it) that the subject should be referred to a committee of a limited number of gentlemen, to whom he would freely communicate it; who should report upon it to the Institute. Dr. Henszlmann's remarks afforded a gratifying proof of the progress which had been made in the study of architectural principles in the last thirty or forty years. Some gentlemen present might recollect an article in the *Edinburgh Review*, in the year 1806, on a pamphlet by M. Dutens, in which the origin of the arch was conclusively traced to the Romans. Recent discoveries, however, had shown that there were round and even pointed arches in ancient Assyria. He fully concurred in the remark that the same principles were to be traced in Greek as in Gothic architecture: of this indeed there could be no doubt, for all proportion was based upon mathematical principles, regard having first been given to the centre of gravity, and then to equipoise, &c. Far different, however, was the doctrine with respect to the graces of harmony to be afterwards added to a building: this, for want of a better term, might be called embellishment, and it involved a consideration of the destination of the building. As a musical production which, to an untutored ear, would seem to be an entirely chance production, might nevertheless be based upon fixed principles of harmonic proportions, so in architecture there

must be certain relations to the ancient geometrical forms. This was the case from the earliest ages: in Greece there were men of the greatest eminence, who were reverenced by the people, and called Dionysiasts, or temple builders; and he believed it was the same in Egypt. In after ages, a body, recognising no doubt the same principles, was known in Europe as Freemasons, and the most beautiful structures of this country were erected by them. By the jealousy and envy of the great men of the day that body was unhappily destroyed, and King Henry VI. might be said to have given a mortal blow to Freemasonry in England. It was very gratifying to know that in the present age principles were so carefully studied; and it might probably be found that the theories of Gothic construction, already before the public, might some of them correspond with that of Dr. Henszlmann. He thought it would tend very much to the benefit of art in general, and architecture especially, if the Council were authorised, by a vote of the meeting, to accept the proposal which had been made.

The following resolution was ultimately passed:—"That it be referred to the council to appoint a committee of three members of the Institute to examine Dr. Henszlmann's communication of his system, and to report their opinion thereon to the Institute."

Mr. I'Anson said, it was clear that Dr. Henszlmann considered there was some mathematical formula or data upon which the mediæval architects worked out their designs. He should be glad to know at what time he considered that formula to have died out of men's minds, and whether, in fact, it had died out at the present day—whether it existed or not in the works of Sir C. Wren, and of every man who had thought out his own designs. He apprehended that if Sir C. Wren had been asked to explain the geometrical data on which he based his works, he would have found a difficulty in doing so, as would also other architects of the present day, who had produced very beautiful works.

Dr. Henszlmann said that he could answer the question, but he feared not so far as Mr. I'Anson might wish. He referred to a drawing illustrating the theory of Roritzer, which dated from the year 1484, but which did not show the principle which the mediæval architects used. He also referred to a drawing of a tabernacle from the church of Kaschau, in Hungary, which had been executed on the principle which he had discovered. As he had found out the principle, it was very possible another had found it too, but he had never met with any work in which it was alluded to. It was possible that even in modern times there were some works built upon that principle, and if he were to investigate them, or if he had a plan and elevation of them, he was sure he could tell whether they were so constructed or not.

THE SONG OF THE ZINC.

HARD LINES FOR "STANDING ORDERS."

By an Underpaid, Overworked Lithographer.

With fingers weary and worn,
With eyelids heavy and red,
A lithographer sat in a draughtsman's room,
Scratching his sleepy head.
Trace, trace, draw,
Till his eyes began to wink;
And still with voice of deepest woe,
He sang the song of the zinc.

Trace, trace, draw,
When the morn begins to rise;
And trace, trace, draw,
Till the last dark hour flies:
And it's oh! to get away,
From this horrible Reference Clerk,
Who's been sticking so close to me all day,—
If this is your railway work!

Trace, trace, draw,
Till one's stomach is empty quite;
And trace, trace, draw,
Without any supper all night,
Stream, and brook, and path,
Boundary, fence, and stream,
Till over the woods I fall asleep,
And "foozle" them all in a dream.

O, men with nothing to eat,
Or drink, to support your lives,
It's nothing but zinc you're carving about,
With those strange-looking tools and knives.
Ink, ink, ink,
And gas, and fret, and fume,
Inhaling the most unwholesome stink,
In this overcrowded room.

But why do I talk of that?
That surveyor's grumbling tone,
Is blowing me up for a stupid mistake,
A mistake that I know is his own.
A mistake that I know is his own,
Because I am not such a fool,
Instead of a curve of 17 inch,
To use a wrong radius rule.

Trace, trace, draw,
Till I almost lose my sense;
And what are its wages? 1s. an hour,
And many more kicks than pence.
That stupid pen, and that beastly brush,
A dirty desk and a scale,
And an old zinc plate, being things I hate;
But this is your work for the rail!

Trace, trace, draw,
In the wet November night;
And trace, trace, draw,
Beneath the hot gaslight;
While the R.'s and tall McV.'s
Around me tightly cling;
Tormenting me worse than a thousand fleas,
In my woollen covering.

And it's oh! to get soon away,
From this nasty, dirty place,
In my nice warm bed to snugly lay,
With the clothes all over my face.
For only one short hour,
To feel as I used to feel,
When, after I'd washed my hands and face,
I'd had a plentiful meal.

Oh! but for one short hour,
To get outside the door;
No blessed leisure to eat or drink,
But only time to draw.
A little supper would ease my heart:
But in eating or drinking shop
The refreshments must stay;
The surveyors won't pay
For either a bit or drop.

With fingers weary and worn,
With eyelids heavy and red,
A lithographer sat in a draughtsman's room,
Scratching his sleepy head.
Trace, trace, draw,
Till his eyes began to wink,
And still with a low, lamenting wail,
(Would that its tone could o'er pockets prevail),
He sang the Song of the Zinc.

NOTES IN THE PROVINCES.

Stratford and West Ham.—It is intended to erect baths and wash-houses at Stratford, for the use of the poorer classes. Some wealthy residents have intimated their willingness to subscribe liberally in aid of the project.

Norwich.—The Norwich Waterworks Company are applying to Parliament for a Bill to enable them to raise additional capital to the extent of 24,000*l.* About 9,000*l.* will be required to replace the old pipes, which have been found to be in a leaky state all over the city, and the remainder will be reserved to meet the cost of extensions into districts at present unsupplied.

Salisbury.—An offer was lately made by Mr. Alderman Smith, at the Cheese Market dinner, that he would contribute 100*l.* if nineteen other gentlemen would become donors of a similar amount in aid of funds for the erection of a new market house. The proprietor of the *Salisbury and Winchester Journal* has stated that he is also willing to contribute 100*l.* provided a suitable site be found abutting on or near, but not *in* the Market-square. Another donation of 100*l.* has also been promised by Mr. H. Cooper.

Thorne Coffin, Somersetshire.—A parsonage is about to be erected here for the Rev. Philip Rufford, from the designs of Mr. George Truefitt, architect.

Bristol.—The vicar of Bedminster has put forth an advertisement appealing to the Christian liberality of those members of the church who are willing to extend the privilege of worshipping in the house of prayer to their less favoured brethren, asking for assistance to rebuild and enlarge the present parish church, which is only able to accommodate 450 persons out of a population of 14,000 souls. It is proposed to rebuild the present small and dilapidated church to be capable of holding at least 1,000 persons, the cost of which cannot be less than 4,000*l.* Mr. R. Phippen, a well-known citizen, has given 1,000*l.*; Mr. G. Gibbs, 100*l.*; Mr. W. Gibbs, 100*l.*; Mr. Gore Langton, M.P. 100*l.*; Mrs. T. L. Coulson, 100*l.*——The parishioners of St. Mary Redcliff church, Bristol, have presented the Rev. G. Campbell, their late curate, now promoted to the incumbency of New Swindon, for his faithful and unwearied exertions, with a testimonial of 150*l.* in a casket formed out of one of the old beams of the noble edifice in which he has so long laboured: on the casket is a representation of the church, with a suitable inscription.——It is proposed to form a School of Design in Bristol, in connection with the Government department of Practical Art. Advertisements have been issued to persons (male and female) who are desirous of joining the school, to enrol their names immediately. Terms for morning day class, 1s. per week each pupil; evening class, 6d. per week. Mr. John Eagles, M.A. and Mr. Robert Lang, are the hon. secretaries.

Dudley.—A Government school for drawing and modelling is shortly to be established in this town.

Kidderminster.—The town council here have resolved by a majority of eleven to four to appoint a committee to inquire as to a site for baths and washhouses, and procure plans and estimates, &c.

Rochdale.—The corner stone of the Melton Congregational Church, in Smith-street, was laid on Saturday week. The style of architecture adopted is enriched Gothic, with a tower and spire at the intersection of the transept and nave, and the designs have been furnished by Mr. R. M. Smith, of Manchester. There will be sittings for 910 persons, besides 250 children; and the proposed cost of the whole, including the boundary walls, is 3,500*l.* Towards this sum upwards of 3,000*l.* have been promised by members of the congregation.

Ormskirk.—The only fall of a building attributed, partly, at least, to the late earthquake, that we have as yet heard of, occurred here in the case of a brewery chimney, lately erected. Mr. M'Manus was the designer of the building, and Mr. John Summer, the designer of the chimney. The chimney, which was finished about six weeks ago, was 33 yards high: its area at the base was 14 feet square, and its are at the top 3 feet square. After it was completed, it was observed to have moved a little from the wall of the building. The cleft was found to be greater after the earthquake, it being, at the top of the building, which is about 20 feet high, six inches in length, and at the bottom one inch. Since then it has gradually increased. On Friday last, the wind being high, the chimney rocked fearfully, until it fell to the east side of Aughton-street. The only damage done by the fall was the destruction of a great quantity of wicker wood in the nursery where it fell.

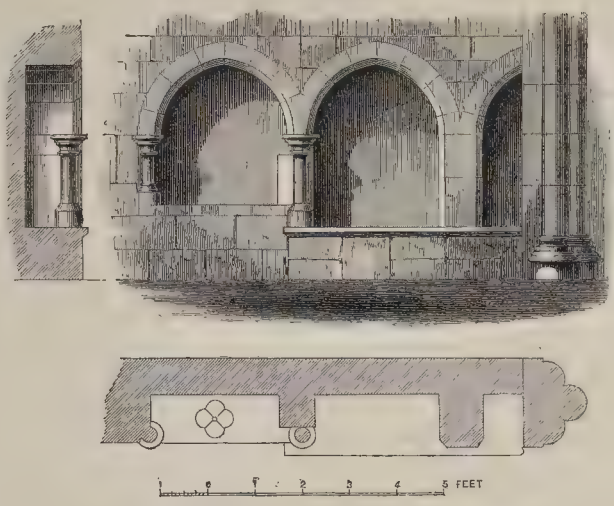
North Shields.—Plans of baths and washhouses for this town are being prepared by London architects, and a site has been got from the Duke of Northumberland, in Saville-street.

Edinburgh.—A company is being formed for the sanitary improvement of this city, and especially, in the first place, for the opening of a carriage-way or other convenient access from the High-street, Canongate, and whole southern parts of the city to the general railway terminus at Waverley-bridge. A capital of 45,000*l.* will be required for these works, of which a plan has been prepared.

Glasgow.—The Police Commission of this city have directed that a map of it shall be constructed of such size that it will include every operation over which the Board presides, such as the sites for public lamps, the various beats of the police, and the situation of the fire-plugs; and copies of the survey are to be in the possession of the heads of every department connected with the establishment.

St. Heliers.—We made the *Jersey Times* to say, last week, that four streets, about the paving of which there had been a public meeting, were *erected* four or five years since, and had since remained unpaved; whereas the streets are old ones that were left unpaved for thorough drainage purposes four or five years since, and still remain *in statu quo*.

SEDILIA, ST. ANDREW'S, ENFIELD.



ST ANDREW'S, ENFIELD.

In the course of repairs here, the ancient sedilia and piscina in the chancel, represented by the annexed engraving, have been made visible. It will be seen that the chancel was originally longer that it is now: part of one of the openings is blocked up by the later work. The sedilia are attributed to the fourteenth century,*

THE SPIRE OF ROSS CHURCH.

As I have been informed that some remarks, which I have not seen, have appeared in a provincial paper, touching a defect in the reconstruction of the elegant stone spire of Ross Church, I should like to be allowed to register in your valuable journal an exact description of the error alluded to, of which the reparation is now in the course of execution. A few words will suffice for this part of the subject, but, as I wish to make them perfectly intelligible, I will precede them with some general remarks on this part of the structure, as they will give an interest to the communication.

It would be difficult to imagine a design more graceful than that presented by the tower and spire of this celebrated church: the delicacy of the general proportions and of the constituent features harmonises in the most perfect manner. The whole is characterised by simplicity, and the best skill was exercised in the construction. The extreme height of the spire, from the base of the north-west buttresses is 295 ft. 9 in.

The tower, and the spire with which it was originally crowned, were built about the middle of the fourteenth century. The latter, owing to some accident which befel the upper part, was restored under the patronage of the "Man of Ross," early in the last century, when a very considerable addition to the original height was made. The line of junction always presented a disagreeable effect, no attempt having been made to unite the new work with the old in such a manner as to efface the evidence of the alteration in the proportion. The height of the spire, from its base, exclusively of the staff, is 123 ft. 3 in. 65 ft. were taken down in consequence of the late accident from lightning, being about 2 feet more than the measure of the addition made as just noticed. At this level the diameter of the spire is 9ft. 6in. from north to south, and the thickness of the stonework 9½ in.

Of the faces forming the octagon two measure 3 ft. 9 in.; the rest 3 ft. 7¼ in., 3 ft. 5½ in., 3 ft. 2¾ in., 3 ft. 7 in., 3 ft. 5½ in., 3 ft. 7¾ in. respectively. The paramount difficulty in adding the new work to the old, in order to avoid the "cripple" before named was perfectly well overcome, and the restoration proceeded in a satisfactory manner to the height of many feet; nor could it fail, so long as the workmen paid proper attention to the full-sized model drawn on board; but, by an unaccountable deviation from the prescribed authority, the masons were negligently permitted to prepare the material for a true octagon, the fixing of which upon one irregularly shapen, gave rise to lengthened indents in several of the rolls, and impaired the good appearance which would otherwise have been the result.

I am glad to state that in a short time the blemishes will be entirely obliterated, and the spire restored in the most perfect manner.

J. C. BUCKLER.

ANNIVERSARY OF WINCKELMANN'S BIRTHDAY, AT BONN.

ARCHÆOLOGICAL SOCIETY OF THE RHINELANDS.

This festival was celebrated at Bonn, on the 9th instant, as is done every year, and an especial programme published for that purpose, entitled "*Jupiter Dolichenus*, Explanation of an Inscription on Stone found at Ramagen, and the main Figure on the Heddernheim Bronze Pyramid," 4to. pl. edited by the president, Professor Braun. The meeting took place in the Trier Hotel, and was numerously attended. Professor Freudenberg began the proceedings by an exposition of Winckelmann's merits as the founder of modern archæology, and recalled the late exertions of the German historical and archæological societies for the preservation and the publication of all ancient monuments of that country. The general meetings of those societies held last summer had laid down the principle, that they would only encourage the publication of works for which the means of the single societies were unavailing. In conclusion, Professor F. alluded to the plan of M. Aufsess to found a *German Museum* at Nürenberg, towards which he had presented his own large archæological collection. It had been also decided, that a Roman-German Museum should be founded at Mayence. Mining Councillor Nöggerath next spoke on the Roman road near Ramagen, along the Rhine, built under Marcus Aurelius, in 162, P. Ch. and observed, that as neither gunpowder nor explosive cotton had been known to that people, the road exhibited a great amount of mechanical skill. He dilated on the state of vective mechanics (*fortschaffenden Mechanic*) of the Romans, and compared the present works of quarries and mines with those of olden times. Dr. Springor read a paper on the influence of Germanic art on that of Italy. After having alluded to the influence of German artists on Italian architecture, he also pointed at that of the northern countries on the sculpture and painting of the south, and exemplified this by the connection between the Saxon school and Niccola Pisano, as well as the lasting influence of Flemish painters on those of Naples in the fourteenth century. In conclusion, the Doctor mentioned the mutual influence of Albert Dürer and the Venetian school, of which there is undeniable evidence both in the Feast of the Rosary of the German painter, and in Titian's Christ with Coin of the Taxes. Professor Krafft then spoke of a series of monuments on the Syrian coast near Beirut, especially those of the Egyptian king Rhamses II. in commemoration of his Asiatic victories, fourteen centuries before the Christian era. Even the searing influence of the sea breeze could not alter the figure of the mighty Pharaoh, at whose court Moses lived, nor were the armories (*cartouches*) of the monarchs impaired. Close to them the Assyrian conqueror Sennacheris, in the eighth century B.C. has incised the trophies of his victories into the rock wall, to which were added afterwards Greek, Roman, and Arabic inscriptions. The speaker adduced proof of the relationship between Egyptian and Assyrian sculpture, considering the last, through the transition link of the arts of Lycia, as the prototype of that of Greece. It was a loss to the society that it could not profit by the presence of its president, Professor Braun, who had to attend to his parliamentary duties at Berlin.

BORING AN ARTESIAN WELL AT FOBBING.—The boring of an artesian well has lately been successfully completed at Fobbing. A spring of pure soft water was obtained at the depth of 276 feet, flowing at the surface with a constant supply of twelve gallons per minute. At 2 feet above the surface the supply was found to be reduced one half; at 3 feet it appeared to have found its level, as above that it ceased to flow.

* We are indebted to a correspondent for the sketch from which the engraving was made. The notes which accompanied it have been mislaid.

THE ATMOSPHERE OF THE NATIONAL GALLERY.

As an aid in the preservation of pictures visited by crowds of persons, I would suggest the placing, in pendant vases or small boxes, powdered charcoal, which had been sprinkled with sulphuric acid. This should be frequently changed for fresh powder. After the lapse of a few weeks an analysis would show that the charcoal and acid had absorbed ammonia and other deleterious gases, and to that extent have saved the pictures from their influence.

A proof of this powerful antiseptic may be shown by a coarse experiment, viz.:—Take powdered charcoal, and spread it over the contents of a cesspool, and it will immediately prevent all foul odour arising. If, also, powdered charcoal, sprinkled with sulphuric acid, be laid or suspended about a stable in little boxes, the ammoniacal gases will be absorbed, and there will be little or no painfully pungent sensations produced on the eyes, as is frequently observed.

The supply of ammonia in the atmosphere is most likely kept up by the decay of animal matter, and by evaporation from the surface of living animals. This is absorbed by plants, and accelerates their growth, but destroys rapidly numerous inanimate bodies, and especially metallic substances, such as pigments having metals as their base.

Another suggestion I have to offer on this subject, which is, that the pavement of the National Gallery should be of gypsum or sulphate of lime. It is absorbent of foul matter, and would neutralise the bad effects arising from unwiped shoes.

It is extremely cheap, and abounds in Derbyshire and Nottinghamshire. Some qualities have nearly the hardness of marble; and slabs of 3 to 4 feet superficial can be easily obtained. The colours are red, pink, grey, and white, of various shades. Mosaic and geometrical patterns could be arranged. The price at the quarries seldom exceeds fifteen shillings per ton for good blocks.

Many chemists have said that gypsum alone will fix ammonia. J. M. B.

OUR NATIONAL DEFENCES.

"Look to your house, your daughter, and your bags."

While recently making a tour of the coast along the Channel, it struck me that it would greatly assist our means of defence if a line of electric wires were laid round the coast, connecting the different batteries, ports, military stations, and light-houses.

In many parts there are already lines along the railways; but in case of an alarm, much time would be lost in reaching the stations, and they are in disconnected portions. It would therefore be better to have a line exclusively for government purposes. The line might be submerged at the mouths of the Thames, Humber, Medway, Severn, the Wash, &c.

W. L.

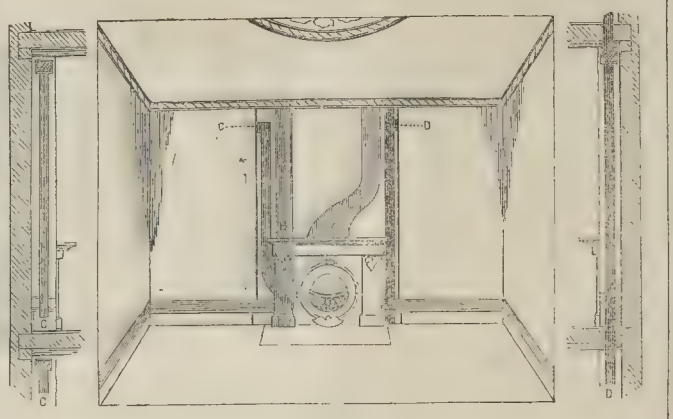
A COMING COMPETITION.

As it is not out of the way to assume that a great competition is on the eve of taking place for the National Gallery, I trust you will advocate the cause of those like me, who, from professional labours, have not all their time on their own hands, and yet long to join in such a chance of distinction. You will naturally ask me how this is to be done? And the only way I see is to commence by asking *only plans* on a scale of ⅛ in. to 10 feet, and *elevations* ¼ in. or ⅜ in. to 10 feet. With such a scale and *with no perspectives*, it would be quite easy for such men as ought to be the judges in such a matter to select, say the six best designs, and when this is done, the six selected should be sent back to the architects to mature and model before they are brought before the public and profession for final decision; and for this they ought to be paid a fixed sum each, when we would not feel it necessary to spare them any labour that was necessary to do justice to their design, either by plans, elevations, perspectives, or models. I am quite clear on one point, and that is, publicity before the decision is made.

I make no apology, as it is quite certain that this subject must necessarily occupy much of your time till it is finally arranged, and, like your other readers, I am of course desirous of giving any suggestion that occurs to me.

"Old Aberdeen."

VENTILATION.



PLAN FOR VENTILATING ORDINARY DWELLING-HOUSES.

A simple, and, as I understand, successful method of ventilation, adapted to the purposes and construction of ordinary dwelling-houses, has been lately adopted by Mr. John Gibbs, of Mayfield-road, Aigburth, Liverpool, in houses he has been erecting for himself. In the construction of new buildings, Mr. Gibbs's plan is to leave flues in the jambs of the fire-places, instead of building them solid, making use of one side for the admission of fresh air into the room, and the other for drawing off the vitiated air through the fire. The fresh air is brought to the lower part of the jambs by having gratings in the plinth of the building to admit it under the floors. The drawing off of the vitiated air is easily managed by connecting the flue marked C, in the accompanying diagram, with the *under part* of any fire-grate, the front of which can be made air-tight. Stephens's or Jobson's patent grates are well adapted for the purpose, and any common grate can be made so by means of an air-tight ash-pan. The principle is the same as that adopted by Mr. Nairson in his ventilating grate, but the plan is more simple, and the mode of admitting the fresh air into the room is different. Of course perforated panels or gratings of suitable dimensions, shewn in diagram, are placed at the sides of the chimney jambs, *inside* the room, one for emitting the fresh air, and the other for allowing the descent of the foul air to the fire.

The plan recommends itself by its simplicity, inexpensiveness, and the ease with which it can be adapted to private dwelling-houses. As in operation in the house of the inventor, it answers admirably. W.

REFERENCES.

A Chimney flue.	C Foul air flue.
B Floor of lower room.	D Fresh air flue.

Coating Tubes with Gutta Percha.—Mr. Russell, of Wednesbury, has secured a patent for applying coatings of gutta percha, or gutta percha combined with other matters, to the external and internal surfaces of iron tubes; more especially preserving from oxidation the exterior of iron tubes internally coated with enamel.

The Railing round St. Paul's.—From the proceedings at a meeting of the City Sewers Court on Tuesday, in last week, it appears that the Dean and Chapter of St. Paul's still refuse to allow the railing to be removed, even under compensation offered by the Sewers Commission, unless measures be taken at same time for the improvement of Ludgate-hill.

CINQUE-CENTO GLASS PAINTING.

Confuted by the examples he has himself adduced, your correspondent, "F. W. O." endeavours to cover his retreat by a faint iteration of the charge that I have misdescribed the characteristics of the cinque-cento style of glass painting, and of the Brussels windows in particular. On both points I am content that your readers should judge between us. * * *

I intend, ere long, with the permission of my friend Mr. Hedgeland, to submit to you a sketch, lately made by him, of the lower half of a window of the chapel of the Miraculous Sacrament, at Brussels; in the hope that, if its effect can be so expressed, you will cause a cut of it to appear in some future number, for the sake of familiarizing your readers with the appearance of these windows, which have acquired a peculiar interest since the decoration of St. Paul's has been mooted. Should this proposal meet with your approval, I may be tempted to make the engraving the theme of some remarks on the Cinque-cento style of glass-painting, and to endeavour to show that the practice, usually adopted by the artists of that period, of representing subjects as seen under the influence of broad sunshine (necessarily involving "the strongest" *contrasts* of light and shade), is that best suited to the conditions of the art of glass-painting.

C. Winston.

AN ALLEGED "IMPORTANT DISCOVERY ON LIGHT."

In the *Portsmouth Times* of 4th inst. is a lengthened account of a suggestion by Mr. G. F. Harrington, of that town, that what we call solar, lunar, and star light is produced by the "action" or "power" of the sun, moon, and stars on strata of "inflammable gas" on the circumference of our own atmosphere "exploding" that gas, or "igniting" it into "light," *or* "matter reduced to its primitive atoms by chemical agency, and kept in a fluid state by latent heat." The inflammable gases or gas he supposes to be what is generated on the earth itself, and ascends through the air, with which he does not seem to suppose it to be mixed according to the recognised law of gaseous diffusion. The "ignition" he seems to regard as something precisely the same as ignition in general, only produced by the "action" or "power" of the sun, &c.; but we have sought in vain for the least glimpse of an idea that the great supporter of "ignition," oxygen, was necessary to enable these "inflammable" gases to burn. The author of the hypothesis has evidently various erroneous ideas mixed up with his own view, as, for instance, that light, in passing from the sun to *other* planets besides our own must necessarily be itself visible *to us* in its transit from the sun to that planet, and hence that since it is not so visible to us, it has no existence; again, that

the idea of light being material has not been questioned, or that this is the only admitted theory of light. One thing we would suggest for the consideration of the author, first asking what he means by the solar "action" or "power," which he regards as capable of *igniting* his inflammable gases—just, we suppose, as "a light" itself does. Is it not quite as likely that the sun sends us the light itself direct, as that it sends us a taper of any description whatever, wherewith to ignite or explode inflammable gases? Moreover, once "exploded" on the solar side of the planet, how does it happen that the whole stratum or atmosphere of explosive gas is not at once ignited, so as to yield us perpetual day,—as long, at least, as the ignition lasts? The idea of the *Portsmouth Times* that there is any novelty in the hypothesis, or, as the writer calls it, the discovery, "that the commonly received opinion that the sun shines upon us is an error," is itself an error. It is long since the idea was suggested that it might be electric force alone for which the earth is indebted to the sun, and that both the light and the heat which we call solar might thus be generated by this electric force within the limits of our own atmosphere. Were there any truth in this idea itself, we should doubtless be indebted to the actinic or chemical force of the solar ray, more correctly speaking than to any electric force for the light and heat which appear to emanate from the sun.

BURSLEM NEW TOWN-HALL COMPETITION.

The members of the Local Board of Health have made their selection from the designs for a new town-hall, offered for their adoption by competing architects. For some days previously the designs (thirty-four in number) had been arranged around the walls of the old hall, and on each side of a screen running down the centre of the room. The plans were sent in with sealed letters, under fictitious names, devices, and mottoes. A premium of 50*l.* had been offered for the first prize, and 20*l.* for the second. No. 9, under the motto of a mural crown with a wreath of victory, "in respect to its external elegance, its internal arrangements, and the cost being certified within the specified amount," was adopted as the design for the proposed town-hall, and the first premium of 50*l.* was awarded to it. The sealed letter accompanying No. 9 was then opened, and the successful competitor proved to be Mr. G. T. Robinson, of Wolverhampton. For the second premium the board selected the design bearing the motto "Mente et Manu." On the letter being opened the competitor was found to be Mr. R. W. Armstrong, of Calthorpe-street, London.

THE HOUSES AND SHOPS OF OLD LONDON.*

Scarcely had the Great Plague, to which we referred in the last paper, ceased when London was afflicted and at the same time purified by the dreadful fire of 1666: this fire, more serious in the amount of damage than any which is recorded to have taken place in London, broke out in Pudding-lane, near New Fish-street, from whence in about thirty hours it spread to Gracechurch-street, towards the north-west, and to the Three Cranes towards the Vintry, in the south-east, including Cannon-street, and the lanes, alleys, and courts in the way. The flames being assisted by a violent east wind, spread themselves in distant and varied directions. So striking and alarming was this simultaneous breaking forth of the fire, that suspicion arose of its being caused and extended by incendiary means: a careful investigation of several contemporary works and other circumstances fail to give any substantial foundation for this charge. No doubt the terror of the time, falling so close upon the horrors of the plague, rendered the minds of men suspicious and liable to charge unfortunate yet natural causes to those against whom a large portion of the public were prejudiced.

In spite of some very feeble efforts to stop the progress of the fire, the conflagration became so general that there was not a house, hall, or church left standing from the west end of Tower-street on the east to the Temple Church in the west; nor from the north end of Mincing-lane in Fenchurch-street, from the west end of Leadenhall-street and from the south-west end of Bishopsgate-street, as far as the entrance into Threadneedle-street, to Holborn-bridge on the west in a direct line, exclusive of the damage done in Throgmorton-street, Lothbury, Coleman-street, Basinghall-street, Cateaton-street, Aldermanbury, Addle-street, Love-lane, Wood-street, Staining-lane, Noble-street, and Silver-street; after all which ravagements it stopped at Pye-corner, near West Smithfield: this spot, now the north-eastern corner of Cock-lane, Smithfield, is marked by the stone figure of a child (engraving, No. 60). The immediate effects of this conflagration on thousands of citizens, who were compelled to retire into the fields and endeavour by the erection of slight huts to shelter themselves from the inclemency of the weather, is so carefully described in various works that it is unnecessary here to enter into particulars; we will, however, give the following list of damages:—The fire laid waste and consumed the buildings on 436 acres of ground; 400 lanes, streets, &c.; 13,200 houses; the Cathedral Church of St. Paul's; eighty-six parish churches; six chapels; the Royal Exchange, Custom-house, Blackwell-hall, many hospitals and libraries; fifty-two of the companies' halls, and a great number of other edifices, together with three of the city gates, four bridges, and the prisons of Newgate, the Fleet, the Poultry, and Wood-street Compter; the loss of which, by the best calculation, amounted to 10,730,500*l.* and notwithstanding this great destruction of property, yet only six persons are said to have lost their lives.

A walk from the Tower to Temple-bar (a distance of nearly a mile and a half in a straight line) gives us the greatest extent of the fire from east to west, and from Queenhithe to Cripplegate from north to south: the nature of the materials which covered this immense space has been already described; and it seems, when wandering over the district, and taking into consideration the large quantities of wood used in the houses, and their height, and the closeness with which they were packed, almost impossible to form from any description, a notion of the roaring noise, the brightness, and other terrors of this great fire. The conflagration having ceased, a proclamation was immediately issued by Charles II. to prohibit the rebuilding of houses till public care might be had to re-edify it with such propriety, uniformity, and security as might effectually prevent the like destruction for the future. In this proclamation, the King, after stating that,

"As no particular man hath sustained any loss or damage by the late terrible and deplorable fire in his fortune or estate, in any degree to be compared with the loss and damage we ourself have sustained, so it is not possible for any man to take the same more to heart, and to be more concerned and solicitous for the rebuilding this famous city."

The King, after commending the patience with which this affliction was borne by many who had been the greatest sufferers, and advising further patience, until the necessary considerations for the safety of the new city could be arranged, says:

"In the first place, the woeful experience in this late heavy visitation hath sufficiently convinced all men of the pernicious consequences which have attended the building with timber, and even with stone itself, and the notable benefit of brick, which in so many places hath resisted, and even extinguished the fire; and we do hereby declare that no man whatsoever shall presume to erect any house or building, great or small, but of brick or stone; and if any man shall do the contrary, the next magistrate shall forthwith cause it to be pulled down, and such further course taken for his punishment as he deserves, and we suppose that the notable benefit many men have received from those cellars which have been well and strongly arched will persuade most men who build good houses to practise that good husbandry by arching all convenient places."

It is also declared in this proclamation that the principal streets shall be of such a width as shall by after-consideration be considered sufficient to prevent future fires from spreading across; it was also proposed that no houses should be erected within so many feet of the river, and that the "fair quay" should be lined with buildings, which might be an ornament to the city.

On the 18th of September the Parliament met, and immediately passed an Act for erecting a court of judication, and for settling all differences between landlords and tenants with respect to the houses which had been destroyed by the fire. At the same time they appointed the justices of the courts of King's and Common Pleas, and the barons of the Exchequer, to be judges of the said court. These judges conducted themselves with such impartiality and strict justice, that they obtained the general esteem of the citizens, who, as a mark of respect, had their portraits placed in the Guild-hall.

On the 29th of April, 1667, the common-council, in consequence of the Royal declaration, passed an Act, of which his Majesty highly approved. Some of the provisions of this Act are as follows:—

"It is ordered, that the surveyors take special care that the breast-summers of all the houses do range of an equal height, house with house, so far as shall be convenient, and then to make breaks by their directions; and that they do encourage and give directions to all builders, for ornament sake, that the ornaments and projections of the front buildings be of rubbed bricks, and that all the naked parts of the walls may be done of rough bricks, neatly wrought, or all rubbed, at the discretion of the builder; or that the builders may other wise enrich their fronts as they may think fit."

Permission is given to enrich buildings by variety of forms in the roofs, balconies, &c.; and that any six houses of equal height and form may in any street be erected immediately opposite to each other.

"That in all the streets no sign-posts shall hang across, but that the signs shall be fixed against the balconies, or some other convenient part of the side of the house."

Party-walls, at certain distances, were ordered to be set out by the surveyors, and no houses allowed to be commenced until all concerning the party-walls was settled.

On the 15th November following the common-council passed another Act for preventing and suppressing of fires within the city of London.

Some of the provisions of this Act were, that the city should be divided into four districts or quarters; that each of the said quarters should be provided with 800 leathern buckets, fifty ladders of different sizes, from 12 to 40 feet in height; and to each parish forty shed shovels, twenty-four pickaxes, sledges, and two brazen hand squirts; and that buckets, engines, &c. should be kept in readiness by each of the twelve companies; and inferior companies were required to provide buckets, &c. according to their quality. Aldermen, sheriffs, and other corporate officers were also obliged to provide engines and other matters.

"That every householder, upon any cry of fire, shall place a sufficient man at his door, well armed, and hang out a light at his door, if it be dark."

Orders were also given respecting the safety of ashes, &c. and plugs put in the pipes in the most convenient parts of the streets. The companies of carpenters, bricklayers, plasterers, &c. were each to elect two master workmen, four journeymen, eight apprentices, and sixteen labourers, to be ready on all occasions of fire to attend the lord mayor, &c. for quenching the same. Various other excellent regulations are made in this enactment.

In 1668, the lord mayor issued directions that the fronts of all houses shall be kept paved and swept, and the dirt preserved in tubs or baskets until the raker comes his round, on pain of forfeiting 3*s.* 4*d.* &c. and that the inhabitants shall only hang and keep out their candles, lighted to the accustomed hour.

In the following year the Parliament enacted that various streets in addition to those which

* See p. 566 ante.

had been already appointed, should also be enlarged: the money required for this purpose, and also for cleansing and making of drains and sewers was raised by a duty on coals, which was at this time increased to 3s. per chaldron.

On the 1st of March, 1670, the commissioners of sewers, in consequence of powers granted them by Parliament, published an Act of Common Council, part of which is as follows:—

"That hereinafter all streets within this city, called, known, or set down as high-street, shall be paved round, or causeway fashion, and upon notice given to the commissioners of any defective pavements, in any streets, lanes, and passages, within this city and liberties, the same shall be forthwith made good and amended, unless by general consent some better expedient be found and published.

That inasmuch as it has been found by common experience that the paviors, to hide and cover their bad workmanship, have oftentimes spread and laid great quantities of gravel over their pavements, to greater charge of the persons setting them on to work than was needful, and which, upon a sudden rain, did either choak the common sewers or turn to dirt or mire in the streets; therefore the said paviours are required that hereafter they do forbear to lay or spread any more gravel on the pavements than will only fill the joints of their work, and cause the same to be swept and well rammed, and leave the pavement bare of gravel, and keep a regular method of pavement, not paving one door higher than another, upon pain of paying 5s. for every complaint. That the breadth of 6 feet at the least from the foundation of the houses in such of the said high streets, which shall be allowed to be posted, shall be paved by the inhabitants or owners with flat or broad stone for a foot-passage, unless such parts thereof as shall lie before any gateway, which may be done with square rag, by the said breadth of 6 feet, upon pain of a fine of 5s. for every week the same shall be omitted to be done after notice given."

Persons having occasion to repair any house or houses in any public thoroughfare were directed to apply to the Chamberlain for leave to board in a piece of ground before his building, wherein to lay his materials, or in default to pay a fine of 40s. and 20s. for every week's omission to do so.

Stringent regulations were at the same time made for the sweeping and cleansing of the streets and other matters of public importance.

Soon after the fire, Sir Christopher Wren submitted a plan for the City, in which he proposed the erection of the "fair quay" already alluded to, but that and other important parts of his plan were set aside by the influence of various and powerful private interests. Notwithstanding these ill-judged alterations, which must be regretted by every one at the present day, the means used during the reign of Charles II. were such as to have not only prevented the occurrence of the plague, but also the spread of fire, to which London had for ages before been liable. The buildings erected immediately after the fire are mostly of a plain and substantial description, built with brick, and occasionally ornamented with facings of stone or light red bricks. Many of these houses remain at the present day (with the exception of the windows) without alteration and in good condition. The house, engraving No. 58 is a characteristic example of many of the second-rate houses built immediately after the fire, and has the date 1666 upon it. The houses in Cheapside and other important places, are taller and somewhat more elegant in design, but, as might be expected, throughout the site of the fire, the houses show that the intention has been to make useful structures in the shortest possible time. The effect of this is to give the city a monotonous appearance, which will require the labours of many years' improved taste to remove. While preparing materials for these papers, we have made several careful examinations of the district of the fire, and have been surprised at the completeness of the destruction. There is, however, a house at the corner of Friday-street, Cheapside, which has been but little damaged, while all around has been swept away. This house is marked by the sign of the Chained Swan outside: this is the same house known in early engravings by the sign of the Nag's Head. An engraving of this suspended sign is given in the first of these papers. Inside this house evident marks of the fire may be observed on the massive beams of the structure. Many of the houses of the date under consideration, like that just mentioned, still retain the old tradesmen's signs in front, most of them well executed in stone, and generally bearing the date 1666, 1668, and 1669.

During the succeeding years of the reign of Charles II. London, under the spirit of improvement which had been created by the stern teachers plague and famine, assumed its usual appearance of trade and bustle: many of the churches were rebuilt, and new St. Paul's cathedral was rising steadily under the direction of its famous architect.

In 1687, the second year of the reign of James II. there arrived in England 15,000 French Protestants who had been compelled to fly from the persecution of the reformed religion in France. The exiles were immediately relieved by money arising from a brief, on which was collected the sum of 63,713*l.* Out of the above number, 13,500 settled in and about the city of London and parts contiguous, who not only improved various of our manufactures, but also founded the famous manufactures of silk at Spitalfields.

During the reigns of William and Mary and Queen Anne, in addition to the great increase of London, several Acts for the improvement of the streets and police were carried into effect. In 1695 an Act was passed which had an important effect on London shops. By this Act it was directed that no person should expose for sale in any public market any mercery wares, lace and linen, grocery and confectionary wares, cutlers' wares, tin wares, drapery wares, millinery wares, glass and earthen wares, &c. &c. upon pain of paying a penalty of 3*l.* with costs of suit.

In 1704, the common council passed an act for better regulating the city watch, by which all former acts were annuled. In this act they ordained that each ward should provide a number of strong able-bodied men, and that the deputy and common council of every ward should have power to oblige every person occupying any house, shop, or warehouse, either to watch in person, or to pay for an able-bodied man, to be appointed thereto by the said deputy and common council-men; that the said watchman be provided with a lanthorn and candle, and well and sufficiently armed with halberts, and watch from nine in evening till seven in the morning, from Michaelmas to the 1st of April, and from ten till five during the remainder of the year.

In the year 1707, many fires having happened in London and its suburbs, occasioned by the carelessness of servants, an Act of Parliament was passed for preventing such accidents in future. This Act rendered a servant guilty of carelessness liable to a fine of 100*l.* or eighteen month's imprisonment with hard labour: at the same time additional fire-cocks were ordered to be made, with leather pipes and sockets to screw upon the fire-cocks, and for the future all party walls (*except the houses on London-bridge*) should be of brick or stone.

In 1710, the number of houses and inhabitants in London being greatly increased, both in the City and suburbs, the churches were thereby rendered insufficient for the accommodation of the inhabitants, wherefore the Parliament enacted that fifty new churches should be erected in the cities of London and Westminster, the cost of which was defrayed by a duty on coals.

In this year new St. Paul's cathedral was completed.

In 1714 Queen Anne died. Notwithstanding the progress of London, it was during the reign of this queen, in many respects, in a deplorable condition: the streets were badly lighted. In the December following the queen's death it was enacted, "That all housekeepers whose house-door or gateway does front or lie open to any street, lane, or public passage or place of the *said city or liberties thereof*, shall, in every dark night—this is every night between [the second night after each full moon and the seventh night after each new moon,—set or hang out one or more lights, with sufficient other wicks, shall continue to burn from six o'clock at night till eleven o'clock of the same night, on penalty of 1s. And that, under the same penalty, the occupiers of houses in any court that faces any public place or passage, shall alternately hang or set out such a light on the outside of such doors or gates as shall be next the said public place or passage." This Act, it will be seen, applied only to the city and liberties: large districts had and were continuing to rise around, to which this Act did not apply; and, as happens at the present day, these places were left neglected in sanitary or other matters. It will be scarcely credited that at the present day, while proper officers are appointed in the city of London to inspect human food brought into the markets or shops for sale, and to punish those offering an inferior article, that in the immense modern suburbs of Saint Pancras, Islington, &c. each containing a population approaching to that of Manchester and other large towns, there is no officer to interfere with and prevent the sale of unwholesome butcher's meat, fish, or vegetables. It is easy to guess what opportunity this affords for the sale of animals, &c. which must not pass the city markets, in the close neighbourhoods of Somerstown and elsewhere. In like manner the lighting of the suburbs of London would be in a neglected state; the streets and footpaths were still ill paved, many not at all—and many of the principal shops in the city were still without glass—indeed the shops adjoining Bow Church were unglazed some years after the death of Queen Anne (engraving 63), and those near the Monument (engraving 61) much later.

Schomberg House, Pall-mall, engraving No. 62, is a good example of a first-class house in the reign of Queen Anne. Its history is most interesting, but this our space obliges us to defer.

REFERENCES TO THE ENGRAVINGS.

*50. Sign of the Sun, Cheapside.
*51. Half Moon, Wych-street.
*52. Seven Stars, Cheapside.
*53. Chained Swan, corner of Friday-street, Cheapside: this house partly escaped the fire of 1666.
*54. Entrance to Doctors'-commons, St. Paul's Churchyard.
55. Cresset, or fire lamp, formerly used in London.
*56. Oil Lamp sketched near Lincoln's-inn.
*57. Torch Extinguisher.
*58. Brick House, Fish-street-hill: date 1666.
*59. Moulded brick-work, near the Tower.
*60. Figure near spot where fire stopped (now the corner of Cock-lane).
61. Shops, with tradesmen's signs, near the Monument, after the Fire.
62. Schomberg House, Pall-mall: time of Queen Anne.
63. Unglazed Shops adjoining Bow Church: time of Queen Anne.*

Brick Manufacture.—Companies have been formed in the most eligible localities that could be selected, for the purpose of manufacturing bricks in steam factories, by a new patent process. One of these establishments has for more than twelve months past been in operation on a small scale at Huntingdon, where six men and four boys are making 60,000 bricks a week, no alternations of weather in the slightest degree interfering with their operations. Under the same patent, and on an improved scale, immense works are just being put down at Arlesey, also, on the Great Northern line, a little more than twenty miles south of the metropolis, where about a million-and-a-quarter will be made weekly for the London market. Other works are in progress at Cambridge, where 120,000 a week will be made, at Rugby (120,000), Leicester (60,000), Liverpool (500,000), Manchester (600,000), Birmingham (600,000), Derby (120,000), Nottingham (360,000), Doncaster, for the great Yorkshire towns (800,000), &c. The Nottingham firm, trading under the name of Edward Gripper and Company, have, according to the local *Guardian*, commenced active operations. This company's works will occupy forty-six acres, at Mapperley.

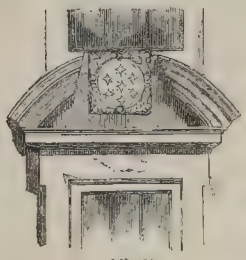
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* Those marked * are sketched from existing examples.

THE HOUSES AND SHOPS OF OLD LONDON.



* No. 50.



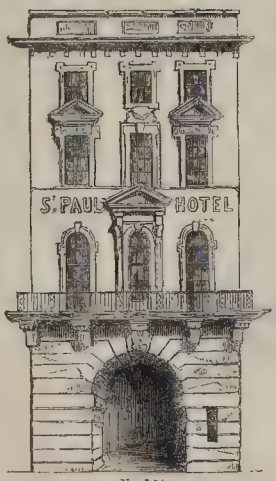
* No. 52.



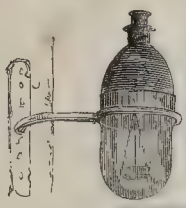
* No. 51.



* No. 53.



No. * 54.



No. * 56.



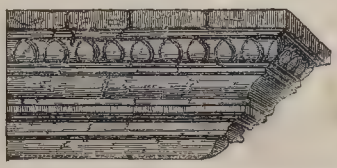
No. * 57.



No. 55.



No. * 58.



No. * 59.



No. 61.



No. * 60.



No. 62.



No. 63.

THE MEANS FOR IMPROVEMENTS.

I have long thought the principle on which all improvements made in this metropolis, on a large scale, are conducted in a manner very injurious to the country: a great and lasting benefit would soon be felt, were the system altered to a more just and comprehensive mode. At present if a large improvement is required, an Act of Parliament is to be obtained, money raised by Government, or advanced by them, or by corporations, raised from the taxes on the people, and the land and property to large amounts become the freehold of Government or the corporations. The matter is generally only half, or badly done, and great delays (see Farringdon-street, for instance) occur. I would recommend a more satisfactory principle. The plan is simply a standing Government Commission, to be called the "General Improvement Commission," consisting of architects and men of taste and judgment. All such works to be first submitted to them, and if the case is made out and approved, to apply for the sanction of Parliament as a matter of course. Power to be given to raise the necessary funds, in all cases only on terminable annuity, for sixty, eighty, or ninety years, as may be advisable, say at 4 per cent. or at marketable terms, making them equal to long leasehold ground rents, which find ready purchasers. Every amount required to be for the same term of years when borrowed, that the annuitants will expire annually, according to the time borrowed. The improvements in all cases to be on a comprehensive scale, and carried out with rapidity; and when the ground is covered, the street formed, and the ground let, the ground rent to be sold by public auction, as freehold; or the ground sold by auction, for building, as freehold. The produce to be used either in further improvements, or, if required, to reduce the call on the country. The tenure of leasehold in London is very objectionable, and, I may say, almost unjust. All erections should, by law, be renewable on fair and just terms. Nearly all London is the freehold of a few landholders, Government at the head. H. K.

NEW MUSIC HALL AT BOSTON, U.S.

A writer in the New York *Literary World* gives an account of a new Music Hall in Boston, just now completed. It is of brick, and the exterior presents nothing noticeable but its size. Entering the door, there is nothing in the way of the entrance to the hall; the vestibule is very small, and in the space of a few feet you can get into the music-room. This absence of a fine entrance-room, however, is more than atoned for by a long gallery, which shoots immediately from the vestibule along and outside the whole of both sides of the room, and which, in allowing from it an ingress and egress through some seven doors on either side, secures a comfortable, quiet movement in the crowd. Up stairs there are two similar galleries, with the same complement of doors, only the gallories are larger and higher, and may be used for the promenade.

The music-room is on the main floor, even with the ground. The proportions of it are very pleasing to the eye, although the ceiling seems high at the first look. The dimensions are—130 feet long, 78 feet wide, and 65 feet high. Two galleries, on three sides of the room, break the height at proper distances. There are windows only at the top of the side-walls, admitting the fullest light for day performances; and to assist the ventilation of a room to contain so many people, there is but a single row of gas-jets running round the whole room for light at night. These jets are in front of the windows, and just under nineteen ventilators, each five and a half feet square. The ceiling is flat, rounding in as it meets the walls, and its only ornament is a series of diamond-shaped panels of a blue or sky grey colour, framed by a heavy beading of a white and neutral tint with a gold fillet. The side-walls are slightly panelled, with a delicate use of gold, and coloured with several tints, such as flesh, citron, &c. Several flat pillars are introduced as a relief: these are white, and their capitals are tipped with gold and shaded with the blue of the ceiling. The side-walls below the galleries are panelled and coloured in the same manner; and the fronts of the galleries are also plainly panelled and tinted, and then are rimmed with crimson velvet. The stage is large and roomy, and built so that a choir may be seated when not singing, as is usual; and there is an organ covered up in a recess in the wall behind. The galleries at the side are supported from the walls, having no columns; but the gallery at the end of the room, opposite the stage, rests on several. There are only two rows of seats in each side gallery; but the one at the end has five rows, the last rising to a slight elevation. There are seats for 2,700. The furniture is of a plain black walnut throughout, with the trimming and upholstery in keeping. The seats are removable, as in Tripler Hall. Each sofa seats four or five; an oval back in a frame signifying the space each sitter is to have. The colour of the cloth covering of the sofas, is a blue or neutral green, with figures of a very light bronze. Even to these, every detail whatsoever has been carried out under the direction of the architect.

The colouring of the whole is a composition of neutral tints, which produces a tone of finished and harmonious repose. Considering that a large and perfect house was wanted, and that the means were limited, the execution reflects the credit of genius on Mr. Snell, the architect, and Mr. Morse, his assistant, and designer of the decorations, and a reputation on his confreres in the work.

The expenditure will be perhaps 150,000 dols. which is owned in shares.

MATERIALS FOUND IN EXCAVATING.

CUSTOMS OF TRADE.

Stewart v. Hiscox.—This was an action to recover 8*l.* 10s. the value of certain materials found in excavating by the defendant, who pleaded the general issue.

It appeared that the plaintiff, who is an excavator, had contracted with the defendant to excavate certain ground for building at Greenwich, and that in doing so he found the materials in question. The plaintiff alleged that, under that contract, according to the custom of the trade, he was entitled to all the earth or other commodities, such as old bricks and similar materials, which he excavated, but which the defendant would not allow him to remove. The case for the defendant was that no such custom existed, and much contradictory evidence was given upon the subject.

Lord Campbell remarked that, if the plaintiff's case were correct, if he hit upon another California, he would be entitled to all the gold, so that he did not interfere with the prerogative of the Crown.

The jury were of opinion the custom had not been proved, and gave a verdict for the defendant.

HOUSE AGENTS' CHARGES.

Cox *v.* Blake.

This was an action brought in the Clerkenwell County Court to recover the sum of 32*l.* for house agency, including a sum of 4*l.* 4s. for taking inventory of fixtures, &c.

The case, which appeared to excite considerable interest, occupied a long time, but the short facts are as follow:—The plaintiff, who carries on business in Bond-street, was employed by the defendant to let a villa residence at St. John's-wood, and in September 1851, received in answer to an advertisement an application from a Miss Johnson, with whom he entered into negociation, but which negociation was broken off and the house was ultimately let to a Captain Johnson, plaintiff receiving his commission. In 1852, Miss Johnson, who happened to be passing the house casually, ascertained from one of the servants that Captain Johnson was about to remove, and she accordingly applied to Mr. Blake, the landlord and present defendant, who accepted her as a tenant, letting her the house furnished at a rental of 165*l.* a year. There was no outward indication that the house was to let, and the information was obtained entirely through the servant. No application whatever was made to the plaintiff on the second occasion. Mr. Cox, it appeared, was employed to take an inventory on Captain Johnson giving up possession, but the payment for this was objected to on the ground that it was grossly incorrect.

Mr. Lewis, of Boswell-court, submitted that the way to test the question was this. Had Mr. Blake derived any advantage from Miss Johnson's tenancy? If he had, the plaintiff was entitled to his commission whether he had little trouble or no. Miss Johnson could not have known either Captain Johnson or Mr. Blake except through the plaintiff, who introduced her in the first instance. It was, therefore, through his exertions that Miss Johnson became the tenant, and for which services he was entitled to the usual remuneration.

Mr. Cressy, the barrister, contended, on the part of the defendant, that Mr. Cox had no substantial or *bonâ fide* claim. He had done nothing whatever in letting the house to Miss Johnson. An agency could not go on indefinitely: there must be some limit to it; and Mr. Cox having been once paid for his services, he could not saddle the defendant with commission over again.

His Honour was of opinion that there was no evidence of any negociation after the house was let to Captain Johnson, and that the commission was not earned a second time. The letting to Miss Johnson was a pure accident, and with which the plaintiff had no trouble. He thought him, however, entitled to something for the inventory, and would therefore award him 2*l.* 2s.

LANDLORD AND TENANT.

Ford *v.* Bean.—This was an action brought in the Clerkenwell County Court, for the use and occupation of premises situate in Sharp's-alley, Cow-cross, leased to the plaintiff by Mr. Harmer (late alderman). The demand was for a quarter's rent, from Midsummer to Michaelmas last. The present occupant, who had been the tenant of Mr. Harmer between two and three years, had never received notice from that gentlemen or his agent to quit, nor had he ever acknowledged the title of the plaintiff as landlord.

Mr. Lewis, of Ely-place, contended that Alderman Harmer was the party who ought to have brought the action, the lease being antedated, and the plaintiff himself not being a tenant of Mr. Harmer at the period from which the rent was now sought to be recovered.

It having been proved that a tenancy from year to year was granted to the defendant by Mr. Harmer,

His Honour held that the plaintiff could not recover, nor had he (his Honour) power to give him possession. The defendant had not assented to become the plaintiff's tenant, and he had a right to say, "I do not like you as a landlord; and I shall continue Mr. Alderman Harmer's tenant until he gives me legal notice to quit." The tenancy had never been determined, and Mr. Harmer had assumed to grant a lease to the plaintiff for twenty-one years, which he could not do without giving the party in possession six months' notice. The plaintiff had never had a tenancy under this lease, nor could he have possession so long as the original tenancy existed. The original tenancy was in existence when the lease was granted, and a new tenancy could not be created until the former tenancy was dissolved. The judgment must therefore be for the defendant.

Notices of Books.

Literary Essays and Characters, selected from "The Introduction to the Literature of Europe." By Henry Hallam. London: Murray. 1852.

The writings of Mr. Hallam will be made known by this selection from his work on "The Literature of Europe," to many who are at present personally unacquainted with them, and will, we hope, lead them to his books in their perfect form. The learning, impartiality, and critical acumen of Mr. Hallam, have placed him in the first rank of English authors, and we have in this agreeable selection evidence of his command over the lighter graces of literature. As an example of the writer's style in descriptive writing, take the following sketch of

FLORENCE,

given when speaking of the residence of Lorenzo de Medici:—

"Florence lay beneath them,—not with all the magnificence that the later Medici have given her, but, thanks to the piety of former times, presenting almost as varied an outline to the sky. One man, the wonder of Cosmo's age, Brunelleschi, had crowned the beautiful city with the vast dome of its cathedral—a structure unthought of in Italy before, and rarely since surpassed. It seemed, amidst clustering towers of inferior churches, an emblem of the Catholic hierarchy under its supreme head; like Rome itself,—imposing, unbroken, unchangeable. Round this were numbered, at unequal

heights, the Baptistry, with its gates, as Michelangelo called them, worthy of paradise; the tall and richly-decorated belfry of Giotto; the church of the Carmine, with the frescoes of Masaccio; those of Santa Maria Novella (in the language of the same great man), beautiful as a bride; of Santa Croce, second only in magnificence to the cathedral of St. Mark, and of San Spirito, another great monument of the genius of Brunelleschi; the numerous convents that rose within the walls of Florence, or were scattered immediately about them. From these the eye might turn to the trophies of a republican government that was rapidly giving way before the citizen-prince who now surveyed them; the Palazzo Vecchio, in which the signiory of Florence held their councils, raised by the Guelf aristocracy, the exclusive but not tyrannous faction that long swayed the city; or the new and unfinished palace which Brunelleschi had designed for one of the Pitti family, before they fell, as others had already done, in the fruitless struggle against the house of Medici; itself destined to become the abode of the victorious race, and to perpetuate, by retaining its name, the revolutions that had raised them to power."

Moral Sanitary Economy. By Henry M'Cormac, M.D. Consulting Physician to the Belfast General Hospital, &c. Belfast; printed for private circulation, by Alexander Mayne. 1853.

The readers of the *Builder* do not require to be told that anything written by our correspondent Dr. M'Cormac must be well worth perusal. The present little book is a most valuable concentration, not only of the author's own ideas, but of those of innumerable other writers (the *Builder*, of course, inclusive) whom he quotes. The object which Dr. M'Cormac had in view in the preparation of this work, so far as regards its size, was to condense all he had to say within as small a compass as possible, and for this purpose the whole has been several times rewritten—a labour which cannot but vastly enhance its value when published, as we believe it is to be, for behoof of the people at large. It constitutes a suggestive, terse, and improving little volume. The author has included moral as well as sanitary statistics and advices, because he found it impossible to divide them. "Men," he remarks, "are not miserable, diseased, and short-lived merely because they reside in uncleanly, wretched homes, but because they are untaught and untrained as respects things necessary to human dignity and human well-being." The work is divided into twelve sections, viz. Female Degradation, Employment, Education, Household Culture, Criminal Management, Physical Training, Clothing, Food, Drink, Air, Drainage, and Prevention of Disease.

"We are constantly anathematizing vice, ignorance, and improvidence," says the author in his preface, "but we also are confessedly to blame, in so far as, by means of proper culture and training, it might have been possible to prevent them. If Governments will not, then should municipalities make a sort of razzia on the vile recesses, unfit for creeping reptiles or wallowing swine, yet the only homes of tens of thousands in all our towns; reconstruct these wretched homes; clothe, instruct, and employ their inmates; above all, educate and train the young."

In reference to employment and the power of Governments, we may further quote a few suggestive sentences, written under head of "Employment," and immediately following the author's observations as to anonymous partnerships and working associations.

"It is only necessary that money should be the certificate, not the equivalent, of value. Mr. Duncan has proposed, that when Government took a vote for money they should issue some fifty millions of 1*l.* notes, to be duly cancelled after being paid in as taxes. (*Liverpool Standard*, May 20, 1851.) Mr. Harvey, of Liverpool, mentions in his *Pamphlet*, how the States of Guernsey issued 4,000 1*l.* notes, which were declared a legal tender, guaranteed by the whole property of the island, in order to repay the cost of a public market. When the market was finished, and the first year's tenancy had expired, 400*l.* in rent was handed in. The treasurer then publicly cancelled 400 of the notes, so that at the end of ten years the debt was extinguished, while *the market, which in fact had cost nothing*, remained, paying 400*l.* annually to the state. The principle, which appears every way practicable, deserves the attention of publicists, money merchants, and the Legislature."

It is easy, of course, to say that such a principle might be liable to abuse; but could not such abuse be efficiently guarded against, whilst great good, both moral and physical—both educational and sanitary—might thus be rapidly conferred upon the industrial mass of the community?

Rational Arithmetic. By Mrs. G. R. Porter. A new edition. Murray, Albemarle-street, London.

This useful little volume was originally published in a conversational form, but it has now been altered and adapted for the use of schools as well as for private instruction. Every care compatible with the nature of the subject has been taken to render it as—attractive shall we call it—to young and tender minds as possible.

Miscellanea.

WELLINGTON'S SEPULCHRE.

Beneath the Dome the hero lies,
A genius great the Tomb supplies,
With civil power vast to raise
Peace and War to equal praise;
Striking the human mind with awe,
At talent scarcely seen before:
Resplendent glory's earthly home,
And Order's world from "Chaos" stone.
The soul and body here unite
With boundless good cosmopolite.
Now, when we think what Arthur won,
And see the work that Wren has done:
Wellington, worthy Wren's great dome,
And Wren quite worthy Arthur's tomb,
We seem as nothing here in space,
Or dwarfs creation to disgrace.
But, if we think a moment more,
Our hearts must throb to inmost core,
With joy and pride almost divine,
And, man-like, say, "These works are mine;
I built the tower that makes me small,
Genius and strength performed it all;
And like a giant I lift the mound,
As mole the earth on meadow ground;
And greater prove myself to be,
Than these, my works, that lessened me.
A spark of Heaven's eternal light,
Gives to man his glorious might;
And when such works,—such deeds,—we scan,
We feel that God has come to Man;
And humbly say before his throne,
'All honour's due to Thee alone.'"

R. T. Webb.

Bursting of Another Reservoir.—A serious destruction of property was caused on Sunday in last week by the bursting of a reservoir connected with bleaching and dye-works, at Elton, near Bury. The reservoir was situated at the head of a narrow, and in some places rather deep, gorge, occupied throughout by a succession of works of different kinds, each with its small reservoir, or lodge, formed by throwing an embankment across the valley. For many years only one reservoir existed, at the Lower Croft works, where the accident occurred. Into this reservoir were conducted two or three small streamlets; but on two or three occasions the flood was so great during heavy rains, that fears were entertained lest the embankment should yield; and this led to the formation of the "upper lodge," the embankment of which has now burst. This second embankment was thrown across the valley from 150 to 200 yards above the first, so as to form a reservoir having a surface of seven or eight acres. The embankment was about 100 yards long and 33 feet high, in the centre of the valley. It originally contained 31,691 cubic yards of "filling," and 3,184 of "puddle;" and the estimated capacity of the reservoir was 21,150,000 gallons. The gathering ground extended over some 370 acres. The works were completed in March 1845, at a cost of from 1,200*l.* to 1,500*l.* Several manufactories and buildings were injured before the torrent subsided, and altogether, in private and public property, it is estimated that the damage done will not be much under 30,000*l.* or 35,000*l.* It would be utterly impossible to convey an idea of the wreck and ruin presented by the whole valley, property having been floated down and left in the middle of fields, roads, and hedges, and lying in confused heaps everywhere. It is said to be a small picture of the Holmfirth inundation over again, so far as the destruction of property was concerned, but fortunately no village was on the banks of the stream, and no lives were lost. As it was on Sunday, too, there was no one working in the mills,—a providential circumstance. A correspondent of a Manchester paper states that "Many persons have considered the reservoir in an unsafe condition, in consequence of water having for a long time oozed through the embankment. This impression was communicated to the proprietor, but he did not appear to consider the matter important, as he stated in reply, that the leakage would filter the water. Some time since, however, means were adopted to prevent the increase of the leakage by inserting small pipes into the embankment to carry off the water that escaped."

The Iron Trade.—Prices are still on the advance. Some great masters are said to name 11*l.* a ton as their price for bars and rods. Hot-blast pigs made from mine are said to have been refused on offers of 5*l.* a ton for them.——The number of furnaces in blast in Durham and Northumberland is stated to be thirty; and there are seventeen building. The production of each furnace varies from 135 to 200 tons per week, according to the mixture of iron-ores used. The present price of pig-iron made at these works is about 3*l.* 3s. 6d. per ton at Newcastle-on-Tyne, for ordinary brands; but the Weardale is 10s. per ton higher.——Immense quantities of the ironstone recently being wrought on the north-east coast of Yorkshire, and embracing Eston Nab and Roseberry Topping, are being carried daily up the Stockton and Darlington Railway to Witton-park Iron-works, and, further west, to Conside Iron-works. The recent development of railway mineral traffic in South Durham, according to the *Shields Gazette*, is, for extent and profit, without a parallel in the kingdom.——Glasgow news of a recent date says:—"We have just closed a week of most unprecedented excitement in our pig-iron market, the price having advanced about 6s. per ton since this day se'nnight. The nominal quotation to-day is 65s. for m. n. warrants, at which considerable business has been done, the market closing with a very unsettled appearance."——The Portland Iron Company has been formed for working ironstone fields, secured by leases at moderate royalties, consisting of 5,000 acres, held under the Duke of Portland, the works being situate about two miles from Kilmarnock, and within twelve miles from the shipping port of Troon. The property contains the celebrated blackband ironstone, varying from 14 to 24 inches thick, extending over 2,000 acres. The remaining 3,000 acres contain large quantities of coal and ironstone, and probably blackband also, to prove which borings are being made; and it is expected these works contain a larger quantity of coal, ironstone, and fire-clay, of first-rate quality, than any other in the kingdom. The blast furnaces will turn out 30,000 tons or pig-iron per annum.

Elementary Drawing School at Chester.—The Mechanics' Institution of Chester have resolved to grant the free use of their committee-room for two evenings in the week, for the use of an elementary drawing class, under the Government Department of Practical Art.

New Independent Chapel at Camberwell-Green.—It having been deemed desirable to erect a new place of worship, with vestries and schoolrooms attached, a piece of freehold land, on the south side of Camberwell-green, was purchased for the purpose; and a design having been furnished by Messrs. Wilson and Co. of Bath, architects, a contract for the erection of the building was entered into with Mr. John Glenn, of the Liverpool-road, London, builder, by whom the works were commenced a short time since, and the foundation-stone was laid in course of last week. The chapel will be in the Gothic style of architecture, and will be ornamented in front with two decorated towers. The extreme length is about 110 feet, and breadth, 60 feet. The material is Kentish rag-stone, with quoins and dressings of Caen stone. In addition to the schools in the rear, the chapel will contain seats for 1,000 adults and 300 children.

The Industrial Exhibition of 1853.—We are glad to find that the principal cities of France, Belgium, and Prussia, will be exhibitors, headed respectively by the Emperor Napoleon and their majesties King Leopold and Frederick William IV. each of whom has promised to contribute exquisite specimens of the *vertú*, art, and manufactures of their kingdoms. To this list can now be added the Austrian dominions, where the government has issued special invitations to all the Austrian manufacturers to contribute specimens to the Exhibition. The Swiss government are likewise alive to the importance of the Exhibition, a communication having last week been received from the vice-consul of the Swiss Confederation in London, requesting that the fullest information may be immediately forwarded to him, as it is the wish of the leading watchmakers at Geneva, and the other manufacturing towns of Switzerland, to send a choice collection of the beautiful articles for which they are justly celebrated. Though not strictly within the limits of an "Industrial Exhibition," there will be an archæological collection illustrative of Ireland and Ireland's history.

Wall Painting in Exeter Cathedral.—An interesting subject, painted in distemper, has just been brought to light on the north wall of the north tower of Exeter Cathedral. The zeal and industry of Mr. Winsor, the senior verger, in clearing off the whitewash from an area about 7 feet by 9 feet, has been the means of displaying the whole of the figures with great clearness. It represents the Resurrection of our Lord, who stands erect, holding the red-cross banner. Around are four or five crouched figures—"the Pharisees" and soldiers: the angel that "rolled back the stone" is behind. In the middle distance appear the women approaching the sepulchre; in another place, "she supposing him to be the gardener." The buildings of Jerusalem, in the background, remind the archæologist pleasantly of round churches and Romanesque spires. The painting occupies a space between the clock—dating some time in the fifteenth century—and the angle of the tower. It is the intention of Mr. Ashworth to make a drawing of the subject, for the benefit of those who may not be inclined to scale the inclosure of Silkes Chantry by ladder to get a near view; and it may be well thus to perpetuate colours which might not permanently

> "Bear the brightness of the day,
> Which streams too much on all years, man has reft away."

Railway Matters.—Strong symptoms of revival in the activity of railway projectors have manifested themselves this year. The number of plans lodged with the Board of Trade on 29th and 30th ult. were about 160, a great proportion being extensions of existing railways.——The following are among the principal amalgamation Bills to be submitted to Parliament:—The London and North-Western and the Midland; the London and North-Western and the North Staffordshire; the London and North-Western and the Birkenhead, Lancashire, and Cheshire; the London and North-Western and the Shrewsbury and Birmingham and Shrewsbury and Chester; the Newport, Abergavenny, and Hereford, and the London and North-Western, thus making a proposed addition to the capital of the latter company of 27,387,344*l.* expended on 887 miles, and a total to 30th of June last of 56,962,041*l.* expended on 1,441 miles of railway;—the Great Western and Shrewsbury and Birmingham and Shrewsbury and Chester, making an addition of 2,797,825*l.* to the capital expended by the Great Western, and a total, including the Birmingham and Oxford, of 21,000,000*l.*;—the York, Newcastle, and Berwick, the York and North Midland, and the Leeds Northern, including an expenditure of 19,000 000*l.* on 653 miles;—the London and South-Western and the London, Brighton, and South Coast, aggregate expenditure, 15,862,845*l.* and mileage, 426 miles;—the Norfolk and Eastern Counties, aggregate capital expended, 11,915,683*l.*——The railway line from Sunderland Dock to the Pensher station of the York and Berwick Railway is now complete. In the first nine miles there are no fewer than sixteen bridges, four of iron and twelve of stone, besides a large culvert. There have been some large cuts and embankments on the line. There is a branch line to the Derwent ironworks. The passenger stations are six in number. The total cost is estimated at 250,000*l.*

Art-works in Progress at Rome.—According to a correspondent of the *Morning Chronicle*, Gibson's statue of Sir Robert Peel, to be placed in Westminster Abbey, is in course of execution. It will be finished in three months. The sculptor is likewise engaged on another work of national interest. It is to be of colossal proportions, representing her Majesty Queen Victoria seated on the throne, with attendant figures at each side, the one of Clemency, the other of Justice. The statue of the Queen is at present being raised in clay. The United States' National Monument to Washington is being executed by Mr. Crawford, an American sculptor. It will be the largest monument of the kind existing. Rauch's statue of Frederick the Great, at Berlin, is of considerably less proportions. The base of the Washington monument is a complete circle: on this a star with six points is raised, and on this rises the actual base to the equestrian figure. Six eagles surround the steps on the circle, and six colossal statues of eminent Americans surround the pedestal—Henry, Lee, Mason, Marshall, Allen, and Jefferson. The whole is on a gigantic scale, from 60 to 70 feet high. The figures of Jefferson and Henry are completed, and forwarded to Müller's foundry at Munich, to be cast in bronze. The artist is raising the figure of Washington's horse—a mound of clay. The papal government last year made a donation of an immense block of marble for the works.

Repair of The Church of the Holy Sepulchre.—The Berlin *Spener's Gazette* states, on the authority of a private letter from Jerusalem, that the Sultan had resolved to repair the defect in the cupola of the Church of the Holy Sepulchre at his own expense, to appease the disputes to which the state of the building had given rise among the Greek and Latin Christians. A Turkish engineer had arrived, with orders to survey the edifice, and make the necessary measurements and estimates for the repairs. On the day after the arrival of the engineer, Afff Effendi, a conference was held in the body of the church, at which he stated it was the declared will of the Sultan, that the dispute about rebuilding the cupola should be settled: he had therefore resolved, without prejudice to the rights of powers interested in it, to undertake the restoration of it at his own cost: the Effendi notified, accordingly, that he should commence the survey on the following morning.

Breach of Contract.—At Marlborough-street police-office, Alexis Le Bray was summoned before Mr. Bingham for breach of contract with his employer, Samson Wertheimer, ironmonger and ormolu worker, Greek-street, Soho. It was proved that the defendant had entered into a written contract with the complainant for one year at 36s. a week. The year having expired, the contract was renewed for another year at 2*l.* per week. The defendant having been offered higher wages by another house, suddenly left his employment, and did not even return to finish the work in hand. The defendant admitted the authenticity of the contract. Mr. Bingham said he was sorry to have to send a skilful workman to prison, but as there was no justification for the defendant's conduct he must put the Act in force. Verdict,—imprisonment for one month.

Architectural Institute of Scotland.—The second meeting of the session of this institute was held last week, being the first this season in Glasgow. Sheriff Bell presided, and, on opening the proceedings of the evening, he congratulated the members on the progress the institute had made, intimating that the numbers now amounted to 400. Mr. Edmund Sharpe then read a paper on the history of the progress of Church Architecture in England, from the Heptarchy to the Reformation.

Killarney Junction Railway Competition.—We hear that this company have now instructed a Dublin architect to prepare a set of plans for the proposed hotel at Killarney, and that the amount (6,000*l.*) stipulated in the late competition, will be far exceeded. Our readers are aware that the company awarded the premiums to certain architects for their plans, but it appears that neither are to be carried out. The proceedings of the company have given dissatisfaction to some of the rejected competitors, to whom additional trouble was caused. The railway is progressing. Upwards of 500,000 cubic yards of earth and 40,000 of rock have been excavated: eight of the twelve river bridges are built, and five of the eleven road bridges also. Twenty-four of the thirty-two miles have been brought to formation level, and fourteen are ready to receive the permanent way. There is a heavy rock-cutting at Knockacoppul. The station, goods store, and other buildings are in a very forward state. Mr. W. R. Lefaun, engineer-in-chief. Mr. Dargan, contractor.

British Archæological Association.—On Wednesday 8th, the last evening meeting before the Christmas holidays, an exceedingly curious paper by Mr. Vere Irving, was read to the society. In the household expenses of the Princess Mary, daughter of Henry VIII. A.D. 1522, preserved in the Chapter-house, at Westminster, there occurs this singular item. "Pd. to a man at Wyndesore, for kyllyng of a calffe, before my Lady's grace, behynde a clothe, 8d." This item, Mr. Payne Collyer, in his "Annals of the Stage," has observed, "is inexplicable, unless we knew the story represented." Mr. Vere Irving's paper contained this story, and gave the most complete and satisfactory illustration of the item, by the recital of the whole entertainment, which he himself had more than once heard given in the North. It is a dialogue supposed to be carried on between a man who has a calf to sell and another person, the performer being concealed behind a curtain or cloth, changing his voice, and imitating the various sounds occasioned by the supposed killing of the calf, skinning it, and attempting to carry the body of it away, &c. &c. The reading occasioned great amusement, and the paper is a valuable illustration of the rude scenic amusements of ancient royalty.

Interments in the City Graveyards.—At a numerous meeting of the inhabitant housekeepers of the parish of St. Botolph Without, Aldersgate, held at the Literary and Scientific Institution, Aldersgate-street, on the 7th inst. it was unanimously resolved "That the interment of the dead in the City of London being alike opposed to the health of the inhabitants, and to the respect due to the remains of those who have departed this life, and the Legislature having sanctioned an Act for placing the dead in suburban districts, that the meeting regards the continuous interment in the churchyard of this parish as no longer necessary or politic, and from its overcrowded state calculated to injure the health of the surrounding district: and that the foregoing resolution be forwarded to the Court of Common Council and the Commissioners of Sewers."

Locomotive-Oil.—It is stated by a contemporary that a large railway engine consumes from 90 to 100 gallons of oil yearly for lubricating its working surfaces. The annual consumption of oil by the London and North-Western Railway Company, for this purpose, exceeds 40,000 gallons.

Repeal of Taxes on Knowledge.—The Association for Promoting the Repeal of the Taxes on Knowledge have addressed the Premier on the subject in a memorial reviewing the objections to these taxes, and expressing a hope that the measures contemplated by the Government will consist in a repeal of the newspaper stamp altogether, otherwise it is the opinion of the association that if the Government actively interfere so as to modify these taxes merely, they will be obliged in consistency to enforce the law as it may then stand, especially in the case of news in the weekly unstamped papers.

New Telegraphic Lines on the Continent.—The lines of electric telegraph just completed in the Netherlands connect Amsterdam, Breda, Rotterdam, Haarlem, Dordrecht, and La Haye, now for the first time, with Great Britain, by means of the submarine wires. The following cities and towns, with others of lesser note, are also in communication with the offices in Cornhill:—Agram, Aix-la-Chapelle, Amiens, Antwerp, Augsburg, Avignon, Baden, Berlin, Bonn, Bordeaux, Boulogne-sur-Mer, Bremen, Breslau, Bruges, Brunswick, Brussels, Calais, Cassel, Coblentz, Cologne, Cracow, Dantzic, Dieppe, Dijon, Dresden, Dunkirk, Dusseldorf, Florence, Frankfort-on-Maine, Friburg, Ghent, Gotha, Hamburg, Hanover, Havre, Kehl Strasbourg, Konigsburg, Leghorn, Leipzic, Lemburg, Lisle, Lucca, Lyons, Metz, Magdeburg, Malines, Mannheim, Mantua, Mayence, Milan, Munich, Modena, Nantes, Nuremburg, Ostend, Padua, Paris, Pesth-Bude, Posen, Prague, Presburg, Parma, Rouen, St. Omer, Stettin, Stuttgard, Strasbourg, Trieste, Venice, Verona, Vienna, Weimar. Marseilles will be connected in a few weeks.

Colonel Colt and his Revolvers.—The Colonel is now manufacturing his noted pistols at Thames Bank, Pimlico, where he meditates the erection of an amateur shooting-gallery, 100 yards in length.

Greenness on Walls.—Being at Clapham lately, I could not help noticing that at the new building for the Freemasons' Girls' School, lately erected there, round the windows of the building the brickwork was covered with a greenness through the rain, which I attribute to the stonework being flush and sloping towards the brickwork (thereby causing the rain to run on to the brickwork); I should much like to have an opinion as to how this could be remedied.—A Freemason.

Westminster Bridge.—Sir R. H. Inglis recently put a question in the House of Commons to the First Commissioner of Works in reference to the bridge of Westminster. About six years ago it had been unanimously agreed by a committee of that house to remove the present bridge. He wished, first, to know what was the state of the bridge? Next, whether it was the intention of her Majesty's government to introduce any measure for the purpose of erecting a new bridge? And thirdly, whether the new bridge would be erected on, or close to, the site of the present structure? He further wished to know whether competition would be allowed?—Lord J. Manners said he had applied to Mr. Walker, parliamentary engineer, on the subject, whose opinion was that the present structure was not unsafe. With respect to the other questions of the hon. baronet he should say it was the intention of her Majesty's government to introduce a measure for the purpose of constructing a new bridge, which would occupy the site of the present. With respect to the last question, it was not yet decided whether the undertaking would be open to competition, or whether one of the plans already sent in would be accepted. Lateral additions were to be made to the present bridge, which would not be removed until the new bridge should be completed and opened for traffic.

Who Built it?—We learn from Dr. Salisbury, geologist to the State, that within the past three weeks a surveying party in Essex county have stumbled upon the remains of a city, which must have once contained 15,000 or 20,000 inhabitants. It is located in the forest, a few miles back of Ticonderago, and was evidently the home of people considerably advanced in the arts and comforts of civilization. In proof of this we may mention that the ruins of more than two hundred chimneys are yet in a state of good preservation. As no such city has ever been mentioned by our historians or gazetteers, a question arises about its original builders, which will keep our historical society in first-class wrangling materials for the next five years. The idea that such a city should have existed within four hours' ride of Albany for centuries and yet never be discovered till July, 1852, is one of those singular facts which excuses astonishment.—*New York Dutchman.*

Cambridge Architectural Society.—The third meeting for the Michaelmas Term was held on November 24. Presents having been announced, Mr. C. J. Evans, King's College, then read a paper on the history and present condition of Cologne Cathedral. At the fourth and last meeting for the present Term, held on Wednesday, the 8th inst. Mr. A. T. Lee, of Christ's College, read a paper on Bridport Church. Mr. J. H. Cooper, Trinity College, Mr. C. J. Evans, King's College, Mr. R. R. Rowe, and Mr. Norris Deck, were elected a committee, with power to add to their number, to inspect the present state of Barnwell Priory Church and Stourbridge Chapel, and to report to the society thereon next Term, in order that steps may be taken for their restoration.

Houses at the Diggings!—A letter has been received, according to a Sunderland paper, from a Newcastle man, now at Melbourne, Australia, who had bought some land previous to the gold discoveries, and had sold building lots at high prices. Having built brick houses for himself and sons, they erected two weather-board three-room houses, without ceiling or plaster, which they have let at 25s. per week each. He says, "If some of our Newcastle people would send out a few cargoes of bricks and coals, they would find it an excellent speculation.

Drainage of Regent's-park. — Will you allow me to call your attention to the pipe drainage now being carried out in the Regent's-park? I allude particularly to the filling in of the unyielding clay of that locality, immediately on the pipes, and which I fear will soon get so embodied as to prevent any benefit arising. If, instead of this method, the turf removed were thrown in first, and its loss made good by sowing grass seed on the parts disturbed, the result would, I think, be far more satisfactory.

R. F.

Bust of the Duke of Wellington.—Mr. E. W. Wyon has executed for Messrs. Josiah Wedgwood and Sons an interesting bust of the Duke, which has been produced by them in "Parian," and is so made obtainable at small cost. The sculptor has represented the great commander as he appeared when in the vigour of life, and has succeeded well in the likeness. Mr. E. Wyon's skill in small works of this character has been made manifest by the reduced models of Flaxman's "Michael and Satan" and Bell's "Eagle Slayer," executed by him for the Art-Union of London.

An Electric Light Company.—A prospectus of an Electric Light Company is now before us, from which it appears that the patented invention of Mr. Martyn Roberts, whereby the working of the galvanic battery is declared to be "actually costless," from the use of tin as the positive pole, acted on by nitric or nitromuriatic acid, has been adopted as the basis of a new company, for the supply of electricity, or of licenses so to produce electricity, for light, locomotion, mineral reduction, chemistry, and the arts. A capital of 200,000*l.* in shares of 1*l.* each, is named as the requisite means of the new company.

Cork Workhouse.—The view and plan of the Cork Lunatic Asylum led me to look over my diary of a recent visit to Cork, and recall another building of great extent, betraying even more palpably collateral errors, I mean the new workhouse, which, at the time of my going over it with the late governor, had within its walls 3,400 inmates! My brief diary-remark at the time is, that, with some points of such efficient administration as the place admits of, the fact of 30,000*l.* or 40,000*l.* having been expended on such a site seems scarcely credible; the main body of the buildings having been erected in a complete hollow, with no proper drainage or sewerage; and, to add to this vital error, without any adequate or permanent supply of water! With all its improvements and public spirit, Cork has, I hesitate not to say, grievously committed its judgment, as an intelligent and opulent community, by the erection of this structure; and it appears to me to be one especial object in a publication such as yours to bring into public and prominent relief costly mistakes of this kind. My journey, as a private philanthropist, embraced more particularly the convict prisons, workhouses, and schools of Ireland. For the former, a general order of admission was promptly and courteously granted at Dublin Castle; and for the latter, no other introduction was, in any instance, needed, than my personal and heartfelt interest in the social and mental condition of the working classes.—

E. S. R.

Liverpool Architectural Society.—At a meeting on Wednesday evening last week, Mr. Verelst, the chairman, submitted some ornamental and other drawings by Signor M. Brigaldi, an Italian artist, and proprietor of the Marionette Theatre. Mr. Horner read a paper, which, in a very early stage of his professional career, he had prepared respecting the decoration of an organ, for which he had furnished a gratuitous design. Mr. Frank Howard read the continuation of his paper on nature and art.

A Ponderous and Massive Shaft.—A hammered shaft, just completed at Llanelly, is 16 inches in diameter, more than 12 feet in length, and weighs upwards of 4 tons. It is intended for a steam engine of 200-horse power.

Waterworks Bills.—There are forty-five applications to Parliament this session for new waterworks and for the extensions of old ones, in various parts of the kingdom.

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TO CORRESPONDENTS.

"A. E. P." (we gave some information as to architects' charges in a former volume, and are unable at this moment to go into the subject again. Travelling expenses may justly be charged in addition to the five per cent. In "small works amounting to not more than 100*l.* or 200*l.*" five per cent. will certainly not pay for "drawings, estimates:" charge should be made for the time occupied). "Old Subscriber" (if the floor above were "sound-boarded and pugged," the fall would be materially lessened). "Pupil" (after the isinglass, use a pure copal varnish instead of the turpentine and Canada balsam). "J. S. B.," "B. B." (it is the fault of the Institution that we do not often give such reports). "A. T." "T. T." "C. O." "S. C." "T. D." "J. J. C." (under our mark). "P. B." (ditto). "Revilo." "J. B." "W. H. A." (we shall be happy to have particulars). "Professor S." "W. F." (brick-nogging should be measured separately). "A. M." "J. S." (will be noticed). "G. G." Marwood (we cannot advise). "C. F." "G. R." "S. H." "T. T." (shall be proceeded with). "R. C. P." "Oliver." "B. W." "Subscriber." Ely. "Constant Reader" (according to the Act, notice should have been given). "*Vice Cotis.*" "Alpha" (we shall be glad to hear further, and would arrange an interview). "W. A." "G. R. A." "J. P. S."

Erratum.—With reference to discussion on the site of National Gallery, p. 763, ante, we are asked to say, that Mr. Papworth's first observation was to the effect that the site "would allow on one floor of a collection *five* times as extensive as that of Munich, the largest but one on the continent."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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ROYAL POLYTECHNIC INSTITUTION.—ENTIRELY NEW EXHIBITION.—An Optical and Musical Illustration of "A Midsummer Night's Dream," the words from Shakespeare, the music by Horn, Stevens, Bishop, and Dr. Cooke, Daily, at a Quarter-past Four, and every Evening, except Saturday, at Half-past Nine. Lectures by J. H. Pepper, esq on the endless Amusements of Chemistry, adapted to a juvenile audience; by Dr. Bachhoffner, on the Philosophy of Scientific Recreation; by Mr. Griffin, on Ballooning and the Prospects of Aerial Navigation. Illustrated by a beautiful Model of Poitevin's Parachute, Green's Guide Rope, Diagrams, &c. Dissolving Views, including Day and Night Views of Walmer Castle, Walmer Church, &c.—Admission, 1s.; Schools and Children under ten years of age, half-price.

PAPER-HANGINGS, the Cheapest in London, at CROSS'S Wholesale and Retail Warehouse, 32, Great Portland-street, Oxford-street, where builders and the trade can select from a stock of 50,000 pieces, at the following reduced prices:—

Good Bed-room Papers	from 6d. per yard.
Painted Marble, Granite, and Oak Papers ... from 6d.	do.
Superior Dining and Drawing-room Papers from 1d.	do.
Satins and Flock	from 3d. do.

PAPER-HANGINGS, by E. T. ARCHER'S patented Machine, Blocks, Cylinders, and Artistical Labour, at his Manufactory for all kinds of papers adapted for internal decorations. PANELLED DECORATIONS fitted up on the walls of the extensive Show Rooms, in every known style, and for all purposes, by artists of known merit.
Always on hand a CHOICE and EXTENSIVE SELECTION of FRENCH PAPERS, from the best manufacturers in Paris.
Attached to the paper-hanging factory there is the choicest assortment of CABINET FURNITURE in London, of the best make, and upholstery goods of the first fabric, Brussels carpet, 2s. 6d. per yard; floor cloths, the best that can be made, cut to any dimensions. 3s. 3d. per yard; silk and worsted curtains, of the finest fabric, 5 feet wide, 8s. per yard, at
E. T. ARCHER'S, 451, Oxford-street.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¼ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory, Wilton-road, Pimlico Basin.

TO BUILDERS AND OTHERS
SEASONED WOODS by the Patent Desiccating Process for SALE, at E. I. FULLER'S Depôt, 97, Wharf road, City-road. Spanish and Honduras Mahogany, Wainscot, Hornbeam, Limetree, Birch, Beech, and Veneers. Flooring and Match Boards, &c

SEASONED FLOORING PLANED to a parallel width and thickness by improved patent machinery, at very reduced prices, as under:—

Per square.	Per square.
¼ inch yellow .....12s 0d.	¼ inch white.....12s. 6d.
½ " " 14 0	½ " " 14 0
¾ " " 16 0	¾ " " 15 6

2½ per cent. discount allowed off amounts exceeding twenty pounds. Also timber, planks, deals, battens, scantling, sash-sills, &c. at equally low prices. Delivered free to any railway station in London Terms, cash.
ARCHBUTT and ATKINSON, St. Pancras Saw-mills, Cambridge-street, Old St. Pancras-road, close to the Goods Terminus of the Great Northern Railway.

DURRANT'S "BONDED and SUFFERANCE WHARF TIMBER-PRESERVING WORKS, RUTHERHITHE.—BETHELL'S process for preparing timber with creosote, or oil of tar, and is particularly applicable for Railway Sleepers, Bridge Timber, Telegraph Posts, Piles, Docks, Harbours, &c.; and the Outside Planking of Ships and Barges. And also for use in the colonies, as being perfectly impervious to the attacks of all land or marine insects. PAYNE'S, Sir W. BURNETT'S, and MARGARY'S processes, in addition to their preservative properties, are likewise non-combustible, and are, consequently, adopted in her Majesty's Dock Yards, as a preventive of fire in Ship Building; and are also extensively used in House, Farm, and general Building.
Extensive and most complete machinery for the application of the above processes has been erected on these premises, which, being close to the great Timber Depôt of the Docks, are advantageously situated for land conveyance, or re-shipment; and also possessing Sufferance Privileges, are, consequently, equally applicable for Colonial and Foreign Trade
Scale of charges and every particular of P. ST. QUINTIN, Superintendent, on the Wharf; or at Mr. BURT'S Office, 9, Charlotte-row, Mansion-house, City.

SAINT PAUL'S CATHEDRAL.—FIREWOOD. A quantity of FIREWOOD and BOARD ENDS TO BE SOLD in stacks 36 feet by 4 feet by 3 feet, at 31s. per stack.—Inquire of Mr. WATMOUGH or Mr. GILKES, at the west entrance, Ludgate-hill.

TARPAULINS FOR COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary Awnings on sale or hire. Orders per post receive the most prompt attention WILLIAM PIGGOTT, 115, Fore-street, City. Manufacturer, by appointment, to her Majesty's Honourable Board of Ordnance.

LIGHTERAGE.—To Saw-Mill Proprietors, Timber, Slate, and Stone Merchants, or others, requiring Lighterage.—The Advertiser having a large number of Barges, is willing to undertake LIGHTERAGE at prices that defy competition.—CHARLES STRUTTON, 34, Commercial-road, Lambeth.

TO ARCHITECTS, BUILDERS, &c.
ALL descriptions of TERRA COTTA, CEMENT, and PLASTER CASTINGS, executed in a first-rate manner, on reasonable terms, by J. HERBERT and SON, Modellers, &c. 62, Pearl-street, Drury-lane. A splendid assortment of Corinthian, Ionic, and other Capitals; Enrichments, Flowers, Balusters, Trusses, &c.; Elizabethan and, other Chimney Shafts.

WINDOW BLINDS.—TYLOR and PACE, Window Blind Manufacturers, 43 Oxford-street, adjoin nu Hanover squ re and 3, Queen street Cheapside, London, submit the following PRICES of WINDOW BLINDS, which they can rec mmend as being made in the best manner. We clean blinds, on spring rolle s, 8d.; gauze wire blinds, in mahogany frames, 1s 10d.; perforated zinc blinds, in ditto, 1s. 8d.; outside blinds of striped oil h in cases, 1s. 9d. Transparent blinds in great variety. Engravings, with prices and discounts to builders and the trade, forwarded on application, now free

HEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS, sent free by post contains designs and prices of upwards of One Hundred different Bedsteads, in Iron, Brass, japanned Wood, Polished Deal, Mahogany, Rosewood, and Walnut-tree Woods; also their priced List of Bedding, and their new warerooms enable them to keep one of each design fixed for inspection. They have also in addition to their usual stock a great variety of the best designs of PARISIAN BEDSTEADS, both in wood and iron, which they have just imported.—HEAL and SON, Bedstead and Bedding Manufacturers, 196, Tottenham-court-road.

CRYSTAL PALACE.—Persons desirous of residing near the Crystal Palace can have RESIDENCES ERECTED, at a moderate rental, within ten minutes' walk of the railway station, and fifteen minutes' walk of the Crystal Palace.—Apply by letter, post-paid, to Mr. LINDSEY, at Mr. Clifford's, 6, Inner Temple-lane, Temple, when full information will be given.

DAMP WALLS.—NEW PATENT PAINT, as used at the TOWER, by order of HER MAJESTY'S HONOURABLE BOARD of ORDNANCE; at the TUNNEL; ZOOLOGICAL GARDENS, Regent's-park, and various other public and private buildings; in quantities to finish twenty square yards for 10s.
PATENT LIQUID CEMENT for the fronts of houses, for beauty pre-eminent, giving the appearance of fine cut stone, and only one-eighth the cost of Oil Paint. In casks of 1, 2, and 3 cwt. at 8d. 8s. and 24s. each.
PATENT MINERAL ZINC PAINTS, invaluable for cheapness, beauty, and permanence, ready for use. White Stone and Lead, 28s.; Greens and Blues, 5s. per gallon.
BLACK MINERAL PAINT, very permanent, half the usual price: only 2s. per gallon.
NEW PATENT COLOUR for inside work, may be applied on Wood, Stucco, Cement, or over Oil Paint. No smell, and will dry in an hour. In casks of 1 cwt. at 14s.
G. BELL and CO. Steam Mills, 2, Wallington-street, Goswell-street, London.

HUBBUCK'S PATENT WHITE ZINC PAINT.—The PERMANENT WHITE of the Ancients, by its costliness hitherto restricted to the use of the artist, is now offered at the price of the ordinary white lead.
Four years since the proprietors placed their manufacture on a large scale, and put this elegant Paint in competition with White Lead.
Its confessed superiority over every other paint hitherto known brought forward various imitations.
These inferior productions, frequently made from zinc ores, containing lead, arsenic, and other deleterious materials, alike injurious to health, deficient in body, and reducing the preservative properties for which the original paint stands pre-eminent.
In justice to the proprietors they should not be confounded with the original, even though sold under the pretence that it is all the same.
HUBBUCK'S paint is entirely free from any injurious properties whatever; it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.
As a guard to the public against the substitution of the inferior paints, each cask is stamped
"HUBBUCK, LONDON, PATENT"
and if the cask has not been so marked, the reason is obvious.
The powdered White Zinc also may be had for grinding in oil; also for use for porcelain cards, for japanners, for gutta percha, and for plaster decorations, and the other purposes where it is used with size, gum, varnish, spirit, &c. &c.
A circular with full particulars may be had of THOMAS HUBBUCK and SON, Colour Manufacturers, opposite the London Docks.

PURE PATENT WHITE ZINC PAINT, of the VIEILLE MONTAGNE ZINC MINING COMPANY of BELGIUM.—This Paint is superior in every respect to White Lead, which it surpasses in whiteness and brilliancy; it grows very hard after it is applied, and is not susceptible of a very high polish. It is unaffected by sea-water, sulphuretted hydrogen, or any other gases.
WHITE ZINC PAINT having none of the poisonous qualities of White Lead, avoids the dangerous sickness to which workmen, as well as persons inhabiting newly-painted houses, are subject.
The VIEILLE MONTAGNE COMPANY import the Oxide in casks bearing their mark, VM, without which none are genuine, and is to be obtained dry or ground at the Company's Agents at the following places, viz.—London, Liverpool, Birmingham, Hull, Newcastle, Leith, Glasgow, Bristol, Plymouth, Norwich, Ipswich, Dublin, Cork, Belfast, Jersey, Portsmouth, Poole, and the Isle of Wight; and from Messrs. Blundell, Spence, and Co. Hull, it may also be obtained from the Grinding Agents, Messrs. C. DEVAUX and Co. 62, King William-street, City. Wholesale Agents, Mr. CHARLES JACK, 8, Tottenham-court, New-road, and 86, Upper Thames-street, who sell it in kegs of 14 lbs. 28 lbs. 56 lbs. and upwards, at low rates; and Messrs R. ANDERSON and Co. Timber bush, Leith, wholesale and retail.
The Company also employ a painter, who will undertake any description of painting in Zinc by contract.
Since its introduction into the United Kingdom, the Admiralty and the most eminent painters have given it their preference. The public is cautioned, that if White Zinc Paint is adulterated, it becomes a very inferior paint, and peels and washes off.
For further particulars apply to WM. H. T. SCHMOLL, General Agent for the United Kingdom, at the Company's Offices, 12, Manchester-buildings, Westminster.

THE VIEILLE MONTAGNE ZINC MINING COMPANY beg to inform the public that they have appointed Messrs. T. and S. KNIGHT, of Great Suffolk-street, Southwark, as their painters, who will be ready to execute any description of painting and decorating with the Pure Patent White Zinc Paint.

THE WASHINGTON CHEMICAL COMPANY, NEWCASTLE-ON-TYNE;
Manufacturers of
Patentees of
PATTINSON'S OXICHLORIDE of LEAD.—The Washington Chemical Company having, during the last year, established a Manufactory of Pattinson's Oxichloride of Lead on a large scale, and being able to supply it with regularity, and to execute orders without delay, now proceed to bring this new and valuable preparation of Lead before their friends and the public, quite sure that it will not, in the present age, be condemned because it is new and that it is unjaded in its merits, it must make its way, and finally take its place as one of the important manufactures of this country.
Pattinson's Oxichloride of Lead is a chemical combination of one equivalent of Chloride of Lead, and one equivalents of Oxide of Lead; it being well known that common White Lead is a chemical combination of one equivalent of Oxide of Lead, and one equivalent (or thereabouts) of Carbonic Acid, constituting what is called in chemical language, Carbonate of Lead. Now there is no reason to conclude that Carbonate of Lead is the only compound of lead valuable as a paint, and that it should be the best possible compound of lead for that purpose. In point of fact it is not so, for the newly discovered Oxichloride is, in most, if not in all respects, is far superior; its colour is brilliantly white, and in a number of cases it has been tried against the best White Lead that could be obtained, and after a period of upwards of two years it has been found to retain its white colour, considerably better than the lead against which it was tried.
But the chief and by far the most important advantage it possesses is, its remarkable and very decided superiority of Body; by which term the power of covering surface well and extensively, is understood among Painters. The attention of the discoverer was at a very early period drawn to this circumstance, and since that time the Washington Chemical Company have had abundant opportunities of placing its superiority in this important particular beyond all cavil. They have also performed a number of experiments, and have also caused a number of experiments to be performed, in the large way, by various practical men, to ascertain accurately its power as compared with the best White Lead, and they now state the proportions to be as 60 to 100, that is, 60 lbs. of Oxichloride Paint will cover as much surface as 100 lbs. of the best White Lead, the saving of cost being in the same proportion; besides this, the coating is thicker and more protective, both in and out of doors, as the Oxichloride dries into a hard, tenacious layer, more than Lead ever does.
In using the Oxichloride, no difference in the materials with which it is mixed is required. Oil and Turpentine being employed as usual, both for work technically called Flatting, and for work intended to be varnished. For the use of Paper Stainers and Leather Dressers, the Oxichloride is found to be peculiarly suitable.
The Washington Chemical Company strongly recommend this newly-discovered substance to the notice of consumers, both on account of its economy and its intrinsic good qualities as a paint.

	AGENTS.
LONDON	9, Upper Thames-st. Mr. Richd. Cooke, 7, Size-lane.
LIVERPOOL	Messrs. Johnson and McGowan.
MANCHESTER	Mr. James Douglas.
LEEDS	Messrs. T. and E. G. Jepson.
SUNDERLAND	Mr. John Young.
DEVONSHIRE AND CORNWALL	Mr Richd. Penrose, Tavistock and Plymouth.
EDINBURGH AND EAST COAST OF SCOTLAND	Mr. Wm. Bailey, jun. Greenside-place, Edinburgh.
GLASGOW AND WEST COAST OF SCOTLAND	Mr. John Slimshaw, Glasgow.
DUBLIN AND SOUTH OF IRELAND	Mr. P. Linskey, 91, Middle Abbey-street, Dublin.
BELFAST	Messrs. William Stevenson, jun. and Co.

The Builder.

SATURDAY, DECEMBER 25, 1852.

THAT sheep and oxen have been taken out of their skins, and are exhibited in blue ribbons: the holly-berry has become visible to Cockneys: turkeys are slain, and plum-puddings made: little boys are looking joyous at the advent of holidays, and papas are looking glum at the accompanying bills: scene-painters and machinists are at work on pantomimes, and the few hardy Annuals left are showing their leaves: the musical talent of England exerts itself to make night hideous, and a general desire is felt to say and do something good and genial, if it be only because it is "the custom." In plainer language, *Christmas* is come,—the end of the year, and the close of our volume,—Christmas, with its holy and kindly influences,—the wonderful Birthday we have kept for Eighteen Hundred and Fifty-two years! "What a nice time it is," writes one to us, "it seems to prompt goodness and friendliness spontaneously. I do believe that its clear blazing firesides have some magic power over the heart, obliging it to think kindly of all, and to manifest the feeling in all sorts of pleasant ways." Ever may it be so; and let its influence last beyond the season!

Charity smooths many paths, removes asperities, and increases the sum of happiness. With the ancients the Charities and the Graces were identical. They were the daughters of Venus and Jupiter,—Beauty and Power;—and the divinity *Charis* was an embodiment of all the three: a beautiful and instructive myth. If our readers ask where we are wandering to, we must plead the date of our paper for an excuse, and leave to themselves the application of the remark.

It has always been our custom at the close of a volume to return our acknowledgments to co-adjutors and supporters, and we cannot persuade ourselves to abandon the practice at a time when our thanks are more than ever due. We have striven to increase the value and interest of our Journal; and, as the best return we can make for public favour, shall continue to do so strenuously. Design, all matters connected with the theory and practice of building, architectural jurisprudence, sanitary improvements, the architectural antiquities of the country, and the decorative arts, will have special attention in our pages, and we shall seek to treat the whole so simply, and to add so much matter of general interest and attractiveness, as to extend the circle of our readers far beyond the professional boundaries. It is of the greatest importance that the knowledge, judgment, and taste of the public at large should be improved. Without an educated public, a discriminating tribunal, the artist cannot advance. Our Journal ought to contain matter to interest every member of the state. We might almost reverse the mode of stating the proposition, and say that every member of the state ought to feel interested in the matter contained in our Journal. Its scope is constantly widening. That it is equal to its purpose we do not pretend to assert; but we will strive earnestly to make it more and more so.

England is a young country, not an old country, as some mistakenly assert. The energy in it at this moment is enormous: we are but commencing to move, and have a mighty future in store. Statesmen, as it seems to us, are beginning to have glimpses of their real duty,—the welfare and advancement of the people committed to their charge. The time is coming when leaders will have to *be* leaders, and the world will not be governed or trammelled by shams.

The recognition of the importance of the fine arts and practical science in the late speech from the Throne is a promising sign of the times, and the proposed Industrial and Artistic University will be looked forward to hopingly. The application of art to the manufactures of the country, and the general advancement and elevation of the industrial population, is no longer a matter of preference or otherwise, but one of vital necessity. If *we* stand still, other countries will not, and we shall be passed in the race. The mind must be set to work to aid the hand. As the Duke of Newcastle truly said at the late meeting of the Sheffield School of Design,—"These are days in which *education* is no longer one of the luxuries of life: it has become one of its greatest necessities, for all classes and for all grades of society. It has become the daily bread of us all."

Our younger readers in the less favoured ranks of life must bear this in mind, and strive, by application, right conduct, and strong will, to overcome the difficulties in their way. They must remember that unless seed be sown in the spring there will be no fruit in the autumn. If youth be wasted, the time when acquisition is easiest and habits of application and study most perfectly acquired, the chance of success in the future is greatly lessened, if not altogether destroyed. Let them especially remember,—

> "How much genius wants, wanting vigour of *will!*
> Power to plan must be linked to power plans to fulfil."

Returning for an instant to ourselves, it will be seen that we attribute to *The Builder* a widely-extending scope, a high and important purpose, and if, with power to plan, "power plans to fulfil" be given us, we will make it worthy of both.

THE HOUSES AND SHOPS OF OLD LONDON.*

WE will now glance briefly at the most important of the measures passed by the Parliament and City Common Council in connection with the buildings in London, and some other matters, from the time of Queen Anne till the commencement of the reign of George III.

On the 22nd of May, 1723, disputes about party-walls and spouts constantly arising between the citizens, the Parliament, to prevent this, enacted that if any person refused or neglected to build his share of a party-wall—after the due notice given to him—his next neighbour may build it for him, and oblige the person so neglecting to pay the charges of rebuilding it; and that the water falling from the tops of houses, balconies, and pent-houses shall be conveyed into channels or kennels by pipes in the front or sides of the houses, on pain of forfeiting 20*l.*

In 1725 Guy's Hospital was built, at the sole expense of Mr. Thomas Guy, who was formerly a bookseller of London.

The following is an instance of the imperfect condition of the London police in 1727:—At the time of the first visit to the City by George II. and his Queen, soon after their accession to the throne, the cities of London and Westminster had been greatly pestered for a considerable time past with a number of street robberies; and so audacious had they become, that they formed a scheme of robbing the Queen in St. Paul's Churchyard, as she came privately from supper in the City to St. James's Palace. This scheme was, however, frustrated by their being busily employed in robbing Sir Gilbert Heathcote, an Alderman of London, as he was returning in his carriage from the House of Commons, during which time her Majesty luckily escaped.

This circumstance greatly alarmed both the *Court* and *City*. Letters were immediately sent to all the magistrates, enjoining them to use their utmost endeavours to suppress such robberies; and many of the parties implicated being apprehended and executed, this bare-faced system of robbery was, to a great extent, repressed.

In 1732 an epidemical distemper, which was also attended with fever, raged so violently in London, especially among the more advanced people, that not one aged person in six escaped its fury.

In February, 1733, the lord mayor, aldermen, and common-council presented a petition to Parliament that a Bill might be brought in to empower them to fill in that part of Fleet-ditch lying between Holborn-bridge and Fleet-street, and to convert the ground to such purposes as seemed most suitable. By virtue of an Act granted by Parliament, this part of the Fleet-ditch was arched over, and part of the site converted into a market, which was opened on the 13th Sept. 1737: by this means the nuisance of the Fleet-ditch was so far hidden from the sight of the London wayfarer, that many believed that the unsavoury stream was altogether covered from human sight, except such portions as they might have occasionally seen winding its almost stagnant course through the Hampstead fields; but until the last seven or eight years, the Fleet-ditch, with all its abominations, rolled uncovered through Clerkenwell and along the back of Field-lane. It had, by the time it reached the former site of Holborn-bridge, become a stream of no mean compass, increased as it was by the various offensive tributaries of Kentish Town, Camden Town, Islington, &c. New Farringdon-street was projected, and again a portion of the Fleet was arched: after that most people considered that the Fleet-ditch was a thing of the past, and only to be seen by the sewer guardian, or by some venturous "mud-lark," who might, in defiance of the threatened punishment, in search of gain, explore "the river" from its termination at Blackfriar's-bridge. So certain was it the unsightly Fleet was now bidden from the sight and smell, that several leading journals published congratulatory articles on the occasion. Unfortunately, however, this putrid river still passes uncovered through the heart of Clerkenwell: on its shores horses, &c. are slaughtered, other filthy trades pursued, the abominations of which we feel sure not one in a hundred of our readers can form a just conception of.

The execution of the London street robbers after the robbery of the alderman, would seem to have too much resembled the half-measures with which we are too familiar at the present day: the robbers had been destroyed by the score, but the causes which encouraged them remained, and in 1735 fresh troops of robbers and housebreakers rose up, owing, it is said, by the contemporary historians, "to the insufficiency of the lights at night." Application was made to Parliament, and the lord mayor, aldermen, and commonalty of London were empowered "to erect a sufficient number of such sort of glass lamps as they shall judge proper to be put in such places of the city and liberty as they shall think proper, to be lighted and kept burning from the setting to the rising of the sun throughout the year;" and, in order to defray the expenses of maintaining the same, the following rates and assessments were laid yearly on the inhabitants of the several wards: every house under 10*l.* per annum, charged to the poor, to pay 7*s.*;

* See p. 799, ante.

from 10*l.* to 20*l.*, 12*s.*; from 20*l.* to 30*l.*, 14*s.*; from 30*l.* to 40*l.*, 16*s.*; 50*l.* and upwards, 20*s.* per annum. It was at the same time enacted that churches, cemeteries, markets, &c. should be proportionally assessed. This Act, throwing upon the corporate authorities the duty of enforcing the lighting of the London streets, may be considered the first of the many subsequent Acts, which have had a most beneficial effect on both the morals and health of those living in the City and suburbs.

About this time, application was made to Parliament to regulate the London watch: an assessment was made on the inhabitants to supply the same, and to render the force more effective than formerly.

In 1739 the present Mansion-house was commenced. This work was not completed until 1752, and cost 42,638*l.* 18*s.* 8*d.*

About this time the Foundling Hospital, Small Pox Hospital, London Hospital, and other buildings were erected, which, although they do not display much architectural beauty, are most excellent,—in intention.

In 1744 the robbers again became troublesome after dark, and to such a pitch of insolence had they arisen, that they went to the houses of the peace officers, and made them beg pardon for endeavouring to apprehend them; and many, whose lives they had threatened, were obliged to secure themselves by taking shelter in Bridewell.

In 1745 an important enactment was made respecting coaches, carts, &c.: it was ordered that the carts of the citizens were to have the City arms painted upon them, and "that no person should obstruct the passing and repassing of any public streets, lanes, &c. within the limits before mentioned, or set any empty casks, &c. in such streets."

In 1753 an Act of Parliament was passed for the purchase of the museum or collection of Sir Hans Sloane, and of the Harleian collection of manuscripts, and for providing a general repository for the better reception and more convenient use of the said collections, and of the Cottonian library, and the additions thereto. The history of the foundation of this valuable institution is so well known that it is unnecessary to enter into particulars. It is worth while, however, just for the sake of contrast with the manner of admission to the British Museum at the present day, to mention the following old regulation:—

"If any number, not exceeding fifteen, are inclined to see the Museum, they must send a list of their Christian and surnames and places of abode to the porter's lodge, in order to their being entered in the book: *in a few days* the tickets will be made out, specifying the day and hour in which they have to come, which, on being sent for, are delivered. The fewer names there are in, the sooner they are likely to be admitted to see it."

In 1758 the temporary wooden bridge, which had been erected for traffic during the widening and repair of Old London-bridge, was destroyed by fire.

In 1759, the building of a new bridge being finally determined, and all preparation made for its erection, it was feared by many that unless proper measures should be taken to make the city of London more airy and commodious for trade before the bridge should be finished, the genteel part of the inhabitants would be induced to remove to the new buildings on the Surrey side, by which the estates of the City (so it was then feared) would be greatly prejudiced. To prevent this—and for the further emolument of the City—the Common Council, in 1760, resolved that an application should be made to Parliament for a Bill to empower the City to make such alterations in regard to the avenues leading into it as should be thought necessary, and might tend to its advantage. Accordingly, a petition was presented, praying that leave might be given to bring in a Bill to widen and enlarge several old streets, lanes, &c. and to open several new streets, &c. This Act led to the great improvement of several parts of the City.

In carrying out the intentions of the above Act, the Committee of the City Lands directed the removal of three of the City gates, viz. Aldgate (sold for 177*l.* 10*s.*), Cripplegate (sold for 91*l.*), and Ludgate (for 148*l.*), to be pulled down and taken away by the purchaser within a certain time. The statue of Queen Elizabeth, which stood on the west side of Ludgate, was purchased by Alderman Gosling, and set up against St. Dunstan's Church, in Fleet-street, where it still remains.

In this year Geo. II. died.

We have departed from our arrangements in giving the views of Old London Houses in the present number, in order that we might complete the series in the present volume. We are forced, however, by our limited space this week, to defer the particulars of some of the buildings illustrated, and some general remarks.

REFERENCE TO ENGRAVINGS.†

*64. Old Shop, St. Martin's-lane. (Hogarth, the painter, formerly resided in the house above this shop.)
*65. Shop of the late Alderman Birch, near the Royal Exchange.
*66. Four Swans Inn, Bishopsgate-street.
*67. Old Shops, Clare-market.
*68. Cobbler's Stall, Great Ormond-street, Queen's-square.
*69. Brick House, Barbican.
*70. Ornamental Brick Work, Fetter-lane.
*71. Ornamental Brick Work, opposite the front of Clerkenwell Prison.

The illustrations in these papers marked *, are sketched from existing examples.

THE NAPOLEON CIRCUS, PARIS.

M. Hittorff, who designed the circus in the *Champs Elysées*, has just now completed a winter circus of large size and striking effect near the *Chaussée de Mesnil-Montant* and the street *Des Filles du Calvaire*. The circus, with the passages and stables, occupies an area of no less than 2,600 *mètres*. The works were commenced April 26, 1852, and were completely finished on the 10th of the present month. The plan of the circus is a polygon of twenty sides, 138 feet in diameter. Corinthian columns, which are placed at the angles of the polygon, carry a very rich entablature, adorned with symbolic sculptures. There are also some very fine bas-reliefs by Messrs. Duret and Bosio, Guillaume and Lequesne, Husson and Dantan. M. Pradier was engaged on one of these when he unhappily died. The upper part of the building is terminated by a polygonal lantern, surmounted by a figure of Victory in bronze, gilt, holding in one hand branches of laurel and an imperial banner, and in the other some crowns and a torch. A brilliant flame of gas from the latter serves to announce afar that the games have commenced. Numerous tiers of seats surround the interior, and will accommodate, we are told, 5,000 spectators. The roof which covers this immense area is without intermediate support, and is sumptuously decorated. The capitals of a series of Corinthian columns around the inside are gilt. The great feature of the interior, however, is a series of twenty paintings, exhibiting the history of equestrian exercises, and of games of agility and strength, which have been executed by Messrs. Gosse and Barrias, both able artists. Amongst these paintings are the Areopagus, assembled to award the prizes; horse racing amongst the Greeks; Roman chariot racing; an Olympic triumph; games of the fourteenth century; a triumph after a tourney; the *Carrousel* under Louis XIV.; the high school of our own time; Victory crowning Strength and Address in the presence of spectators of all times and all countries, &c. &c.

How is it that the speculators in a circus in France can call in artists of eminence and ability for their decorations, and set up for admiration fresh creations of art, while in England a few ill-chosen colours put on by mechanic hands, and a cheap "paper," ill-disposed, are all that would be ventured on? Is it that artists will give their aid there at less cost than would be the case with corresponding ability here, or that an investment of capital in such decoration is more certain there to produce a pecuniary return?

Defective Sewerage.—A vestry meeting of the parish of Battersea, numerous, influential, and unanimous, has passed a series of resolutions in favour of improved sewerage.

† See page 813, in our present number.

THE PLUMBER TRADE.

EDINBURGH PLUMBERS.

A full and able article on the plumber trade appears in the *Edinburgh News*, from which we quote as far as our limits will allow. The article is not confined to the trade as it exists in Edinburgh alone, but rather consists of a rapid review of its general history. "The plumber," as remarked, "is the true pioneer of the sanitary movement—the chief and indispensable agent in the great work of sanitary reform," and as such is entitled to a more lengthened notice than many other branches of the working classes,—to a notice, moreover, not confined to Edinburgh, or to any one locality.

"If we seek to discover its true relations to art," proceeds the writer, "we should leave the confines of our native city. We should then glance at its history among those civilised nations of antiquity that have long since passed away. We should seek in the mouldering tombs of Thebes for the indication of an art which we know had its origin in the land of the Pharaohs. We should carry our imagination backward to ancient Babylon, and look with a curious interest on its lead-covered terraces. We should traverse the sunny regions of Palestine, and regard with admiration its noble reservoirs, its perennial fountains, its "broken cisterns," together with the curious specimens of plumber work that pertained to them. We should enter the classical ground of Greece, and tell of the lofty theories of its philosophers concerning water, and of the world-renowned experiments of Archimedes with his leaden pipes, and his wonderful hydraulic machinery. We should glance at the monuments of the art in ancient Rome; its colossal aqueducts, its gorgeous fountains, its perfumed waters, its baths of marble, their tubes of silver; and last of all, we should look with dismay on that dark page of history, when everything pertaining to art and science was sunk in the hopeless depths of a barbarous supremacy; when everything that could be called artistic in plumber work was buried in the ruins of nobler fabrics.

There were periods, indeed, in the early phases of its mediæval history when the materials and art of the plumber were not forgotten; when the mosques of Aleppo had their stately domes and their gilded minarets covered with lead; when the Arabian alchemists endeavoured (?), but in vain, to transmute the baser metal into gold, but discovered, unwittingly to themselves, the principle of the "water-lute"—to this day the most invaluable principle of the sanitary economist. It is, however, at a period subsequent to the restoration of architecture that we must date the general revival of the trade in Europe. It once more accompanied the progress of civilisation. Its relations to architecture soon became widely recognised, and towards the close of the fourteenth century it had reached to a high position in every country and kingdom of Europe.

It was then that the prolific lead mines of Wales and Derbyshire, neglected since the Roman invasion, were re-opened and vigorously worked. It was then that the castles of our feudal barons and the roofs of our magnificent cathedrals were covered with lead and decorated with ornaments of the same material. It was then that all sorcerers and wizards—beyond the pale of common punishments—were rolled in sheet-lead, and so boiled to death in a huge cauldron. It was then that the mortal remains of great kings and good knights were first encased in coffins of the same indestructible metal, and so consigned to their final resting-place."

The writer then gives an explanation of what plumber work consists in,—of its two distinct features,—roof work and interior work, and of the nature of the materials used and the modes of working, the poisonous qualities of lead in all its forms, and other points, such as the substitution of zinc, the water-closet system, &c. into which we need not here enter.

"It is obvious," he continues, "from what we have stated, that the plumber trade has recently undergone a radical change. In the first place, the successive introduction of these improvements in the manufacture of lead has completely isolated that part of the business, and has created a new and important branch of metallic manufacture. In the next place, the introduction of zinc has completely altered the character of the workmanship. Iron has now extensively superseded lead for a variety of useful purposes. Indeed, the recent invention of coating malleable iron pipes with zinc to prevent their corrosion, bids fair to supersede the use of lead pipes in the supply of water. Water-closets can now be constructed exclusively of earthenware. Washing-tubs are lined with por-

celain. The most improved description of baths we possess are constructed from strong sheets of zinc. The most improved description of urinals are formed of Welsh slate and plate-glass.

Within the memory of old plumbers the essential qualifications of a good workman were such as may well excite the astonishment of the present generation. He was expected to cast lead four pounds to the superficial foot, with unerring accuracy and despatch,—cisterns of solid lead embellished with mouldings, ornaments of animals, and the maker's name. His pipes must be cast without a pore, and burned without a flaw. The most severe muscular exertion was continually exacted. But now how different the case! Those qualifications at one time indispensable are no longer in request. The skilled labour that secured at one time for its for unate possessor the highest wages in the trade is now a drug in the market. A good workman now-a-days is scarcely a plumber. He is half a coppersmith, half a tinsmith, something of a gasfitter. He has lost all pretension to the manufacture of lead: he is a mere fitter-up of manufactured goods. He is not expected to cast pipes, nor even to draw pipes: he will do well if he can fabricate a zinc roan. He is not supposed to possess the art of casting sheets: he will do better if he can get up a zinc bath or a platform of galvanised iron.

* * * * *

Such, then, is a brief account of the transition state of the plumber trade. To us it is exceedingly interesting and full of hope. But the few old plumbers we have met with entertain a different opinion. Once on a time, they considered themselves tradesmen: now they consider themselves no longer entitled to the name. In the days of old, when lead was cast, 'baps and whisky' attended the operation; in the present day when zinc is worked, there is only 'spirit of salt.' They look back with regret; they look forward with fear and trembling. Some of them, we have no doubt, hope to be removed before the evil day comes when plumbers shall no longer wear striped aprons; when the casting frame shall have become a matter of history; when gutta percha or vulcanised India rubber shall have superseded the use of such time-honoured materials as 'putty, hemp, and cement.' We have no sympathy with these ideas. Sanitary reform is yet in its infancy, and so is its connection with plumber work. We shall be greatly deceived if the plumber's services in this important movement do not eventually raise his business to a position more useful to society than it ever could occupy in the nations of antiquity, or during the reign of Gothic architecture."

As to the local statistics of the trade, and the general condition of the workmen in Edinburgh, the writer says that—

"Wages have stood within the recollection of the oldest men at 1*l.* per week. They rose like that of every other trade during the building mania to 26s. and they fell like that of every other trade when the building mania exploded. The only strike they ever had was in 1847, and it was partially, though but temporarily, successful. They possessed at one time a friendly society, but some years ago it was broken up and the funds divided. This is the first trade we have come to where the workmen have no broken time—where they actually receive 52*l.* sterling per annum. It is also the first trade we have come to where the workmen do not supply their tools. Moreover, it is the only trade connected with building where the men receive a regular sum of money, in addition to their wages, in the shape of country allowance. In Edinburgh this is six shillings per week, in Glasgow it is nine shillings per week. So far as we can ascertain, there are, including apprentices, about 250 plumbers in Edinburgh and Leith. What is very remarkable, there are precisely the same number of master plumbers in Edinburgh at the present moment as there were journeymen plumbers thirty years ago. We are disposed to regard this as a very gratifying indication of the progress of sanitary principles.

With regard to the effect of the trade on the health of the workmen, we may observe that it was at one time exceedingly injurious. The process of casting exposed them to the fumes of volatilised oxide of lead. Although not so dangerous a poison as the carbonate of lead, the oxide is yet sufficiently deleterious in its effect on the system. Indeed, lead, under every form of combination, is poisonous. But the plumber, as we have seen, is no longer subjected to these influences.

With regard to the progress of temperance in the trade, we must do the plumbers justice to say that they are now a pretty sober and steady class of men, although even ten years ago they were very much the reverse. But with regard to the progress of education among them, we are afraid we cannot speak in so favourable terms. It is the opinion of most of the old journeymen, and nearly all the masters we have conversed with, that, compared with the plumbers of thirty years ago, there is, in point of intelligence, a decided retrogression. They may be better workmen, or at lest neater workmen, but they do less work: they will fit up a pump with much greater taste, but they do not understand its principles so well: they will make a prettier joint on a pipe, but they will not be able to tell the pressure it can sustain.

Such is the opinion of a master plumber, for whose opinions generally we entertain the most profound respect, but who, we think in this case, is unnecessarily severe in his strictures. The names of three plumbers stand in the prize list of the School of Arts last session. And we are also glad to state that the plumbers are in progress of forming a library in imitation of the slaters. Nevertheless, there are many of the ideas in which we heartily concur. We can have no respect, for example, towards a slovenly workman who is profound in politics.

It is apparent that there should not exist a more intelligent class of workmen than plumbers. Their business requires it: their means can afford it: the educational institutions of Edinburgh are in every respect within their reach. They should understand the laws which regulate the motion of fluids: they should understand at least the simple principles of mechanics. They should be able to calculate the pressure of the atmosphere, to know the effect of poisonous gases on the system, and especially to understand the properties of the different materials with which they come in contact. What an impetus the plumbers might give to the sanitary movement! What an inexhaustible source of mental cultivation lies here within their grasp!"

FITNESS TO PURPOSE IN BUILDINGS.

CONSIDERATIONS of much weight with the artist result from the fitness of a building, edifice, or construction of any kind, to the purposes and uses immediately required of it. It is this now well-recognised and generally admitted principle, *adaptation to use*, which forms the germ of the beautiful and of the elegant in every style of architecture; and, in connection with the houses and humble dwelling-places of the people at large, it manifests itself, with an inferior degree of development, in the appropriation of every essential part, or accessory appendage, to a special and assigned use and purpose. It shows itself also in a certain amount of regularity and symmetry, which, even in the most rude and rustic dwelling-places, is never entirely wanting. As the wants of men are similar, in civilised nations at least, it is the widely spread influence of the principle, fitness to purpose, which causes a certain degree of resemblance between the habitations and dwelling-places of all countries. But after recognising that there is a certain rudimentary form or plan in the construction of a dwelling-place, which is common to all countries and to all nations, it becomes interesting to observe how this original type, resulting from a certain conformity of wants and habits, becomes successively changed or modified by those circumstances which relate immediately to the climate of the country, and to the customs of the inhabitants by whom these buildings have been erected. And it is by carrying out fully, in drawings and pictures, this adaptation of the form and style of houses to the conditions of the country to which they belong, that a certain characteristic nationality becomes impressed on our subject, and that we establish that consistency between its different members which is so essential for the maintenance of a pleasing and harmonious unity throughout the whole scene.

It is with reference to these considerations that we observe in what essential points the buildings of different countries chiefly differ.

In Italy, for instance, the houses are characterised by projecting roofs, open colonnades and galleries, external staircases, and such other particulars as indicate distinctly the double object of gaining shelter from the scorching sun, and of procuring the enjoyment of a temperate and balmy air, combined with the loveliest scenery. To these general features is added an elegant loftiness of the fabric, and the prevalence of slender square towers with light red roofs, somewhat pyramidal-shaped, rising above the mass of the buildings, and mingling, in the extensive view, with the still loftier *campanili* or belfries of the numberless churches. When perched upon the crests of the hills, or on the *plateaux* of the mountains, they seem to mark some favourite spot selected for a hamlet or a villa, and whilst every minute particular contributes to the characteristic expression of the subject, the more conspicuous features, such as the long white walls of the farm-houses, embosomed in mulberry-trees and vineyards, and the slender towers of the villas with their wide range of prospect, mark more impressively the Italian landscape, imparting to it, at the same time, consummate finish, beauty, and elegance.

In Switzerland, we may remark how a different climate produces combinations in some respects similar, but very unlike in others. The roofs of the houses and chalets project, it is true, even more than in Italy; but it is not with a view of protection from the sun, it is rather as a defence from the heavy and unintermittent rains. The galleries and covered ways likewise abound, but instead of remaining open to the genial breeze, they are hermetically closed in with glass and panelling. The sheds and outhouses, though less spacious and airy, are numerous and well-replenished; but instead of the rich harvests which have grown brown and yellow in the meridian sun, they show, heaped in desperate confusion, the timbers, tools, and implements which mark a land of forests, and a people of hardy mountaincers.

A certain resemblance of the dwellings of the Norwegian peasantry to the cottages of the Alps, results from the general use of wood in their construction; likewise from the manner in which their projecting sheds afford shelter from the rain. But in Scandinavia it is the traveller, the wayfaring-man, who chiefly receives the benefit of a shelter which is gratuitously provided for him. A little porch or vestibule lined with benches leads to the entrance of the house: here the weather-beaten itinerant finds, without asking for it, rest and shelter. The dwellings of the Norwegian peasantry, like those of the Alps, have flattened roofs; but they are weighed down by clods of turf instead of stones. Their windows, instead of being numerous and airy, are scarce and small: added to this, their construction is low, and extended along the soil, as though, by clinging to its surface, they found more effectual protection from the violence of the northern tornadoes big with drifting snows. Many lesser particulars of design and colour complete the portrait, and give to the dwellings both of Sweden and Norway a peculiarly local character, the interest of which is appreciated by the inquiring traveller, as well as by the artist who makes it his object to delineate customs, manners, and nationalities.

In the villages of Germany, the spaciousness of the houses, their several stories, lofty gables, and numerous windows looking into broad streets and extensive squares, cannot fail to strike those who are accustomed to the very confined and narrow dwellings of our towns and villages. Whatever is, or has been, the political condition of these foreign states, the freedom which results from ease and abundance is strikingly apparent. There is seemingly no desire manifested by the inhabitants to sacrifice internal comforts, or external appearances, for the purpose of evading taxes, tithes, or rates. Everything bespeaks an unfailing plenty, a degree of wealth in land and property, which is shared more or less by all. The size and abundance of the fountains, sometimes grotesquely ornamental, add to this character of public advantage and convenience. In some of the towns of second order, formerly the capitals of dukedoms or the seats of margraves, the decorations of the houses, and their style grand though capricious, convey an impression of almost princely magnificence, announcing the opulence or the rank of their former occupants, though now contrasting with the motley and obtrusive signs of a lingering trade. In some instances the scene presents a contrast of bygone prosperity and splendour with the wear and decay of time, or perhaps the still more affecting signs of present depopulation and desertedness. But at other times we find the age and massive solidity of the houses which line the streets picturesquely associated with the slender temporary erections

which, on fair days, are profusely introduced by a rural population into the squares and market-places, whilst the peasantry in various costumes, engaged in the conveyance of every description of land produce, or in more stationary occupations of traffic and barter, complete a scene which, if compared with similar subjects at home, would present striking differences and a most pleasing originality.

A character which is peculiar to many of the old villages in the north of France is that of an assemblage of small untidy and irregularly distributed cottages, the roofs steep, with a small chimney planted exactly at each end: they are generally congregated round some ancient church, rendered doubly conspicuous from its comparative size, and by its prominent situation in the group. The clustering of so many humble cottages around this venerable object seems like a recognition of its spiritual supremacy: it reminds one of the flock and shepherd, in a time and country where one expects little food for such impressions. These pleasing features for the most part disappear where the villages have been extended by the addition of larger and more modern dwellings.

In the south-western provinces many of the particulars which remind you of the Italian farms and houses appear in succession, and in the valleys of the Pyrenees there is a picturesque combination of the style of the latter with the form of construction which is peculiar to the Swiss cottages. The roofs, generally slated or thatched, are, like those of the Alpine chalets, broad, with projecting eaves, whilst the gable at each end rises with a succession of steps or notches to the point, where it terminates in a kind of rude finial. But the Italian character shows itself now and then in the arched doors and windows, as well as in the more abundant use of stone.

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How insignificant and monotonous, after these grotesque and varied outlines, appears the uniform unbroken parallelogram which is frequently presented by the front of our English town and suburban houses. In many cases no cornice or moulding breaks the uniformity of the wall, or gives a finish to its upper boundary; whilst the box-like appearance is completed by the total absence of a roof which projects, or which, indeed, is seen at all from below.*

NEW CHURCH OF NOTRE DAME DE BON SECOURS, ROUEN.

A WRITER in the current number of the *Ecclesiologist* says of this new building:—The side doors have neither of them porches. The very deeply recessed western doorways are *per se* effective, but certainly too large in proportion to the size of the whole church. The sculpture in the tympana is not yet quite finished, and the doors themselves both here and in the aisles are yet to be added. The effect of the interior, from every window in the church being filled with stained glass, is decidedly religious, but were it not for the glass I think it would be the coldest-looking church I ever saw. The groining of the nave roof is rather poor, and when it is remembered that the whole of the building, piers, arches, and roof, are built of smoothed stone of one uniform colour, it may be easily imagined how one longs for colour. The tower internally is open, with a thin arch, showing a small rose window high up. The high altar and the fittings of the choir are, I presume, those belonging to the old church: they are as bad and as mean as can be. The altar (the reredos of which contains the celebrated image of "Notre Dame de Bon Secours") is in the north aisle: it is made of white marble, and very beautifully carved. The reredos contains the image above mentioned holding the infant SAVIOUR, and an angel in a niche on either side: the reredos is beautifully coloured and gilt. The centre figures are literally "dressed," that of the Blessed Virgin having on a white satin gown. The tabernacle and candlesticks are very beautiful, but I think of a little too early a type: they are richly jewelled. It is a great pity that even on so gorgeous an altar as this is, trumpery vases with artificial flowers should be suffered. The pavement to this chapel is of coloured and white marble arranged in patterns, and the screen—a low one—of silvered metal of good design. There is an altar in the opposite aisle. Polychrome is being added in the ceiling of the apse. The interior of the church is, I think, far superior to the exterior, which taken as a whole I do not think pleasing to the eye. Almost all the windows have portraits of the donors in the costume of the present day. The effect is not unsuccessful. In some cases, however, where they adjoin the "stations" which are here rendered in stained glass, in the lower part of the windows, the approximation is a little unpleasant. The east elevation is on the exterior very ineffective: the apse is thrown up, and underneath crawls, as it were, a polygonal aisle, with low lean-to roof and little windows, serving for a sacristy. The effect is bad, and for convenience in use must, I should think, be equally unsatisfactory. The interior of the north wall of the church is almost covered with votive tablets taken from the old church, which do not improve the appearance. "J'ai prié à Marie et j'ai été exaucé," is the favourite. Nothing can exceed the beauty of the position of the church standing on the brow of a lofty cliff, and overlooking Rouen to the right and the Seine rolling below, broken up by numerous islands.

* From "The Elements of Picturesque Scenery, or Studies of Nature, made in Travel, with a View to Improvement in Landscape Painting." By Henry Twining. London: Longman, Brown, and Co. 1853. A book under the same title was privately printed and distributed by Mr Twining a few years ago, and was quoted in our pages at the time. The present thoughtful volume consists for the most part of new matter, and such of the old as is used has been re-arranged and altered.

AMERICAN PATENTS.

WE are indebted to the *Journal of the Franklin Institute*, of Pennsylvania, for the following abstracts of patents issued in the United States:—

Brick Manufacture.—A patent for an improvement in brick-machines has been granted to Mr. Jesse Samuels, of Allentown, Pennsylvania. The patentee describes his invention as consisting, 1st, in an improved feeding arrangement, by which the desired quantity of clay to fill the moulds can be regulated to a nicety, in connection with a plunger, which partially condenses the clay into the moulds preparatory to pressing; and, 2nd, in a novel device or arrangement for clamping, removing the brick from the moulds, and placing them on a platform or apron, and which is denominated a carrier.——For an improvement in brick-kilns, Mr. William Linton, of Baltimore, Maryland, has taken out a patent, under which he claims the formation of air arches or openings in the kiln, between the fire-beds, with lateral openings therein, through which a sufficient amount of air can be supplied equally to all parts of the fire-bed at the same time.

Glass.—As an improvement in frosting plates of glass, Mr. Isaac Taylor, of the city of New York, claims the use of a rocker containing pebbles, sand, and water, for frosting plates of glass, or embossed work; and in ornamental painting on glass, &c. —— Mr. John W. Bowers, of Brookline, Massachusetts, has patented a process which, he says, "imparts to a painting on glass an appearance very much like those figures which are executed on wood or papier maché, and which are, more or less, or in part, made up of pieces of mother of pearl let into the wood. The paintings or figures produced by this method have very beautiful properties of reflecting light, such as are often exhibited by silvered prismatic or crystalline surfaces." His claim consists in combining with the process of painting and ornamenting, by metallic foil, that of corrugating or crimping the foil, so as to impart to the figure or figures a power of reflecting light so as to produce the sparkling scintillated appearance specified.

Gas.—A patent for an improvement in gas-purifying apparatus, by Mr. Abram Longbottom, of the city of New York, "relates to certain improvements in the method of purifying illuminating gas, whereby the washing apparatus is wholly done away with, so that the gas comes from the retorts or furnaces completely purified and ready for consumption." The patentee claims the purifying the gas, by passing it through a mixture of equal measures of quick lime and of animal charcoal, in the same retort in which the gas is generated, but at a temperature so regulated that at the lowest point, or where the gas enters the composition, the mass is at a lowered heat; and at the top, or where it leaves the composition, the heat is below redness, substantially in the manner herein set forth."

Water.—An improvement in apparatus for raising water has been patented by Mr. N. H. Lebby, of Charleston, South Carolina, in which the turbine is constructed "with ribs on the outer face of its upper disk, which ribs, working under a cover to the wheel, cause, by the centrifugal effect produced while in motion, a void to be formed at or about the centre, the tendency of which will be to relieve the wheel of its weight, and consequently reduce the running friction."

Cements.—Mr. B. S. Welch, of Brooklyn, New York, claims "the primary cement formed of hydrate of lime, in a finely subdivided state, and resin in a finely subdivided state, mixed together with water in a cold state."

Anvils.—Mr. Charles Peters, of Trenton, New Jersey, and Mr. William Fetter, of Bucks County, Pennsylvania, claim as their invention "a cavity in the body of anvils, for the purpose of cooling the same, by the introduction of water or other fluid into the said cavity, while the faces of the said anvils are undergoing the process of tempering."

Nails.—For improvements in nail machines, Mr. S. G. Reynolds, of Worcester, Massachusets, has taken out a patent, under which he claims, in the making of wrought nails, the employment of the cutter for cutting wedge-formed pieces from a previously rolled plate, of equal or nearly equal thickness, preparatory to and in combination with the moulding dies which receive the cut pieces, by suitable conveying apparatus, from the cutters, and mould them to the required form by pressure, so as to give the form by spreading the metal between the dies, instead of by elongation, as heretofore practised when making nails from cut blanks. He also claims the vibrating cutter, and faces or dies for confining and compressing the nails arranged on both sides of the cutter, when this is combined with the two stationary cutters, having a space between the two, through which the rod or plate of iron is fed.

Grindstones.—An improvement in self-sharpening grindstones has been patented by Mr. Jesse Pennabecker, of Elizabeth Township, Pennsylvania, namely, the combination of a grindstone with a self-acting picker, by which the grindstone is sharpened by its own motion or power.

CARBONIC ACID GAS IN VENTILATION.

YOUR two correspondents, "E. L. G." and "J. E. D." have rather overheated themselves in their efforts to ventilate the public. Allow me to sprinkle a little cold water on both of them. It is derived from an unexceptionable source, the "Cours de Chimie" of M. Regnault.

"Carbonic acid gas does not support respiration. Animals plunged in it die very soon from asphyxia. *Nevertheless this gas exercises no deleterious action on the lungs:* it may exist in considerable quantity in the air without producing any great inconvenience, provided that the oxygen remains in sufficient proportion."

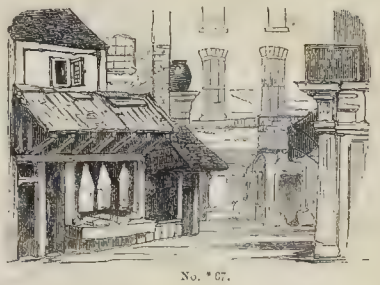
"*Carbonic oxide*," on the contrary, "is not only incapable of supporting respiration, but acts as a violent poison. Animals perish if allowed to remain a short time in air which contains only a few hundredths of this gas. To it we must attribute the uneasiness and headache we experience in an ill-ventilated room, near an open charcoal furnace." Carbonic acid, as we all know, is heavier than atmospheric air, but carbonic oxide is *specifically lighter* (·967). Thus these two gentlemen, so eager to convict each other in minor matters, have both started from a fundamental error.

VICE COTIS.

THE HOUSES AND SHOPS OF OLD LONDON.*



No. *64.



No. *67.



No. *5.



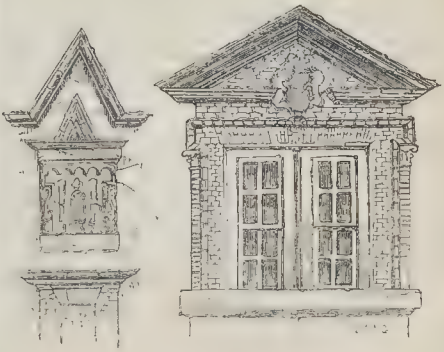
No. *68.



No. *66.



No. *69.



No. *70.

[* See page 810, in present number.

ADHESION OF FLUIDS IN PIPES AND DRAINS.

In your paper of December 11, "An Old Practitioner" beautifully illustrates the drain-pipe logic of a very large class. He shows the difficulty of raising water 82 feet at the end of 2½ miles of piping; and then adds, "from long experience in these matters, I would never lay a drain that was likely at any time to be more than one-third filled." It is as much as to say, "because water cannot be forced *up* a pipe, therefore water cannot flow *down* a pipe;" and this is a very common blunder in drainage affairs. The rules applicable to water service, where the gravitation as well as the friction of water has to be overcome by force, are applied by too many to drainage, where the greater the weight of the water is, the better will the action be. The "Old Practitioner" has probably often seen a labourer hoisting a heavy basket-ful of bricks to the top of a scaffold by tugging at a rope which passed over a pulley. Did he ever say to himself, after noticing the hard work of the labourer, "From long experience in these matters, I would never use a basket, to bring down bricks in that way, that was more than one-third filled?" And if he did not say so, why did he not? Does he know that if water be forced *up* a pipe, the pipe *must* be choke full as high as the water rises? Does he know that if water be allowed to flow *down* a pipe, though the pipe may be choke full at the top it *must* be less than full at the outlet? Does he know what the loss of force is when water is driven through a 9-inch main "from a larger main, and still farther back from a larger main still?" Does he know how much more rapidly water flowing down a pipe flows as it gets lower down?

A man who writes of his "long experience in these matters" may find that he has something to learn, after all, which the "Old Practitioner" seems not to have learned, seeing that he considers "the attraction of the pipes" in water-service matters to be his guide, or warning, in drainage matters. His is like the logic of the old poulterer,—"The Ruff is one of the foolishest birds that is; FOR, you may see a thousand ruffs together and no two of them alike."

N. R.

NOTES IN THE PROVINCES.

Ely.—The east wing to the present almshouses, situated in St. Mary's-street, has just been completed, now forming the square, according to the design as originally laid down by the late Mr. Basevi, of London, making a handsome appearance, and quite an ornament to this part of the city. The stone used is from the Casterton Quarries, near Stamford. The work has been carried out by Mr. Freeman.

Chettisham, near Ely.—The church in this hamlet has been restored under the last-named architect, by putting on new roofs, and rebuilding porch and vestry: the interior has been fitted up with open seats and stalls.

Watlington, Oxon.—On Monday before last, a house, occupied by Mr. Busby, of Summerstown, fell in. The foundation seems to have been undermined by water, accumulated in the cellars through the late excessive rains.

Bridgewater.—Efforts are being made to stop interments in the churchyards of St. Mary's and Trinity. Complaints are made of the design and character of some of the gravestones and inscriptions, which it is thought the clergy ought to see to and regulate.

Plymouth.—The embankment across Millbay, for the Great Western Docks, is nearly completed. The entrance of twelve feet will be closed in February next, and 2,000 to 3,000 men set to the interior works. An engine capable of clearing a ton of water a minute is to be erected.

Brecon.—A model of the proposed Wellington memorial for this town has been exhibited by the sculptor, Mr. J. Evan Thomas. The statue will be cast in bronze, and will be 8 feet high, with pedestal of Portland stone and bronze panels, with alto-relievoes of General Picton and the Duke, Captain Davies of Brecon, &c. The total height of the monument will be 18 feet. The site will be the centre of the Bulwark in front of St. Mary's Church.

Handsworth.—The first stone of a new church at Soho was laid on Wednesday in last week by the Earl of Dartmouth. The new building is in the Decorated style, and cruciform in plan. The nave will be 97 feet 6 inches in length by 23 feet 2 inches in breadth, with proportional transepts and aisles; the chancel 36 feet by 20 feet 4 inches. The tower and spire are 170 feet high. The church will accommodate 1,000 persons—540 free. The cost, exclusive of spire, will be 3,950*l.*

Southport.—An hospital for 160 patients is about to be erected here, at a cost of 5,000*l.* The land, given by Mr. C. Scarisbrick, is said to be worth 600*l.*

Edinburgh.—An excellent clause in the Water Companys' Act of 1847, compelling the company to erect a number of additional public fountains in the most necessitous parts of the city, and of Leith and Portobello, is now being carried out, according to the Act, under the direction, as to localities, of Mr. Matheson, the resident architect of the Board of Works. To the city, twenty-three wells have been appropriated; to Leith, five; and to Portobello, two. They are in the form of small metal pedestals, so as to occupy little space in the narrow, confined, and crowded closes and courts in which they are chiefly distributed.

Dundee.—The free church of St. Paul, Nethergate, was opened on Sunday week. It is seated for 950 persons.

Elgin.—Contracts have been entered into for extensive additions and alterations at the Commercial Bank-buildings here. The whole front of the building is to be renewed with polished freestone from the hospital quarry. The style chosen is Romanesque. The design was furnished by Messrs. Mackenzie and Matthews, architects. The contractors are—for the mason work, Mr. John Lamb, builder; carpenter, Mr. James M'Beth; plasterer, Joseph Stuart; plumber, Blaikie and Co.; painter, glazing, and papering, A. Asher; and slater, James Desson.

Garston.—This little shrimping village on the Mersey is about to be converted into a port by the opening of its new dock and railway. The western wall of the dock is nearly complete. The bed of the dock is already sunk to the required depth. The fact of this vast dock, of 6 acres in extent, having been constructed out of the solid rock, has rendered the work one of time and labour. As a compensation for these, the bed of the dock has produced the materials for the erection of its own walls. Immense blocks of stone are squared and dressed on the spot where they have been deposited from the effects of the blasting which dislodged them from their primitive position; and, being hoisted by means of travelling cranes, are at once disposed of as building material. In this way the entire walls have been built, obviating the necessity of purchasing and transporting stone. The smaller fragments, not suitable for the walls, are conveyed, by means of an inclined tramroad, to the surface, and will be employed in the erection of workshops and other requisite buildings. The large dock-gates—most ponderous specimens of carpentry—are hung, and only await the destruction of the temporary sea-wall to admit the element destined to convert the village into a port. The St. Helen's railway, in connection with the dock, has been for some time open, and is to be extended to Warrington. An immense pile of warehouses is to be built on the south side of the dock.

Beetham.—In the church of Beetham, near Ulverstone, a south window has been filled with stained glass. The window consists of two openings, containing a single figure in each. The eastern light contains the figure of our Lord. The western light contains the figure of Moses. The design is thus typical of the Old and New Testaments. The window has been designed and executed by Mr. F. Burrow, of Milnthorpe.

A New Music-hall, in London, is to be erected for the New Philharmonic Society, in time for the season of 1854.

PANORAMA AND DIORAMA.

Burford's Panorama.—Mr. Burford, assisted by Mr. Selous, has produced, in his smaller gallery, a beautiful picture of a beautiful country, the Bernese Alps, from the Faulhorn Mountain. It is a remarkable view, compounded of mountains, valleys, rocks, and lakes, and has been treated with great skill. Sketches for it were made on the spot by Mr. Burford in the autumn of last year, and its truthfulness may be depended on.

The Wellington Campaigns.—The proprietors of the Gallery of Illustration, in Regent-street, added some time ago to their popular diorama, views of Walmer Castle and the Duke's Chamber, the latter a picture of touching simplicity. On Monday they presented for the first time the Lying in State, the Funeral Procession, and the Interior of St. Paul's—a very effective and fine representation. The View of the Procession is taken from Charing-cross, and gives a fair idea of the scene. The Diorama, as a whole, is instructive and beautiful.

SOCIETY OF ARTS' SOIREE.

The first evening meeting of the Society of Arts was held on the 22nd inst. when the rooms were crowded with visitors, and the walls covered with a very remarkable collection of photographs, French and English, gathered from various sources. Mr. Roger Fenton read some interesting general observations, "On the present position and future prospects of Photography," in the course of which he pointed out the obstacles in the way of progress, the important purposes to which the art may be applied, and glanced at the data which are necessary for the more rapid development of photographic knowledge. He asked,—Is it yet ascertained what is the agent which produces the change in the salts of silver, from which the sun picture results? Is it light alone, or some agent accompanying, yet distinct from the rays of light? If it be light alone, what are the causes which render its action so unequal at different seasons of the year, and at different times of the day? What is the effect of the extreme heat and cold in hastening or retaining photographic action? What influence is exercised by the electrical state of the atmosphere?

Lord Monteagle was in the chair. The collection of photographs will be exhibited for a week. The exhibition of inventions now open here well deserves a visit.

The Society has an active officer in their new assistant secretary, Mr. James Forest.

THE SCREW PROPELLER.*

While noticing Lieutenant Jervis's book on "Field Operations," some time ago, we took occasion to remark that it would have better befitted the mistress of the main,—in place of a militia agitation, which implied a sort of foregone conclusion that invasion, *à priori*, was not only possible, but irresistible,—had her talk in such a case turned mainly on naval tactics, channel fleets, marine regattas, cruising war-yachts, getting up the steam, and what not. Now Britannia appears at length to have opened her eyes to the propriety of such a view of the right policy whereby to awe her enemies, and keep them friends, if not to

"Frustrate their knavish tricks."

And we are pleased to observe that amongst other repairs to our good old wooden walls, we are to have a whole fleet of *screws*; and our opposite neighbours may depend on it, that should "Greek meet Greek" in any other "tug" than that of friendly rivalry in art and science, they will not have many opportunities of seeing these screws so long as they work *astern*, unless, indeed, they be engaged to *tug* French vessels into British ports. It is rather an odd idea of our lively and sanguine neighbours that *their* increasing steam-fleet must necessarily diminish Britain's rule over the main, as if the latter could not very shortly restore the balance of forces, as, indeed, she is already about to do.

* A Treatise on the Screw Propeller, with various Suggestions of Improvement. By John Bourne, C.E. London: Longman and Co. 1852.

The screw propeller is clearly an important—novelty, shall we call it, in naval tactics. That the propriety of the term novelty is here even more than doubtful will appear from the fact, recorded by Mr. Bourne, that one of the earliest screw propellors in this country was almost a copy of an ancient Chinese invention for the very same purpose, namely, the propulsion of ships or vessels. The merely imitative, and by no means inventive Chinese, are, indeed, a people of mysterious origin. The next naval "novelty" we mean to rob them of is probably those Venetian-blind-shaped sails which Mr. Bourne also adduces, not only as a Chinese invention, but as the best possible form of sail for preventing that rebound, or reflex action, of the wind, which, after impinging on the sail, interferes with the force of that about to strike it. By means of these blind-shaped sails, the wind, so soon as it has struck, escapes through the interspaces, and so avoids interference with the advent of that which follows. But our present purpose is simply to notice Mr. Bourne's valuable work on screw propellers, in which the author gives a comprehensive history of their successive improvements, profusely illustrated by engravings of the forms of most of those patented, not only from their first practical adoption in this country, but long previous to that time; the author, in fact, tracing out the screw from its Archimedean forms and purposes, through Hooke's windmill and other modifications of it, end of the seventeenth century, and Lyttleton's adoption of it as an "aquatic propellor" used by the Chinese.

It is to a farmer, however, at Hendon, Mr. F. B. Smith, and to Captain Ericsson, a Swede, but long resident in England before he went to America, that the British public are indebted for the practical adoption of the screw propeller here as a mover of ships. The first experiments were made about the year 1836. In 1838 the Admiralty had their eye on it, and in 1840-41 they had determined on its adoption in the navy. This result was mainly attributable to Mr. Smith's persevering efforts; but Captain Ericsson's experiments had been probably equally successful, only he was induced to quit the country in disgust, in consequence of the Admiralty surveyor prejudicing their lordships in the outset against screw propelling altogether, as disabling the power of steering, a conclusion come to without either trial or intimation, but finally disproved to their lordships' satisfaction by Mr. Smith.

Into the subsequent history of the screw we cannot here enter. One of its main improvements we may, however, remark, arose from an accident. The screw was originally twice, at least, as large as it now usually is, and during one of Mr. Smith's experiments the blades were broken by accident through the middle, when immediately the vessel propelled by them went a-head, and, if we recollect aright, almost doubled her previous speed.

Mr. Bourne suggests the combination of the stern screw with some form of the side paddle (in fine analogy to the fish form and power), as an improvement that would enable ships to head the wind more powerfully than they yet do; and he points out what seems to us a most important principle of strength in ship-building, namely, that a ship ought to be regarded as a hollow beam, of which the deck is the upper side, and the bottom the lower; so that it is the deck and bottom, and not the sides, which have to endure the strain; and, indeed, might we not venture to suggest that the strongest of all ships would be those built on the principle of a T girder, with a division for strength along the length of the hold at midships? In Mr. Bourne's view the function of the sides is merely to keep the top and bottom in their right positions, and it is therefore in the top and bottom that the strength should be collected, thus giving more strength with less weight.

The wonder is, as remarked by the author, how it can have happened that ships, with the accumulated skill of a thousand generations expended on them, could continue to be constructed in so unskilful a manner as they still are,—weakest in place of strongest in the direction of their length, and liable to bend in the middle, or to *hog*, as it is technically termed; or even to break in two, or "break their back," as the *President* iron steamer, by the way, is believed to have done. We have confidence enough in the correctness of ancient principles, however, to believe that it will yet be discovered that modern ship-builders have departed from the right principle rather than not yet arrived at it, and that the Chinese in their clumsy junks, or in some other stereotyped examples of the science of antiquity, will yet be found even still to build upon the more correct principles enunciated by Mr. Bourne.

Before closing his very interesting work,—which, by the way, contains many carefully-engraved plates of marine engines, such as those of her Majesty's yacht, the *Fairy*, screw steam-yacht, the *Fire Queen*, &c. &c. and a comparative view of various engines, side by side, on one large plate,—we may here remark, that the author, by anticipation, replies so far to a question recently started in the *Times*, as to size of ships. "Large vessels of good form," he says, "will be able to carry merchandise more cheaply than small vessels, and they will also be able to realize a higher speed. To realize the same speed under steam alone, a vessel of eight times the capacity will only require twice the power, and the sails of the larger vessel will be much more effective, since, in fact, a larger amount of sail-power relatively with the resistance, will be applied."

We intended to say something of Mr. Fergusson's new volume, "The Peril of Portsmouth" (a cognate subject), but are forced to retain it for the new year.

LECTURES ON ARCHITECTURE.

THREE weeks ago, Mr. Huggins, known to our readers, delivered a lecture on Architecture and the Fine Arts at Avenham, wherein he took a philosophic view of the rise and decline of styles. About the same time Mr. Godwin gave a general view of the history of the art, a Flight through the Realms of Architecture, to the members of the Royal Institution in Bristol. A week afterwards a lecture was delivered at Shaftesbury on "The Social Influence of True Architecture," by Mr. J. Soppitt. On the question of progress, he said, "Although he had on past occasions added his weak but bitter cry against copyism to the more powerful denunciations of better men, he began to think the case not so bad as it might appear. Architecture in this country had to deal with the whole character of a nation, embodying the strange diversity of elements proper to a high but still progressive state of civilization, and it was not the energy of a few individuals, nor the lapse of a few years, that could effect any radical reform. Like the numerical changes evolved by Babbage's calculating machine, we saw illustrated in the pages of history the successive stages of human progress: the dark ages of conflict, or of doubt, or of apparent stagnation, were but progress in another shape—the continued and mysterious working out of the problem of humanity." He was satisfied that the late and still existing rage for copyism (which had nothing in common with the anti-progressive tendencies of ancient Egyptian and modern Chinese architecture) would ultimately be viewed as a new phase in architectural progress.

THE NEW NATIONAL GALLERY, &c.

ART must be in a precious state if it be true that the public of this country will only visit the National Gallery as long as it is in their way, and will only attend it as a matter of convenience. The public buildings of England have long been a job and opprobrium. Now is the time to make an effort to redeem our character in the eyes of the world. We have both the means and the taste, if properly developed. But what can her Majesty's subjects do when they find their money squandered to no purpose, the treasures of art they possess (few and far between) located in cellars, and the trustees (Heaven save the mark!) allowing the opportunity to slip through their hands of acquiring noble works, to end in purchasing a doubtful "Titian." The public want proper accommodation and return for their money. Let us have, under one roof, apartments containing all that is conducive to the study of art, not forgetting mediæval subjects and architectural models. Some of the most celebrated "*salles*" in the various noted edifices should be copied and adapted, thus combining two purposes, and decorated with the most famed frescoes, copied by artists adequate to the task. I reiterate, the public will not grudge the supplies, if properly expended, nor will they hesitate to go so far as Kensington if their journey is made worth the trouble! Just plant the Louvre on the site proposed for the new National Galleries, and the trustees and Lord Seymour would soon have "confirmation true as holy writ" that John Bull has some "penetrable stuff" in him yet. Mr. Drummond asks, "Where are we to find an architect?" and he has good reasons to do so, after the specimens our great metropolis possesses. With regard to improvements going on in Paris, I may state that, *pari passu* with the alterations and additions at the Louvre, the restoration of Notre Dame is being rapidly progressed. A very novel and useful adaptation of the Daguerreotype is applied there, namely, in taking impressions by the process, from time to time, of the progress made, and exhibiting them to the public at large. I think Mr. Hume might urge the adoption of this hint on this side of the Channel to some purpose.

G. R. A.

Notices of Books.

The Elements of Land Valuation. By JOHN LANKTREE, Land Agent. London: Orr and Co.; Dublin: McGlashan, 1853.

"IT would be difficult," says Mr. Lanktree, "to overrate the importance to Ireland of having its land valuations properly executed. The island contains in all 20,808,271 statute acres, and the whole of this, with the exception of 650,000 acres, now covered with water, or occupied as towns, is in the hands of the farming population." The book before us is an important step towards obtaining this proper valuation, and will, we hope, receive the attention it deserves in the country for which it is more particularly intended. The author is of opinion that the "Poor Law Valuation of Ireland" is a work of no authority.

There are large fortunes to be made in Ireland. We agree with Mr. J. Locke's remark in a paper on "The Valuation and Purchase of Land in Ireland," recently read at the Statistical Society:—"History has afforded no parallel instance of so extensive a field for investment in land, combined with such facilities for its acquisition, as is now presented within a few hours' distance of the wealthiest country in the world."

The Millwright and Engineer's Pocket Companion. By W. TEMPLETON. London: Simpkin and Marshall, 1852.

THE ninth edition of this, which has now become a standard work, has been edited and corrected by Mr. S. Maynard, the editor of "Keith's and Bonnycastle's Works," and will be found of great use by those for whom it is designed. It has an important body of tables, including one of "Useful numbers often required in calculations, together with their logarithms," by the present editor.

A Naval and Military Technical Dictionary of the French Language, in two Parts: French and English and English and French. By Lieut.-Colonel BURN. London: Murray, 1852.

THE first edition of Colonel Burn's work, published ten years ago, contained only one part, French and English, and was strictly professional. The present view of the education required for the Services has led the author to add the English and French part, and to enlarge the scope of the whole, so as to make it of value to men of peace as well as men of war. The pains taken with it may be exemplified by the article "*Vapeur*," in the French part, and "Steam," in the English:

under the first will be found nineteen columns, and in the second, twenty-two columns, of terms employed in connection with steam-engines, railways, &c.

The volume consists of 320 closely-printed pages, and for reading French engineering and architectural works will be of great service.

Miscellanea.

The Streets in Manchester.—Dear Mr. Editor,—Have you any influence with our "commissioners," who have put Manchester in a state of siege, and seem not disposed to raise it. The enemy will not evacuate the suburbs, and a formidable barricade of paving-stones and mud guards effectually the entrance to York-place. The consequence is a most unpleasant blinking of the eyes, occasioned by sympathetic action of the gas, and the most fashionable perfume in the Oxford-road, is one to which I and my neighbours have a strong aversion. A day or two ago we were left in total darkness, with not a candle to illumine our benighted state. Our only consolation was that which every Christian feels to be one,—namely, that our neighbours were suffering from the annoyance. These local disturbances are far more moving to our selfishness than the great political interests now involving discussion in London. You hear "dirt," "rain," "mud," "gas," "shameless commissioners," in everybody's mouth; and "Disraeli" and "Derby" are forgotten. Do mend our ways and lighten our darkness.—A Young Wife.

Formation of the Essex Archæological Society.—A numerous and influential meeting assembled at Colchester on Tuesday in last week, for the purpose of establishing the proposed Essex Archæological Society. Mr. Disney, as president elect, was to have taken the chair, but was prevented by indisposition. The Mayor of Colchester presided. A report was read by the Rev. E. L. Cutts, and appropriate resolutions were passed. The Disney professor of Archæology at Cambridge, Rev. J. H. Marsden, then delivered an introductory lecture on archæology, and Mr. J. Taylor gave some account of the antiquities found in his grounds. The formation of the society was afterwards celebrated by a dinner at the Cups Hotel, at which Mr. Disney seems to have presided.

New Invention for Transplanting Trees.—A machine for raising and transplanting trees has been exhibited at Cramond House, near Edinburgh. It is the invention of Mr. Stewart M'Glashen, sculptor, Edinburgh. The first experiment was the raising of a plane or sycamore-tree, upwards of 50 feet high. An iron frame, about 9 feet square, being laid down, cutters or spades, 3 feet in depth and 1 in width, were driven into the ground in a slanting position, the space requiring six cutters on each side—iron rods being laid along the four rows of cutters, and extension rods being fixed across the frame to force the top of the cutters apart, making them converge more towards the bottom. An iron clasp of about 12 inches in breadth was next placed around the trunk of the tree, with a mat beneath it to preserve the bark—two strong parall l beams of wood being laid on each side of the trunk of the tree, about 6 feet from the ground, and supported on a frame placed on two carts for removal of the lifted tree. Chains were afterwards attached, and by means of four screws the whole mass was gradually raised to the surface—the screws being turned by four men standing on the top of the frame. In about half-an-hour after the whole cutters were driven in and the apparatus placed, the tree was raised about 1 foot out of the ground. The experiment is said to have been attended with entire success, and the efficiency of the invention was also illustrated in the successful application of smaller apparatus to the raising of shrubs, &c. In each case the plant was extracted with its native ball of earth. An oblong apparatus has also been invented by Mr. M'Glashen for the removal of hedge-rows; and by a similar contrivance he lifts out the mass of earth for the insertion of tile drains, replacing it when the work is accomplished. The implements used in these operations are also patented, and can be made of all sizes.

The Liverpool Timber Trade.—A Liverpool monthly timber report says:—"Since 1st February the supplies of North American colonial wood have occupied a tonnage of 207,587: during same time last year, the tonnage was 206,494. The average amount for the like time in the four years previous was 190,787 tons. From the north of Europe, 16,375 tons, wood-laden, have arrived; whilst, for the like time last year, 22,466 tons arrived; the average of four years being 17,231 tons. The supply from Quebec, at close of present season, will prove at least equal to that of last year; but from St. John's it is expected that the amount of tonnage will fall considerably short. The demand, for consumption, of both timber and deals has, for some time past, been on a greatly extended scale, and with a continuance at the same rate during the winter months, it can scarcely be expected that prices have yet attained their maximum.

The Pipe Sewer at Kilburn.—Sir,—With reference to the report in the *Builder* of the discussion on the Drainage of Towns, at the Institution of Civil Engineers, containing Mr. Lovick's assertion regarding the failure of a pipe sewer at Kilburn, I request that you will have the fairness to state in your next number that the owner of the sewer gave a flat contradiction to Mr. Lovick's statement, and accounted for the failure by reason of the sewer pipes being too thin and brittle for the great pressure above them, and that it was not only the 10 feet mentioned by Mr. Lovick that failed, but the whole length of the 15-inch sewer, measuring above 1,000 feet.—George Duncan.

Italian Palaces.—If they were arranged and kept up, indeed, with anything of English propriety, consistency, order, or cleanliness, many of them would be noble habitations; but, in the best of them, you see a barrenness, a neglect, an all-prevailing look of misery,—deficiencies everywhere, and contemptible meanness adhering to grasping magnificence. But nothing is so offensive as the dirt. Among all the palaces there is no such thing as a palace of cleanliness. You see (and that is not the worst), you smell abominable dunghills, heaped up against the walls of splendid palaces, and foul heaps of ordure and rubbish defiling their columned courts. You ascend noble marble staircases, whose costly materials are invisible beneath the accumulated filth that covers them; and you are sickened with the noxious odours that assail you at every turn. You pass through long suites of ghastly rooms, with a few crazy old tables and chairs thinly scattered through them, and behold around you nothing but gloom and discomfort. The custom of abandoning the ground-floor for menial purposes, except when used for shops—which is almost universal throughout Italy,—and covering its windows, both for security and economy, with a strong iron grate without glass behind it, contributes to give the houses and palaces a wretched and dungeon-like appearance. It is no uncommon thing for an Italian nobleman to go up into the attics of his own palace himself, and to let the principal rooms to lodgers. Proud as he is, he thinks this no degradation; though he would spurn the idea of allowing his sons to follow any profession, save that of arms or of the church. He would sooner see them dependants, flatterers, eavesdroppers, spies, gamblers, *cavalieri serventi*, polite rogues of any kind, or even beggars, than honest merchants, lawyers, or physicians. —*Rome in the Nineteenth Century.*

New Submarine Telegraph Line.—A new cable has been patented by Messrs. C. W. and J. J. Harrison, telegraphic engineers. The encircling wires are done away with, and strips of galvanized iron of a wedge form are employed instead. These are to encircle the gutta-percha covered wire with a complete covering, presenting the appearance of an entire, yet perfectly flexible, tube. Interiorly the gutta-percha is further protected by "an imperishable composition, which no insect will attack."

Ironstone Slag Bricks.—By adopting Elliott's new process for manufacturing bricks, pipes, tiles, pottery, &c. from ironstone, says a correspondent of the *Mechanics' Magazine*, iron may be manufactured on a small scale to great advantage, by using the slag when in a fluid state running from the furnace, instead of throwing it away, as is customary, at an enormous expense of labour and waste of land. The coals and other materials being necessarily used for producing iron will, of course, be charged to that account, and the labour and other expenses saved by removing the hot slag, will nearly, if not quite, pay all the labour of moulding the slag into bricks, &c. The colour of the bricks will be light brown: they may be made either rough, smooth, hollow, plain, or ornamental, and in any form or shape, requiring no plastering, and when used for building may be papered or painted as soon as covered, in any season of the year. Where ironstone is not found, chalk, limestone, marl, loam, breeze, small coal, oyster shells, &c. may be melted very rapidly, in a reverbatory furnace with a heating stove attached, so that the material may be nearly melted by the waste heat before it goes into the melting hearth.

Extension of Farringdon-street.—The Improvements Committee of Common Council have, it appears, already expended nearly half the money at their disposal in the purchase of sites along the whole line, and they are actively in treaty with other parties in order to have the street opened as soon as possible.

Gas.—A portable gas apparatus or gas lantern is thus described by a Kelso paper, as having been invented by Mr. John M'Dougall, a cabinet-maker there:—"The gasometer is contained within a receptacle or lantern, in which is placed a small lamp with an inexhaustible wick, for the purpose of heating the vessel containing carbonate of lime and materials for producing the gas, which is conveyed to the burner by a small tube."——The rapid extension of Brentwood has rendered it necessary to erect new and enlarged gasworks, on a plan whereby 6,000,000 cubic feet of gas will be available for the supply of the town, the new lunatic asylum for the county, &c. The premium offered by the company for designs was contested for by five competitors, and was adjudged to those of Mr. Church, engineer to the Chelmsford Gas Company, under whom they are to be carried out. The same engineer is also engaged in the re-erection of enlarged works at Braintree.

New Mode of Applying Driving-bands.—At a recent meeting of the Liverpool Philosophical Society, as reported by the *Albion*, Mr. Dudley, from America, exhibited an improved mode of applying the power of driving-bands to machinery, the invention of Mr. Parker, a house-carpenter. He produced a model of the machine, with one of which size, he said, with a stout man to turn and a boy to feed, more sawing could be accomplished, of the character generally done in a joiner's shop, than any eight men can do by the present mode of operation. The machine was also equally applicable to all kinds of machinery that required rotary motion, as it was to the saw.

Safety on Railways.—Mr. H. Brown, M.P. has given notice that he intends shortly to bring before the House of Commons the subject of the safety of the public on railways.

To Correspondents.

"J. N." "Baths," "B. A." (Oxford), "Antiquated Member of University" (give us an address, that proof may be sent), "Quondam," "F. and A.," "Subscriber," Chelsea (we are forced to decline interference), "Cloacæ," "Hayward, Brs.," "J. L.," "G. G. S.," "S. J. P.," "Mr. C.," "Amateur," "T.," "J. J. L.," "H. G.," "R. L. B.," "A Competitor," "Archi.," "T. D. B.," "A Builder's Clerk," "R. B.," "T. B.," "Fill-gap," "Messrs. H.," "Mr. H.," "A Dover Builder."

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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